



Speaker Summary Note

Session: Learning from Evaluations

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Title: Evidence on Links in the Causal Chain

1. Some Findings from Systematic Reviews

- 1.1 SRs aim to provide unbiased assessment of what works and why through systematic identification of relevant studies and synthesis of quantitative and qualitative evidence:
 1. Methodology set out ex ante in study protocol
 2. Rigorous search to identify published and unpublished literature, in any language
 3. Application of study inclusion criteria, determines what gets included
 4. Critical appraisal of study quality, to assess how reliable is the included evidence
 5. Synthesis of evidence, sensitivity and sub-group analysis
 6. Review updated as new evidence emerges
- 1.2 Preliminary findings from Systematic Review (SR) of the Impact of Farmer Field Schools (Hugh Waddington, and Birte Snilstveit; 3ie):
 - Knowledge generation among FFS-participants (two studies assessed this)
 - Adoption of practices among participants across the majority of studies
 - The impact on agricultural yield appears significantly positive on average across all studies for FFS-participants
 - However, rates of adoption and impacts on agricultural outcomes among 'exposed' farmers are limited
 - Eventual impacts on welfare, nutrition and health have not been examined
- 1.3 Preliminary findings from SR of the impact of interventions to increase agricultural production on children's nutritional status? (Edoardo Masset et al.; IDS):
 - The agricultural interventions considered have a positive impact on households' incomes and on the consumption of specific foods promoted.
 - Weak evidence of an impact on the absorption of micronutrients and on prevalence rates of stunting, wasting and underweight among children under five.
 - Absence of nutritional impact could be the result of the poor methodological design of the studies reviewed rather than of the inefficacy of the interventions.

- Separate assessment of the existing evidence on the impact of biofortification studies found that consumers' acceptance of biofortified staple food is good and that micronutrients in staple food are successfully absorbed by the body.
- However, no evidence was found on farmers' acceptance of biofortified crops, and little evidence of any impact of these interventions on nutritional status.

2. The Gap Map: mapping the theory of change to identify research priorities

- 2.1 A theory-based approach to impact evaluation, one that maps out the causal chain from inputs to outcomes and impact and tests the underlying assumptions, will shed light not only on what works or does not work, but also on the 'why' question.
- 2.2 Mapping out the causal chain as well as the existing evidence along the chain is also a useful way to identify the most significant evidence gaps and therefore a useful tool to help set priorities for a research agenda.
- 2.3 Figure 1 (below) maps out the possible linkages between agriculture and nutritional and health outcomes. On the left side of the figure are the typical inputs in terms of agriculture-related interventions, such as agriculture technology, agricultural extension, infrastructure investments, subsidies and tariffs, credits and grants, input supplies, land tenure systems, weather and crop insurance etc. These lead to outcomes, such as knowledge acquisitions, adoption of new technologies, and increased productivity, and then finally on the right hand side to intermediate and final impacts, such as increased income, increased food expenditure, improved health and improved nutrition. The picture is complicated because of two-way causalities (increased productivity may lead to higher income and thereby better health and nutrition, on the other hand it may come about through practices that have adverse health effects, e.g. pesticides, or through more labor and the related higher calorie-requirements), heterogeneous effects (certain new cultivation practices may lead to a shift in intra-household agricultural labor allocation), and different time-requirements for impacts to occur (increase in income would typically show up at an earlier stage than improved nutritional status).
- 2.4 In addition to gender, one of the main heterogeneities to consider is whether the targeted farmer household is a net buyer or seller of the crop in question, as this will have major implications for the way in which prices affect the welfare of the household. A related issue is how agricultural interventions affect non-agricultural households in the community. Further complicating the picture are issues of the macro-effects (national; regional, global) of changed agricultural patterns (growth implications; price-effects; environmental effects etc) and how this in turn can affect nutrition and health outcomes (e.g. through such diverse ways as expenditure on health and education, and lifestyles related to urban versus rural living).
- 2.5 Figures 2 and 3 below map the studies, primary studies and systematic reviews respectively, that are being produced with support from 3ie or DFID, or currently being considered for support from AusAid/DFID/3ie. We also have a database of existing rigorous impact evaluation studies that include studies along the causal chain mapped out in figure 1. This can be found at: http://www.3ieimpact.org/database_of_impact_evaluations.html. While the database does not yet represent a complete picture of all the available evidence, it is clear from the studies that are included to date that they center around some of the issues covered by the ongoing SRs.
- 2.6 Conclusion: There are a number of relevant SRs that will be produced over the next couple of years. Whether they come up with useful evidence or as empty reviews, they will provide useful insights for future research. Similarly, a large and increasing number of primary studies (impact evaluations) are currently under way and will add important findings to the evidence-base, and little by little expand our knowledge of the causal chain. Some of the macro-linkages and market spillover effects will be crucial to further understand. General and partial equilibrium type of models will be required for these types of studies, however findings from rigorous impact evaluations with clear identification strategies can be used to improve and calibrate such macro-models.

