

Beliefs and Behavior



Mind the Gap:

Exploring Disparities between Smallholder Farmer Practice and Potential

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Motivation

- Farmers in developing countries potentially face many constraints as well as uncertainty related to estimating benefits and costs of new technologies.
 - Production constraints (credit, labor, land, assets)
 - Input market and output market constraints
- Beliefs and behaviors may affect how farmers estimate expected benefits and costs
 - Learning about new technologies (Social learning and social networks)
 - Assessing risk and/or profitability
- Understanding how farmers make investment decisions may affect how programs are designed to maximize impact
 - Behavioral 'nudges', commitment mechanisms, incentive compatible contracts

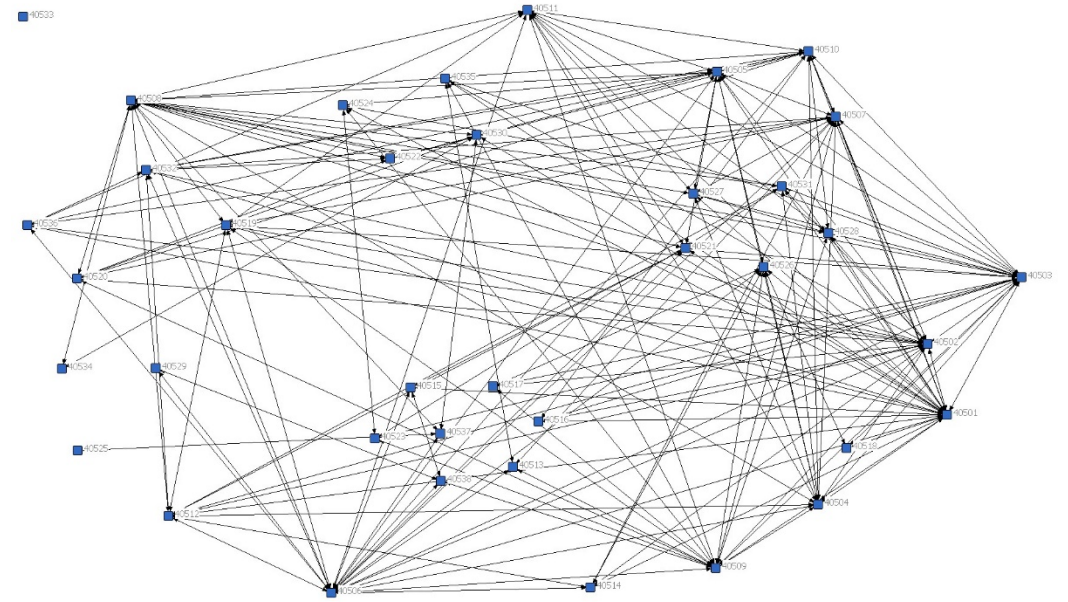
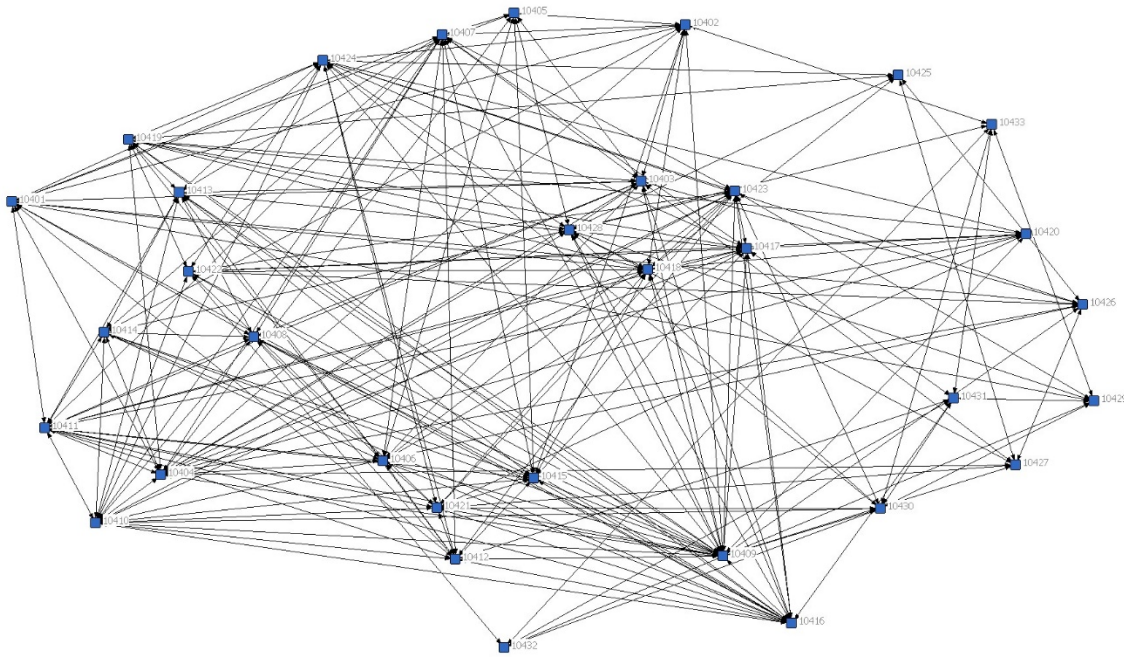
Relevance to improving practices and yields

