

Evaluation of alternative school feeding models on education, nutrition, and agriculture in Ghana: Preliminary findings from a cluster randomised control trial



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Outline

1. Introduction

- Aims & Objectives of the Impact Evaluation
- Main hypotheses and outcome indicators

2. Design of the randomised evaluation

3. Analytical approach

- Difference-in-Differences (DID) estimator.

4. Preliminary results

Introduction

- School feeding (SF) programmes have been a key response to the food and economic crises globally.
- For many developing countries, SF programmes are very popular as social protection tool
 - evidence base includes benefits to education (access & learning), also nutrition (energy & micronutrients)
 - with a potential to impact on agriculture
- Nationally sourced or Home-grown school feeding programmes (HSF) in particular have the potential to link small-holder farmers to the demand for food generated by schools to increase productivity and income.
- Linking SF with nutrition/health and agriculture is expected to create a win for farmers and children

Context (SF standards)
 -policy
 -financing
 -institutional capacity & coordination
 -community involvement

Education

Intervention outputs and process

Intermediate outcomes

Outcomes Direct effects

Medium term Indirect effects

School meals/snacks
 (fortified/not-fortified)

Service delivery
 (targeting, coverage, uptake, quality, quantity, timeliness, acceptability...)

Incentive for HHs to send/keep child to school

Incentive for pupils to go to/stay in school

Food consumption
 -energy
 -micronutrients

Attention and cognition

Schooling
 Attendance (+)
 Drop-out (-)
 Enrolment (+)
 Completion (+)

Learning

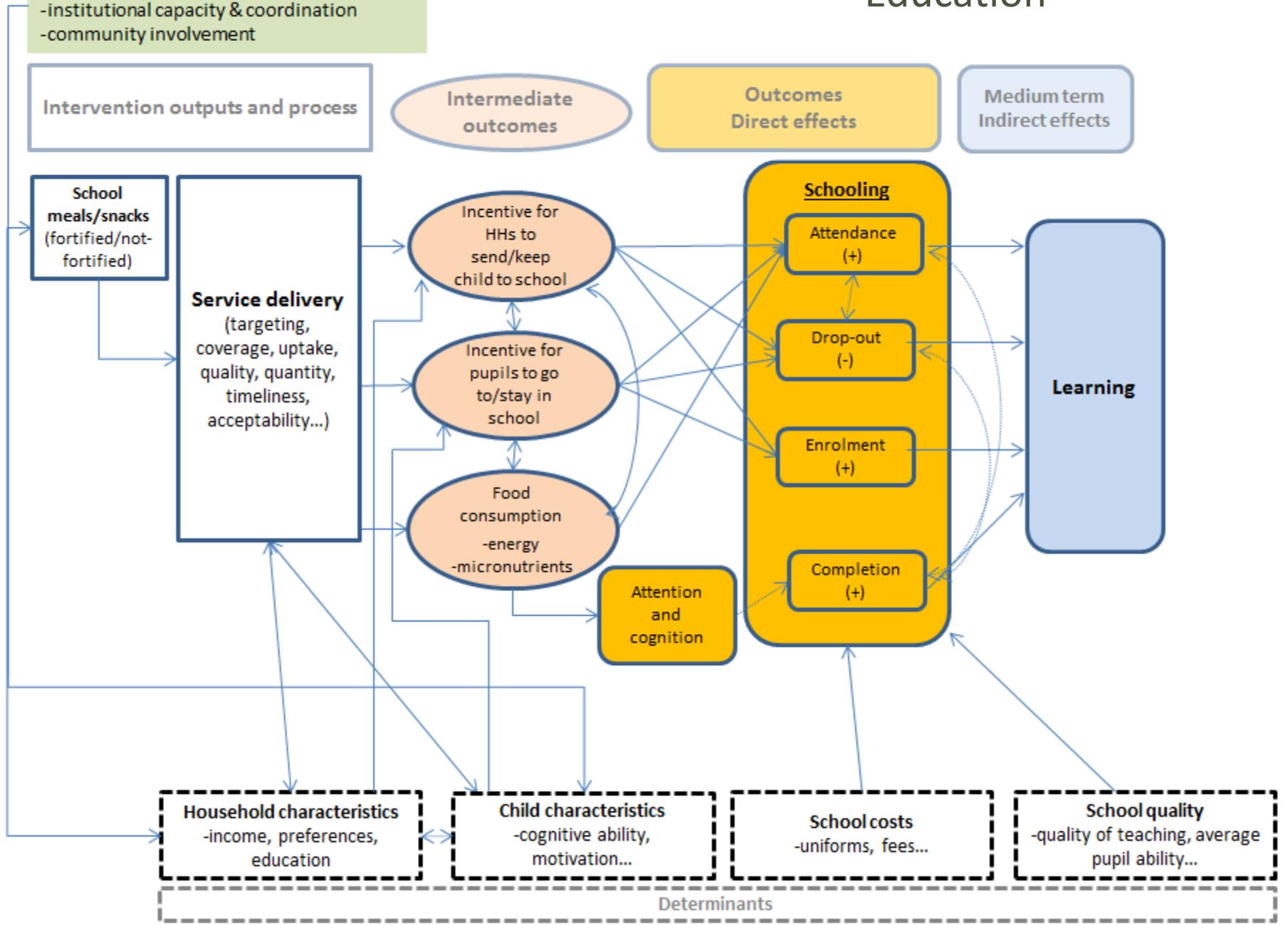
Household characteristics
 -income, preferences, education