Figure 1: Leveraging agriculture for improved nutrition and health

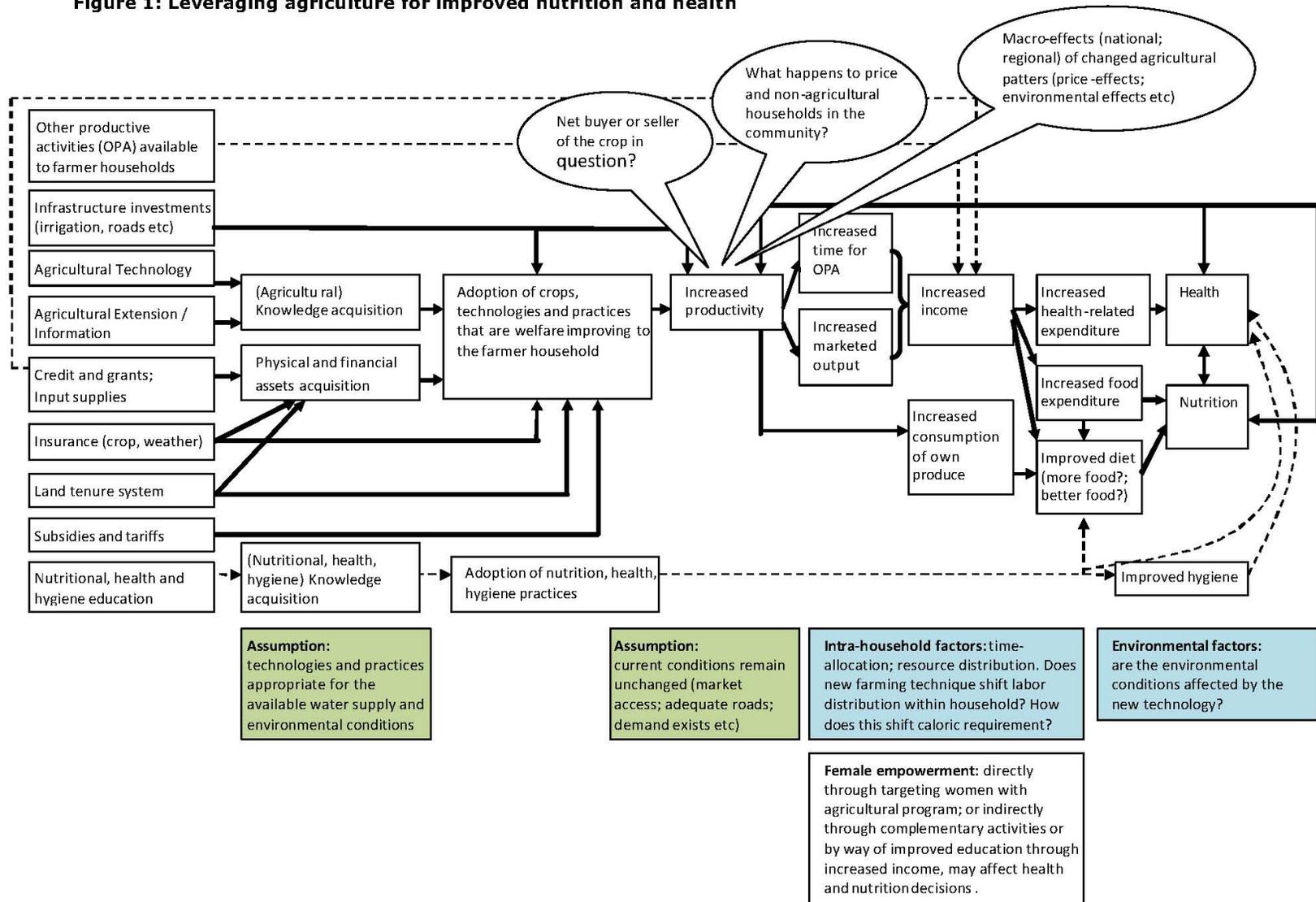


Figure 2: Impact evaluation grants funded by 3ie

	Knowledge acquisition	Assets acquisition	Adoption (technologies, and practices)	Productivity	Marketed output	Time for OPA	Cons. of own produce	Income	Health-related exp.	Food Exp. p.	Improved diet	Nutritional status	Health status
Agricultural technology		KickStart's Low Cost Farm Equipment (Kenya, Mali, Tanzania)	Agricultural Technology Adoption, Malawi Kickstart	KickStart				KickStart Supplying Double Fortified Salt Bihar, India		India	India		
Agricultural extension/ information	FFS against Excessive Fertilizer Use, China Demonstration plot experiment Mozambique		China Mozambique					China					
Credits and grants/ input supplies			Providing collateral and improving product market access for farmers, Sierra Leone	Tanzania's National Agricultural Input Voucher Scheme Sierra Leone	Tanzania Sierra Leone		Sierra Leone			Tanzania Sierra Leone			
Land tenure systems													
Subsidies and tariffs													
Insurance (crop; weather)			Index-Insurance in Gujarat, India Agricultural Insurance, China Weather Securities, India					China India		India China India	India		
Infrastructure investments (irrigation; roads)				Irrigation improvement in Agricultural Sector Program, Thailand				Thailand				Thailand	Thailand
Nutritional, health, and hygiene education	Biofortification Program (Vit. A Deficiency), Uganda		Uganda							Uganda		Uganda	Uganda

