Evaluating Nutrition-Sensitive Programs

Challenges, Methods, and Opportunities*

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Where Thinman’s cook there’s meager fare and lots of diet trouble. Rich kitchen is the place for me, I’m going there on the double.

Beat it Thinman! Though you are hungry, you are wrong. This is Fat Kitchen here, and here you don’t belong!

Pieter Bruegel, 1531
In summary

• Evidence of what works, how and at what cost is extremely limited.

• Guidance for future investments requires strong evidence from rigorous, theory-based comprehensive evaluations of different nutrition-sensitive program models that bring together interventions from a variety of sectors (e.g. health, education, social protection, women’s empowerment, water and sanitation, etc.)

• This presentation focuses on:
  – How to design and carry out rigorous impact, process, and cost evaluations.
  – How to address some of the perceived insurmountable challenges that have prevented investments in rigorous evaluations of such programs in the past.
Overview

• Part 1: Key challenges in evaluating complex nutrition-sensitive programs
• Part 2: Rigorous evaluation approach to evaluate:
  – Impact
  – Impact pathways, and
  – Cost
• Part 3: Recommendations on how to address key challenges of carrying out sound evaluations implemented under real life conditions.
Overview

• Part 1: Key challenges in evaluating complex nutrition-sensitive programs

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What are key challenges?

- Complexity of nutrition-sensitive programs
- Long impact pathways and time frames
- Differing priorities, expectations, incentives, and perceptions
- Trade-off between implementation constraints and evaluation rigor
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Program complexity: ag intervention...

Inputs:
- CRS sensitizes CRS provincial health coordinators to Tubaramure
- CRS hires 36 THP
- CRS receives food rations in Bujumbura
- IMC collaborates with local government, communities, and their health system
- FH develops BCC lesson plans
- CRS develops nutrition education curriculum

Process:
- CRS provides agricultural inputs (i.e., seeds, fruit saplings, and chickens)
- CRS trains THP
- THP train LM
- LM train BM
- Distribution of food rations to beneficiaries at food distribution sites
- IMC trains PHA, DHA, doctors, nurses, paramedics, and CHW annually
- CRS and FH train THP on BCC and nutrition education
- THP train LM on BCC and nutrition education
- LM train BM on BCC and nutrition education

Outputs:
- LM establish poultry production
- LM and BM start household gardens
- Beneficiaries receive food rations via Caritas-Burundi
- Health care personnel receive and understand training information
- BM receive and understand nutrition/health care messages and seasonality and meal preparation training

Outcomes:
- Increased household dietary consumption and/or diversity
- Increased dietary intake and/or diversity of mother
- Increased dietary intake and/or diversity of child
- Health care personnel provide adequate preventive health care services
- Improved IYCF and ENA practices
- Improved EHA practices
- Increased attendance of children at preventive health care visits
- Increased attendance of mothers at preventive health care visits

Impact:
- Improved maternal health and nutrition outcomes
- Improved child health and nutrition outcomes
… also applies to double burden interventions

Individual and Environmental Factors Influencing Adolescents’ Dietary Behavior in Low- and Middle-Income Settings
Verstraeten et al., PLOS ONE, 2016
Complexity of nutrition-sensitive programs

• Complex in design and implementation:
  – Multiple goals, multiple inputs, multiple pathways of impacts, multiple outcomes and impacts.
  – Address both the underlying and direct causes of double burden problems.
  – Span across different sectors (e.g. health, social protection, education), requiring coordination and integration.

• Within each program intervention potential variability in:
  – Delivery (quantity and quality)
  – Utilization
  – Adherence to the program protocol
What are key challenges?

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Long impact pathways and time frames

- **Long** time frames for implementation and evaluation:
  - Program development and implementation at desired quality
  - Long pathways from program inputs to effects:
    E.g.: setting up and implementing the BCC strategy, improving beneficiary knowledge through repeated BCC sessions, and achieving changes in practices;
  - Meaningful effect on biological outcomes such as child anthropometry may require as long as 1,000 days of program exposure.
  - Time to design a rigorous impact evaluation:
    Building the program theory framework, developing the evaluation and sampling design, designing and pre-testing the data collection instruments, training and standardizing enumerators, planning the logistics of the field work, enroll the necessary number of study participants, and seasonality.

- ... vs often **short** time frames imposed by donors
What are key challenges?

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Differing priorities, expectations, incentives, and perceptions

• Priority of implementers:
  – Deliver a high quality program
  – Meet targets within the specified budget and time frame

• Priority of evaluators:
  – Rigorously evaluate the program
  – Answer key questions related to why impact was (not) achieved and at what cost.

