

Evaluating Opportunity Cost of Caregivers' Time and its Impact on Comparative Cost-Effectiveness of Supplementary Foods to Prevent Child Undernutrition in Burkina Faso

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Background & Objective



- ❖ Opportunity cost of caregivers' time is generally overlooked in the nutrition intervention programs.
- ❖ As part of the Food Aid Quality Review (FAQR) Project at Tufts Friedman School of Nutrition Science and Policy, we evaluated the opportunity cost of caregivers' time and its impact on relative cost-effectiveness of four specialized nutritious foods in preventing stunting and wasting in a blanket supplementary feeding program (SFP) for children in Burkina Faso.

Study Design

- ❖ 48 Food Distribution Points in Sanmatenga Province, Burkina Faso
- ❖ Existing Title II USAID supplementary feeding program (VIM) targeting pregnant and lactating mothers and children 6-23 months
- ❖ Four geographic regions randomly assigned to one of four iso-caloric study arms
- ❖ Enrolled 6,092 children at ~6 months old
- ❖ Monthly food distribution and anthropometric measurements at Food Distribution Points for 18 months with additional data collection at households, communities and other relevant venues.

Study Foods

- Arm 1 CSB+:** Corn Soy Blend Plus + Fortified oil
- Arm 2 CSWB:** Corn Soy Whey Blend + Fortified oil
- Arm 3 SC+:** SUPER CEREAL plus
- Arm 4 RUSF:** Ready-to-Use Supplementary

Caregivers' Perspective to Participate in the Supplementary Feeding Program:



Costing Methods

Valuing Caregivers' Time

$$\text{Opportunity Cost of Time} = \text{Hours of Time} \times \text{Estimated Hourly Wage}$$

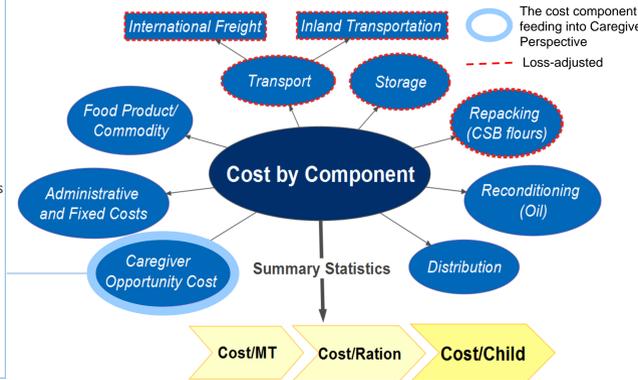
Self-reported & observed time

- Mandated minimum monthly wage in the formal sector: 30,684CFA = 53USD
- Standard workweek of 60 hours for household workers

Data Collection Instruments

- ✓ Distribution Observations
- ✓ In-Home Observations
- ✓ In-depth Interviews with Caregivers

Activity Based Costing- Ingredients Approach Program Perspective + Caregiver Perspective



Results from Caregiver Perspective

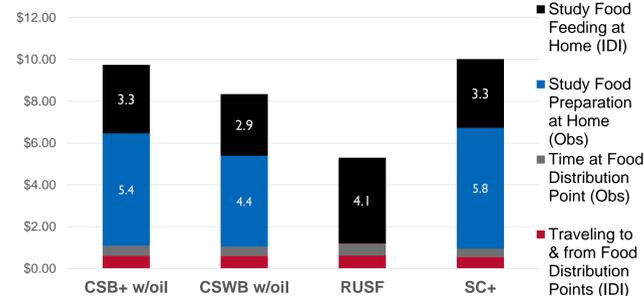
Calculating % Preparation Time Attributed To Study Food

- ❖ Other activities irrelevant to the study food were observed during preparation of the flour-based study foods:

| Number of porridge prep occasions (n=235) from IHO | n | % | Weights |
|----------------------------------------------------|-----|------|---------|
| When any other activities happened | 160 | 68.1 | |
| When 0 other activities happened | 75 | 31.9 | 1 |
| When 1 other activity happened | 153 | 65.1 | 1/2 |
| When 2 other activities happened | 7 | 3.0 | 1/3 |

- ❖ We estimated ~65.5% of the average porridge preparation time (~ 1/2 hour) per meal for the three arms using flours.