Child characteristics
 -cognitive ability, motivation...

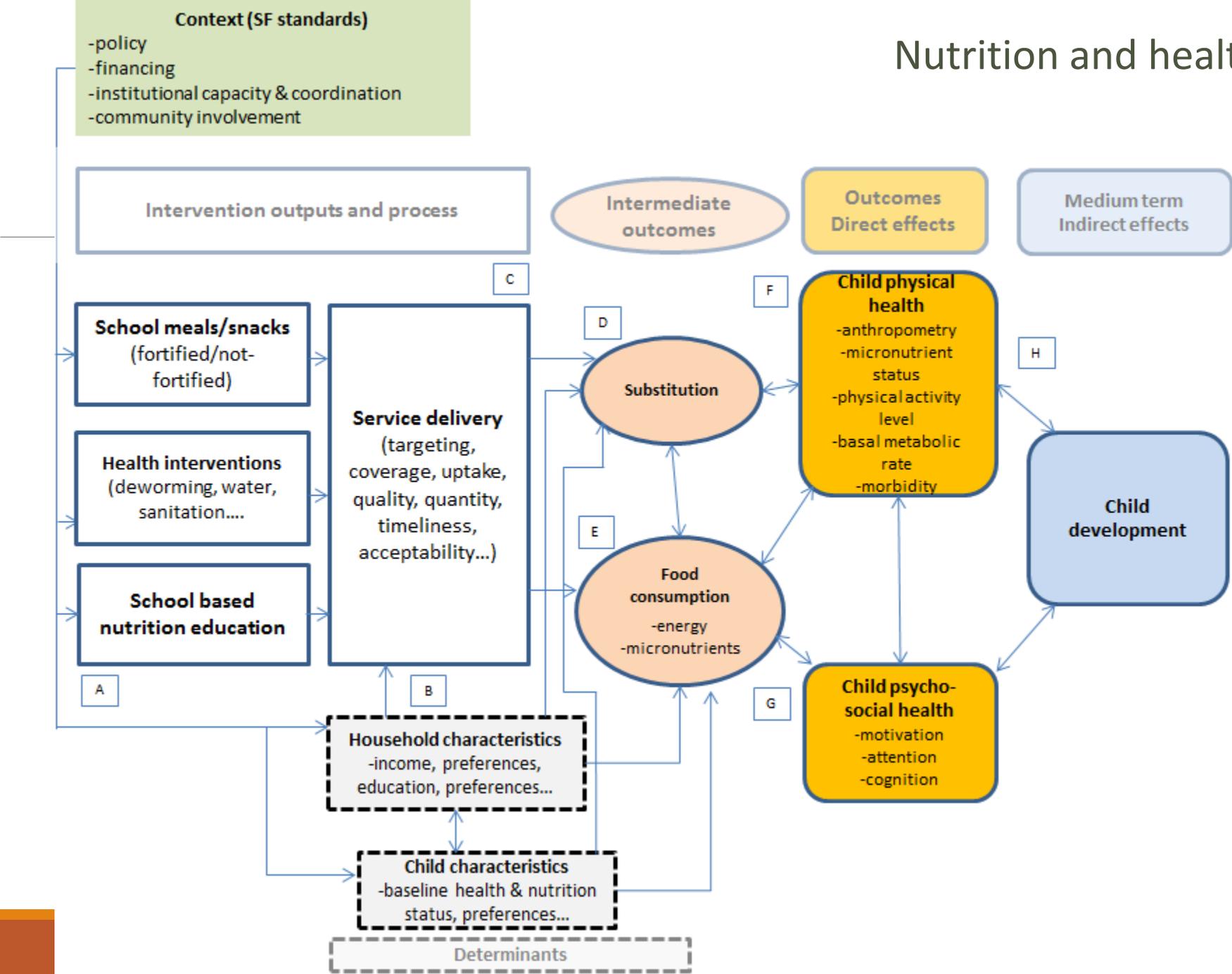
School costs
 -uniforms, fees...