• Wrong perceptions easily undermine trust:
  – Evaluate the performance of the program implementers vs generating evidence on the effectiveness of the program
  – Collecting cost data perceived as auditing the program’s finances.
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Implementation constraints vs. evaluation rigor

60 clusters randomly assigned to one of 4 arms:

- Standard PM2A Tubaramure 24
- Tubaramure 18
- Tubaramure NFP
- Control

Pregnancy

0 m  18 m  24 m
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Part 2: Comprehensive evaluation approach

PROGRAM

Maternal & child health & nutrition

What is the impact of the program?
Part 2: Comprehensive evaluation approach: embrace complexity

**Process + impact evaluation**

**Cost of the program?**
- Cost study
- CRS develops nutrition education curriculum
- TNP train LM on BCC and nutrition education
- LM train BM on BCC and nutrition education
- CRS and BCC train THP on BCC and nutrition education

**What is the impact of the program?**
- Increased household dietary consumption and/or diversity
- Increased dietary intake and/or diversity of mother
- Health care personnel provide adequate preventive health care services
- Improved IYCF and EHA practices
- Improved EHA practices
- Increased attendance of children at preventive health care visits
- Increased attendance of mothers at preventive health care visits

**How and why does the program (not) have an impact?**
- Increased food production
- Increased dietary intake and/or diversity of child
- Increased food production
- Increased dietary intake and/or diversity of mother

**Inputs**
- CRS sensitizes CRS provincial health coordinators to Tubaramure
- CRS hires 35 THP
- CRS provides agricultural inputs (i.e., seeds, fruit saplings, and chickens)
- CRS trains THP
- THP train LM
- LM establish poultry production
- LM and BM start household gardens
- Distribution of food rations to beneficiaries at distribution sites

**Outputs**
- Increased household dietary consumption and/or diversity
- Increased dietary intake and/or diversity of mother
- Increased food production
- Increased dietary intake and/or diversity of child
What is the impact of the program?

- \( \text{impact} = (N|\text{with program}) - (N|\text{without program}) \)

- Problem: \( (N|\text{with program}) \) and \( (N|\text{without program}) \) never both “observable”

- The key challenge to impact evaluation: 
  what would have happened in the absence of the program = counterfactual
Creating a valid counterfactual
Experimental designs

- Experimental (or randomized) designs considered gold standard for impact evaluations.
- Randomization: individual or group (cluster) level.
- *If* done well, one can assume:
  - that both groups are comparable;
  - that the only difference between the groups is the program;
  - that the control group provides a valid counterfactual for the intervention group exposed to the program.

⇒ differences found in the outcomes of interest attributable to the program.
Experimental designs

• Not always feasible:
  – politically unacceptable
  – “ethically” unacceptable

• Often require creative thinking (oversubscription, public lottery, delayed intervention, stepped wedge design, etc.)

• Alternatively: quasi-experimental designs
  – use statistical techniques to create a valid comparison group
  – E.g.: propensity score matching (PSM), double difference (or difference-in-difference) approach, regression discontinuity, instrumental variable regressions, etc.

• Stay away from before-and-after or with-and-without designs!
Why it is not possible to make determinations on the usefulness of the tax on sugar sweetened beverages in Mexico during 2015 using raw sales data.

In the media, various agencies and columnists in Mexico have erroneously concluded that the Mexican tax on sugar-sweetened beverages (SSBs) did not reduce purchases of these products in 2015, as it did in 2014. This conclusion is supported by comparisons of aggregate sales data (raw data). In other words, this conclusion does not consider other factors that influence purchases and consumption of these beverages, that are independent of sales data.

Sales of soda are climbing two years after Mexico imposed a roughly 10% tax on sugary drinks—a bright spot for an industry that has feared it could be cast as the next tobacco.
Part 2: Comprehensive evaluation approach: embrace complexity

Cost of the program?

Process + impact evaluation

How and why does the program (not) have an impact?

What is the impact of the program?
How and why does the program (not) have an impact?

- Two ways to assess how impact is achieved:
  - Measurement of intermediary measures (outcomes) in impact study
  - Process evaluation study

- Solid understanding of program theory and program impact pathways is key:
  - Key program components
  - Factors that affect optimal delivery or utilization of each component

- Understanding the pathways to impact:
  - Critical to improving program delivery and effectiveness
  - Identify what is needed to scale up and to adapt the program in other settings
  - Help interpret (lack of) impact
Sharing of the results:
- Workshop with implementers
- Identify what is feasible to improve and how improvements can be made
Part 2: Comprehensive evaluation approach: embrace complexity

What is the impact of the program?

How and why does the program (not) have an impact?

Process + impact evaluation

Cost of the program?

Cost study
What is the cost of the program?

• Objectives:
  – Estimate the overall cost of the program, the cost of the main program components, and *possibly* program cost-effectiveness.
  – Estimate savings or cost associated with adding, changing or dropping program components, adding beneficiaries or scaling up the program.

• Method: Activity Based Costing Ingredients (ABC-I) approach.

• Steps:
  – Using the program impact pathways: detailed description of all program activities.
  – Identify the program’s main activities and “ingredients” needed for each.
  – Define the unit cost algorithms, i.e. the different types, quantities and costs of the “ingredients” necessary for each activity.
  – Calculate cost of each program activity and of full program
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Two keys to success

• Solid evaluation framework:
  In-depth understanding of the program, program theory, program impact pathways, rigorous comprehensive evaluation design

• Strong partnership and collaboration between implementers and evaluators
Strong partnership between implementer and evaluator

- Establish collaboration at the program design phase and maintain throughout.
- Align potentially differing priorities, expectations, incentives and time frames.
- Program implementers:
  Share updates and challenges on program roll out and service delivery
- Evaluators:
  Provide regular updates on goals, methods and findings from their evaluation activities.
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