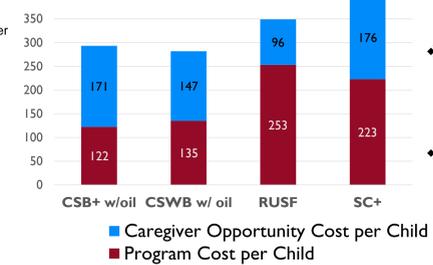
Opportunity Cost of Caregiver Time per Monthly Ration at \$USD0.21/hr by Caregivers' Activity Types



- ❖ Opportunity cost per monthly ration in the RUSF arm was substantially less than in the three flour-based arms mainly because RUSF did not require time to prepare before feeding.
- ❖ Caregivers prepared the fewest # of meals per month in the CSWB arm, hence it shows the second lowest caregiver opportunity cost per monthly ration.

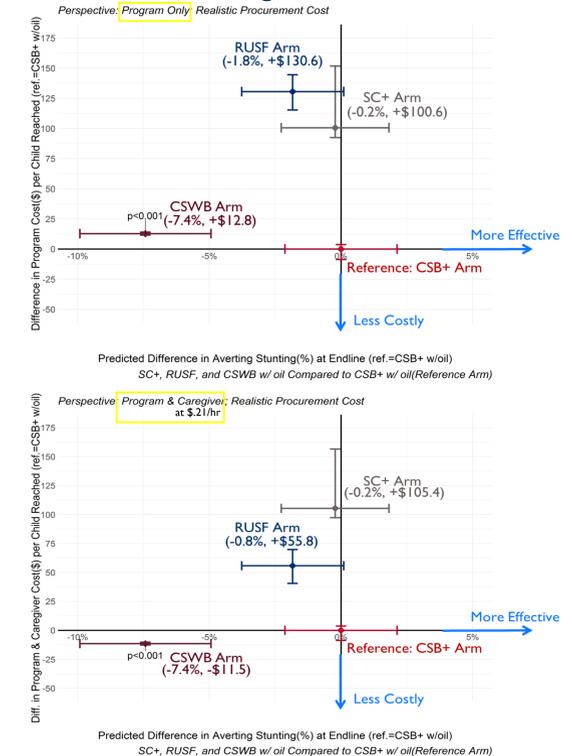
Impact on Overall Cost & Cost-Effectiveness

Total Cost (\$USD) per Child Reached with Inclusion of Both Perspectives



- ❖ Caregivers' opportunity cost (valuing at \$.21/hr) was a substantial addition.
- ❖ Total cost per child reached in the CSWB arm became slightly lower than CSB+, but CSB+ arm is still the most cost-effective.
- ❖ Sensitivity analyses showed that starting at a rate of \$.35/hr, RUSF arm began to have lower total cost per child reached than CSB+ arm.

Impact of Adding Caregiver Perspective on Comparative Cost-Effectiveness for Stunting Prevention



Conclusions

- ❖ Time spent in study food preparation is the largest contributor to the difference in caregivers' opportunity cost among two types of foods (fortified blended flours versus ready-to-use foods)
- ❖ After inclusion of caregivers' opportunity cost at \$USD .21/hr, CSB+ with oil remained most cost-effective of the four study arms, but RUSF's comparative cost-effectiveness improved as opportunity costs increased.
- ❖ Results of sensitivity analyses demonstrated the importance of determining the appropriate hourly rate in valuing caregivers' time. It allows the estimated caregivers' opportunity costs to best reflect the given context for caregiver perspective compared to program perspective.
- ❖ The opportunity costs of caregivers' time is important in the cost-effectiveness and the sustainability of feeding programs.

Please send any comments/ inquiries to Ye Shen via Ye.Shen@tufts.edu. For more about the Food Aid Quality Review (FAQR) Project, visit www.foodaidquality.org