School quality
 -quality of teaching, average pupil ability...

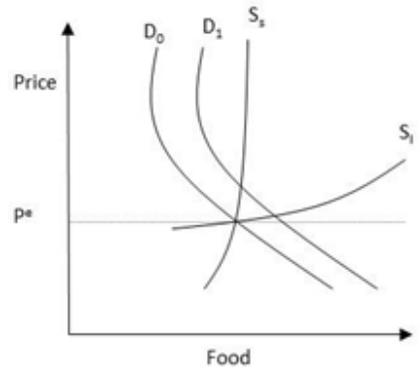
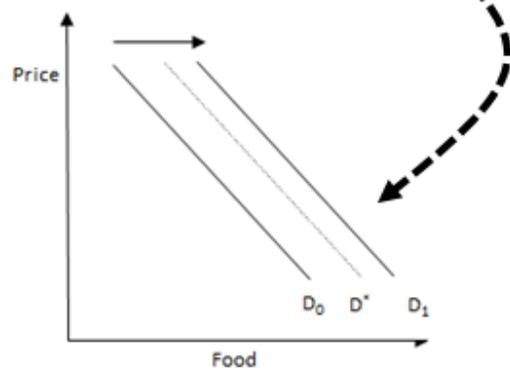
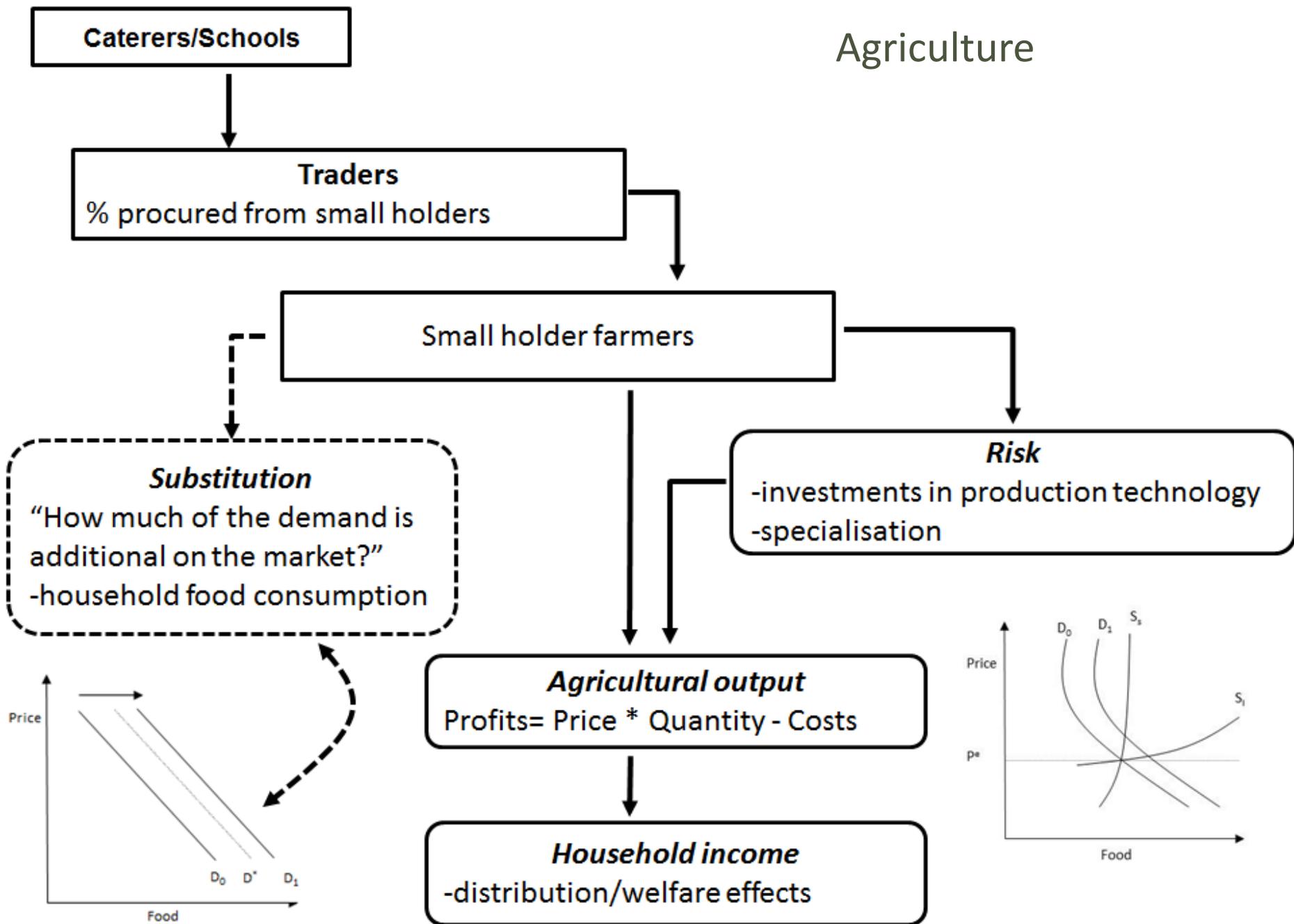
Determinants