- How are expectations, beliefs, and knowledge formed by farmers?
 - Extension systems are not often accessible to rural farmers.
 - Program impact can be maximized if there are spillovers.
 - Gender effects may be overlooked if we don't understand information diffusion.
- Would farmers make different, maybe better choices, if the decision was framed/timed differently?
 - For some farmers, is what they would like to do different than what they actually do?
 - Timing may matter in maximizing impact or take-up of a program.

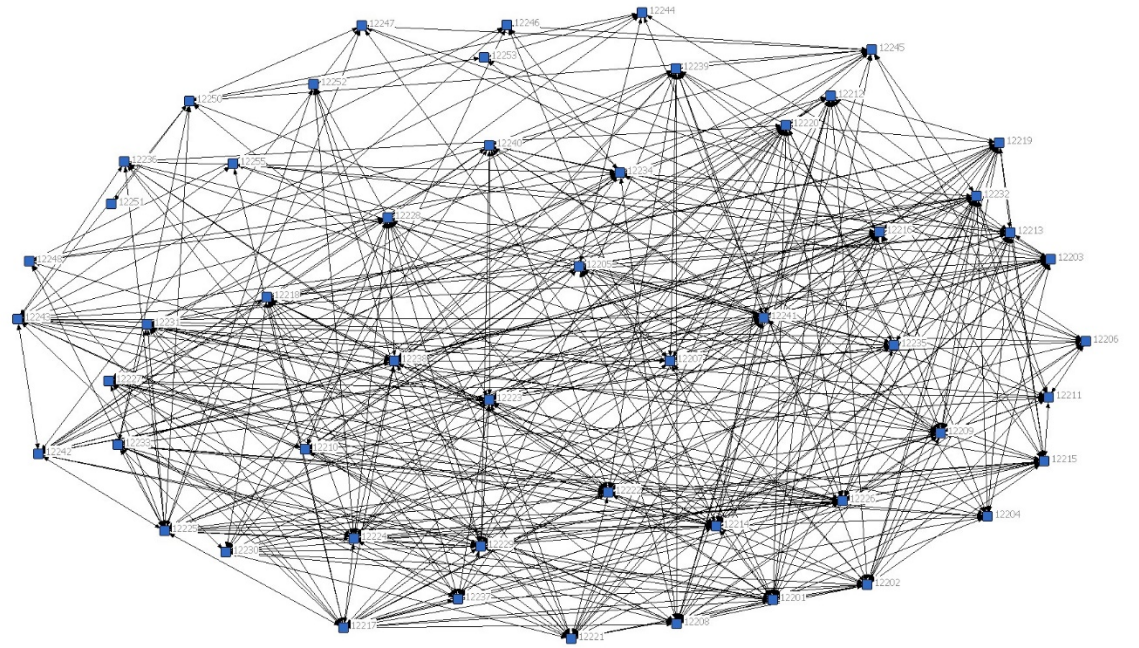
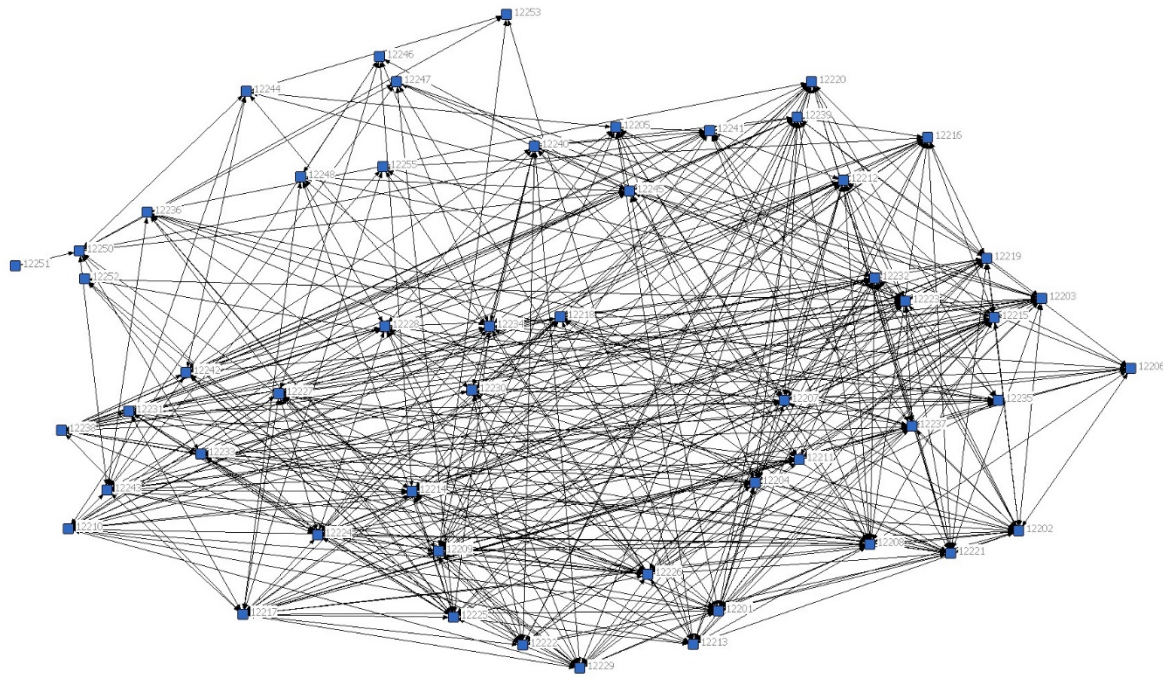
Social Networks

