

# How Effective Are School Feeding Programs?

- Common perceptions about school feeding programs
  - they improve school attendance, but are expensive programs
  - the schooling benefits could be achieved more cheaply with other programs
- What are the impacts of school feeding programs? What is the evidence on their cost-effectiveness?
  - Unique potential advantage of school feeding is use of food to attract children to school and reduce hunger while they learn
  - Need to consider a comprehensive list of outcomes
- Recent studies have carefully reviewed the evidence of the impact of school feeding across a range of outcomes
  - “Revisiting School Feeding”, Joint WB/WFP report, 2009
  - “How Effective are Food for Education Programs?” IFPRI, 2008

# Evidence on the Impact of School Feeding Programs: Education

## ■ School participation

- Where there are gaps in primary school enrollment or attendance, school feeding programs can have considerable impacts on school participation
  - Ahmed (2004) school meals in Bangladesh: 14% increase in enrollment; 6% increase in attendance

## ■ Cognitive development

- Evidence of impact (mostly from controlled nutrition trials in schools) depending on test (Kenya, South Africa, Jamaica)
- Impacts larger on malnourished children

## ■ Learning achievement

- Evidence for impacts on achievement test scores, though impacts vary by test, country

# Evidence on the Impact of School Feeding Programs: Nutrition

- **Food energy (calorie) consumption**
  - Several studies have shown significant impacts on calorie intakes of children in school feeding programs (Kenya, Philippines, Bangladesh)
- **Anthropometry of school-age children**
  - Limited-to-no impacts. Limited impacts among previously malnourished children receiving fortified or animal-source foods
- **Micronutrient status**
  - Mixed evidence from controlled feeding trials in schools

# Recent Evidence on the Impact of School Feeding

- Three country studies funded by the World Food Program and World Bank, 2005-2008
  - Uganda: IFPRI/World Bank (Adelman, Alderman, Gilligan and Lehrer)
  - Burkina Faso: World Bank (Kazianga, de Walque, Alderman)
  - Laos: World Bank (Buttenheim, Freidman, Alderman)
  
- Uganda study design
  - Randomized, controlled field experiment, 2005-07
  - Randomly assigned eligible primary schools into school feeding (SFP), take-home rations (THR) and control groups
  - Large fortified food rations (>1000 cal/day) provided (i) daily in school in SFP, or (ii) at home in monthly dry rations for THR
  
- Uganda setting
  - Internally displaced people's (IDP) camps in Northern Uganda

# Uganda School Feeding Study: Impact on School Participation

## ▪ School enrollment

- No significant effect of SFP or THR on school enrollment on average
- Among 6-9 year olds not enrolled at baseline, enrollment increased 12.4 percentage points, though this effect is weakly significant

## ▪ School attendance

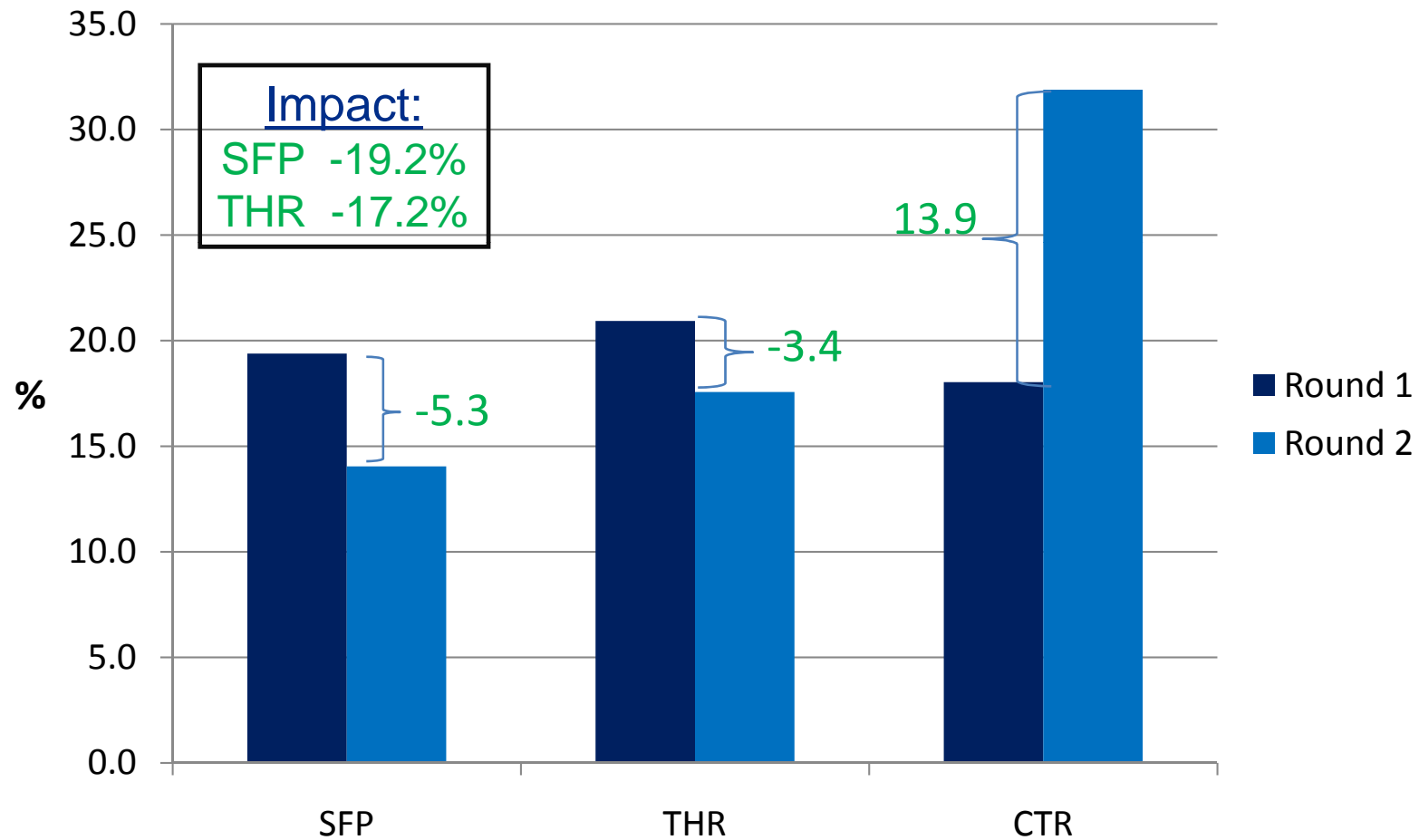
- Attendance measured by unannounced attendance visits at schools