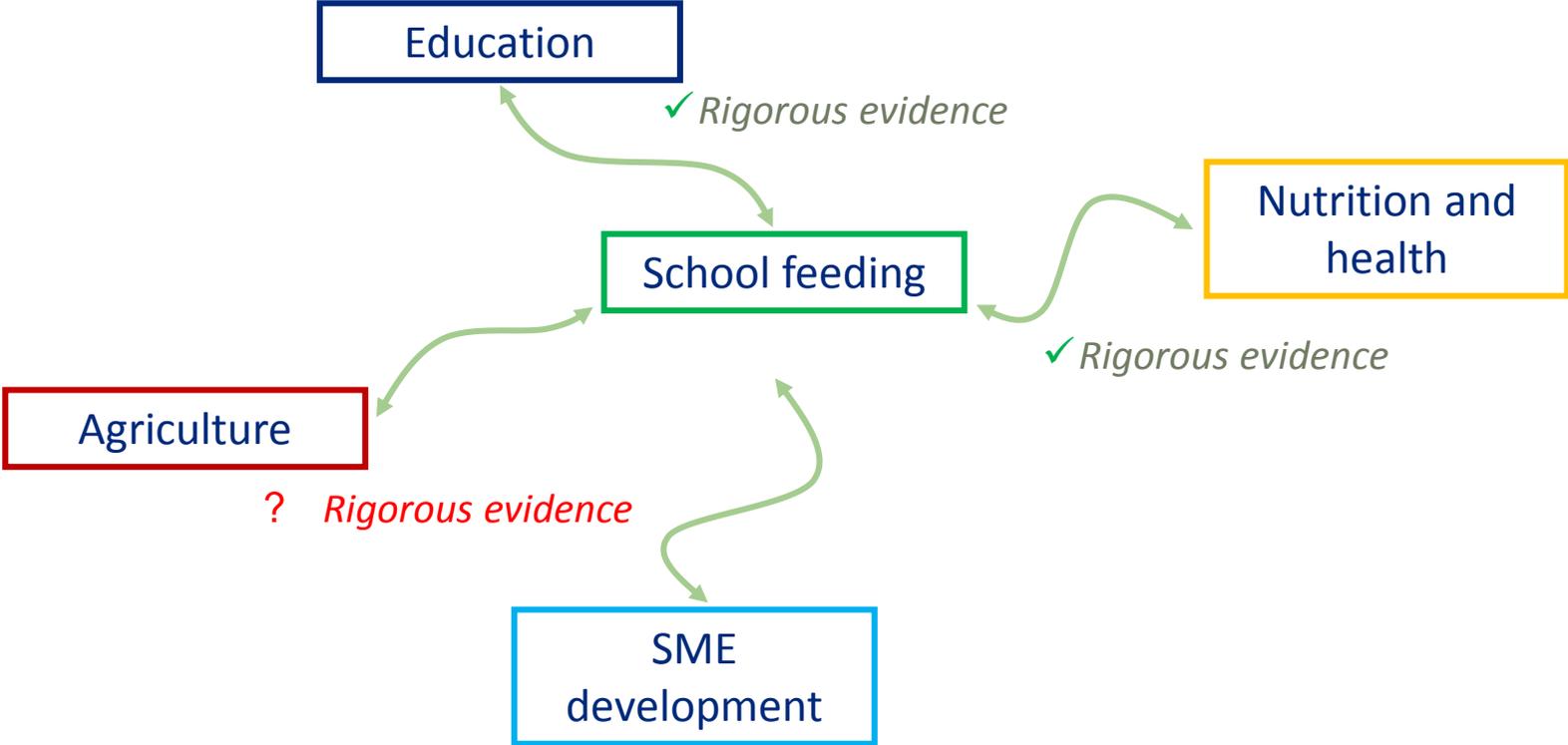
Nutrition and health



Agriculture



Evidence of HSF as a strategy linking education, nutrition/health and agriculture