Figure 3: Systematic Reviews produced with support from 3ie or DFID, or currently being considered for support from AusAid/DFID/3ie

	Knowledge acquisition	Assets acquisition	Adoption (technologies, and practices)	Increased productivity	Incr. marketed output	Incr. time for OPA	Incr. cons. of own produce	Incr. income	Incr. health-related exp.	Incr. food exp.	Improved diet	Nutritional status	Health status
Agricultural technology			Under what circumstances or conditions do farmers adopt new technologies in Africa?	Under what circumstances does adoption of technology result in increased agricultural productivity?									
Agricultural extension/ information	The impacts of agricultural extension services		Ibid.	Ibid.									
Credits and grants/ input supplies			Is the provision of agricultural innovation grants to small holder agricultural producers effective in facilitating agricultural innovation?										
Land tenure interventions													
Subsidies and tariffs				What are the impacts of agricultural producer subsidies on productivity and farm incomes?				Ibid.					
Insurance (crop; weather)				How effective have financial mechanisms (such as micro-insurance) been in helping small-holders manage weather-related risks?									
Infrastructure investments (irrigation; roads)				What is the impact of infrastructural investments in roads, electricity and irrigation on agricultural productivity?									
Nutritional, health, and hygiene education										What is the impact of interventions to increase agricultural production on children's nutritional status?			