Attendance rate	Morning	Afternoon			
	Mean	Mean	Girls	Boys	Grades 6-7
School meals	4.3	9.3**	9.6	9.3***	5.1
THR	3.5	8.8*	11.2	12.3***	17.5**

## ▪ Attendance incentives and school quality

- SFP: child directly motivated to attend, not responsive to school quality
- THR: parents' attendance decision depends on school quality

# Impact on Anemia Prevalence of Girls Age 10-13\*



(\*Anemic = hemoglobin < 11g/dL)

# Uganda School Feeding Study: Other Nutrition Impacts

- Anthropometry of school-age children
  - No significant impact of SFP or THR on BMI of school-age children
- Impacts on nutrition of siblings under age 5
  - In Uganda SFP group, younger siblings of beneficiaries had a significant 0.36 z-score improvement in height (HAZ) and an 11 percentage point decline in anemia prevalence
    - Evidence of intrahousehold redistribution and direct spillovers
    - THR had no effect in Uganda
  - In Burkina Faso, THR improved HAZ of preschool-age siblings and SFP had no effect

# Uganda School Feeding Study: Impact on Cognitive Development and Learning

## ■ Cognitive development

- 3 tests: Raven's, digit span forward (DSF), digit span backward (DSB)
- Importance: other studies have shown large returns to cognitive skills in the labor market in developing countries
- Results
  - both programs had broad and significant impacts on children's ability to manipulate concepts, as shown in DSB test
  - access to the THR program improved girls' scores on all three tests of cognitive development, though only weakly so for the Raven's test
  - THR had significantly larger impact than SFP on Raven's test for boys

## ■ Learning achievement

- Both SFP and THR had significant impacts on math test scores of children age 11-14
- THR had significant impact on Primary Leaving Exam scores

# Implications for Design of School Feeding Programs

- Timing of meals
  - Providing meals during the school day is not a critical factor in the effect of school feeding on learning and cognitive outcomes
  - THR performs at least as well as SFP even though THR students ate less food while at school
  - The aggregate effect of additional calories and nutrition matters, but timing not as important as previously thought
  - SFP meals may disrupt learning
  
- Does attendance or nutrition improve learning?
  - Girls' lower anemia prevalence could improve their cognitive development, but pattern of effects suggests that more time in school raises math test scores and cognitive development
  
- Intrahousehold 'flypaper effects': How much of the food transfer 'sticks' to the target child?
  - Either intrahousehold flypaper effects are similar in THR and SFP, or school attendance effects dominate nutrition in improving learning and cognitive development

# Key Lessons

- Uganda results emphasize potential for broad range of impacts
  - School feeding may not look cost effective when only school participation impacts are considered
- THR cheaper to operate in this setting, so somewhat more cost effective
  - Ease of targeting take-home rations within communities can further improve cost effectiveness
- In many settings, an optimal design could combine a moderate universal in-school meal with a take-home ration targeted at the poorest households or children least likely to attend
- Results suggest that large, nutritious transfers may be needed for breadth of learning/cognitive impacts or for spillovers to younger siblings