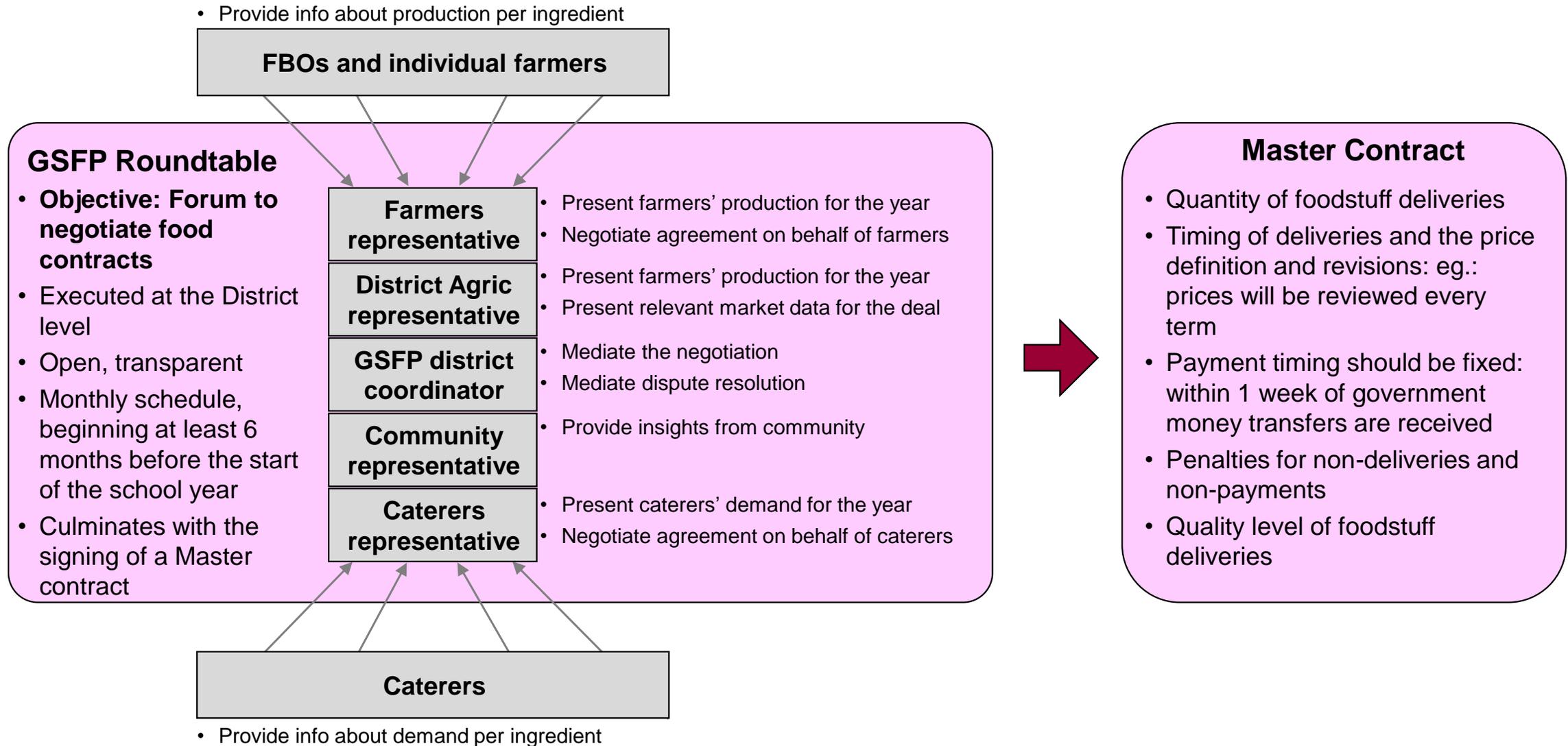
The Ghana School Feeding Programme

- GSF was launched in 2005 with 10 schools, currently targets over 160 schools in 170 districts across the country.
- The GSF is a decentralized model where service delivery is provided through private caterers who are awarded contracts by the government to procure food items from the market.
- The challenge however, is that, payments are usually delayed / after the meal
- Despite the programme focus on local agriculture, caterers buy food from market queens and not farmers, because the market queens allow credit

Impact evaluation

- Current GSF model can be improved to allow for small holder farmer participation
- **With support from the Bill and Melinda Gates Foundation, Dubai Cares and the World Bank**
- Partnership for Child Development (PCD), Imperial College London and other partners
- Develop innovative pilot, integrating explicit agriculture and nutrition components (GSF+)

Stylised example of HGSF sustainable model to pilot, (Source: Haas/GIMPA, 2011)



Randomised control trial

- Proposed approach
 1. Pilot innovative model (GSF+) within existing national programme framework
 2. Evaluate pilot (alongside current GSF model)
- Theory-based impact evaluation, designed around scale-up of the programme
 - 116 schools randomised: 29 SF standard GSF model; 29 GSF pilot (GSF+ agriculture/nutrition package); 58 no school feeding (pure controls, get SF after year 3)

3 year study:

- Large scale survey involving 2,500 households across all the regions of Ghana and over 5,000 children.
- Baseline in 2013 and Endline in 2016

Main study outcomes

Indicator	Metric
Income	Farmer sales and profits
Distributional effects	Farmers participating in the programme
Schooling	Children's enrolment, attendance, and completion
Attention and cognition	Digit span, Raven matrices
Learning achievement	Scores on literacy and maths tests
Physical growth	Anthropometric measures of height and weight
Micronutrient status	Haemoglobin level
Diet diversity	Household consumption

N. B. Also measured a range of intermediate outcomes along the agriculture and nutrition pathways

Analytical approach

The statistical approach is the difference-in-differences (DD) estimator.

This entails calculating the change in an outcome such as school enrolment between baseline, prior to SF intervention, and post intervention for treatment and comparison groups, and comparing the magnitude of these changes.

Difference-in-Differences (DD) estimator

Design group	Baseline	Follow-up	Difference
Treatment	A	B	B - A
Control	C	D	D - C
Difference	A - D	B - C	$DD = (B - A) - (D - C)$

Preliminary results

Impact on household agriculture and incomes

- Participation in agriculture increase by about 5% in enhanced GSF+ communities
- Value of agriculture produce sold increased by nearly 100 GHC (US\$26) in the traditional GSF communities





For households that owned a business

- Value of own food consumed increased for HHs in GSF+ communities by **1,729GHC** (US\$450)*



- Agric. income increased for HHs in GSF+ communities by **1,801GHC** (US\$468.95)*

Approx. 90% increase

- Av. HH income increased for HHs in GSF+ communities **2,278GHC** (US\$593.16)**

Approx. 60% increase



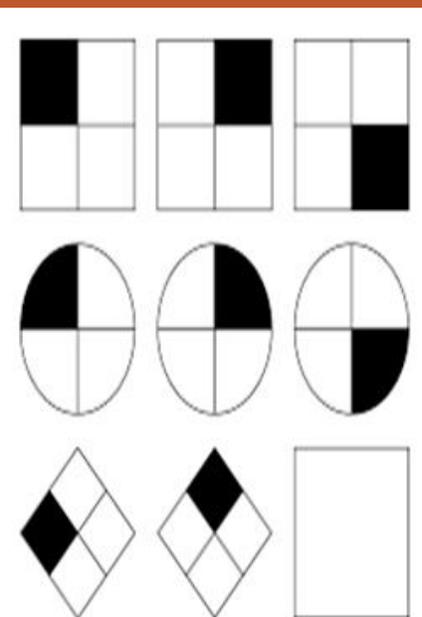
Impact on school enrolment

- Net enrolment at Kindergarten level increased by nearly 11%*

Impact on learning achievement, cognition, and attention

Improved cognition:

- Children in Primary schools that have the enhanced GSF+ performed better in Raven's test (**0.218***).



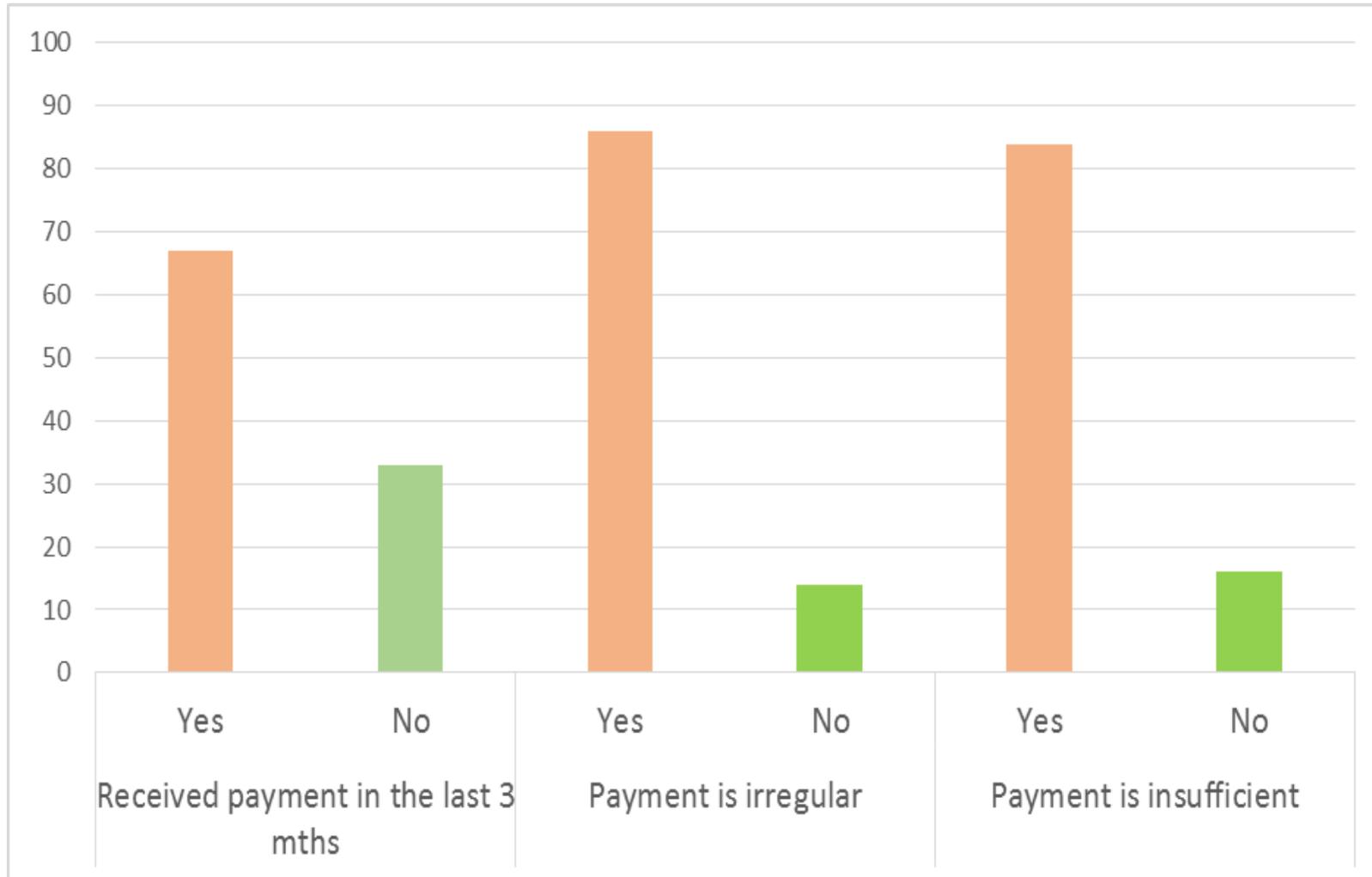


Impact on child anthropometry

- Probability of stunting reduced among children in GSF+ schools (**-0.158***)

Implementation challenges

Figure 3: Payment challenges faced by caterers



- Of 55 caterers interviewed, majority (47) of them confirmed the irregularity of payments.
- Coping mechanism is to borrow or purchase food stuffs on credit from market women who are usually trusted suppliers.
- 48 / 55 caterers purchased food items from market women.
- Reason; farmers do not give credit.

Preliminary statements

- There are still challenges of long delays in reimbursing caterers for services provided and insufficient transfers to meet total cost.
- The continuous reliance on market women instead of local farmers defeats the goal to link caterers directly to farmers to boost the local economy.
- Caterers cannot buy directly from the farmers due to inability to pay instantly and unwillingness of farmers to sell on credit.
- GSF has the potential to boost the local economy if bottlenecks relating to payments are plugged.
- Can we have community-based buffer stocks?

THANK YOU!!

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