Understanding how social network structure influences
information sharing and adoption

Social networks are not necessarily similar across villages



Which social network?



The same village represented using number of links versus the 'centrality/influence' of link.

Recent contributions using social network censuses

- Information diffusion and network centrality
 - In Mali, diffusion of composting knowledge declines with social distance, suggesting frictions in the diffusion of information, particularly for women.
 - In India, 'nominated' seeds triple the information passed in the village through telephone calls. This may have to do with knowing more influential people to call, but also the 'quality' of the connected individual may facilitate trust within the network.
 - In Burkina Faso, correct knowledge of microdosing is highest in participants who were randomly assigned to training rather than selected based on the number of contacts they had within the village or their centrality in the network.

Recent contributions using social network censuses

- Adoption

- In Malawi, farmers may need to pass a ‘threshold’ of contact with their social network contacts before deciding to adopt pit planting for maize cultivation.
- In Burkina Faso, we found higher fertilizer microdosing adoption among program designs that targeted randomly versus to the most central households in the village network.
 - Women were much less likely to adopt microdosing when targeted by central households in the network, rather than randomly assigning a starter kit.
 - Targeting central households increased male adoption at the expense of female adoption.

Commitment Mechanisms

Understanding farmer behavioral characteristics to improve
input market organization

Insights from Behavioral Economics

- Failing to follow through on intended plans is a common theme in many decisions:
 - Smoking, retirement savings, doing homework...
- Small empirical literature, but most of it is from developed countries.
- If farmers could have a way to commit to their intended plans, would they be better off?
 - Program designs that facilitate this type of decision are 'commitment mechanisms.'

Recent contributions and their implications

- “Hard” commitments

- Examples:

- Ordering fertilizer with full payment or large downpayment to be delivered later, locked savings boxes, payment of a year’s school fees

- ‘Irreversible’ once a decision is taken

- Concerns that liquidity constraints may inhibit take-up

- “Soft” commitment mechanisms

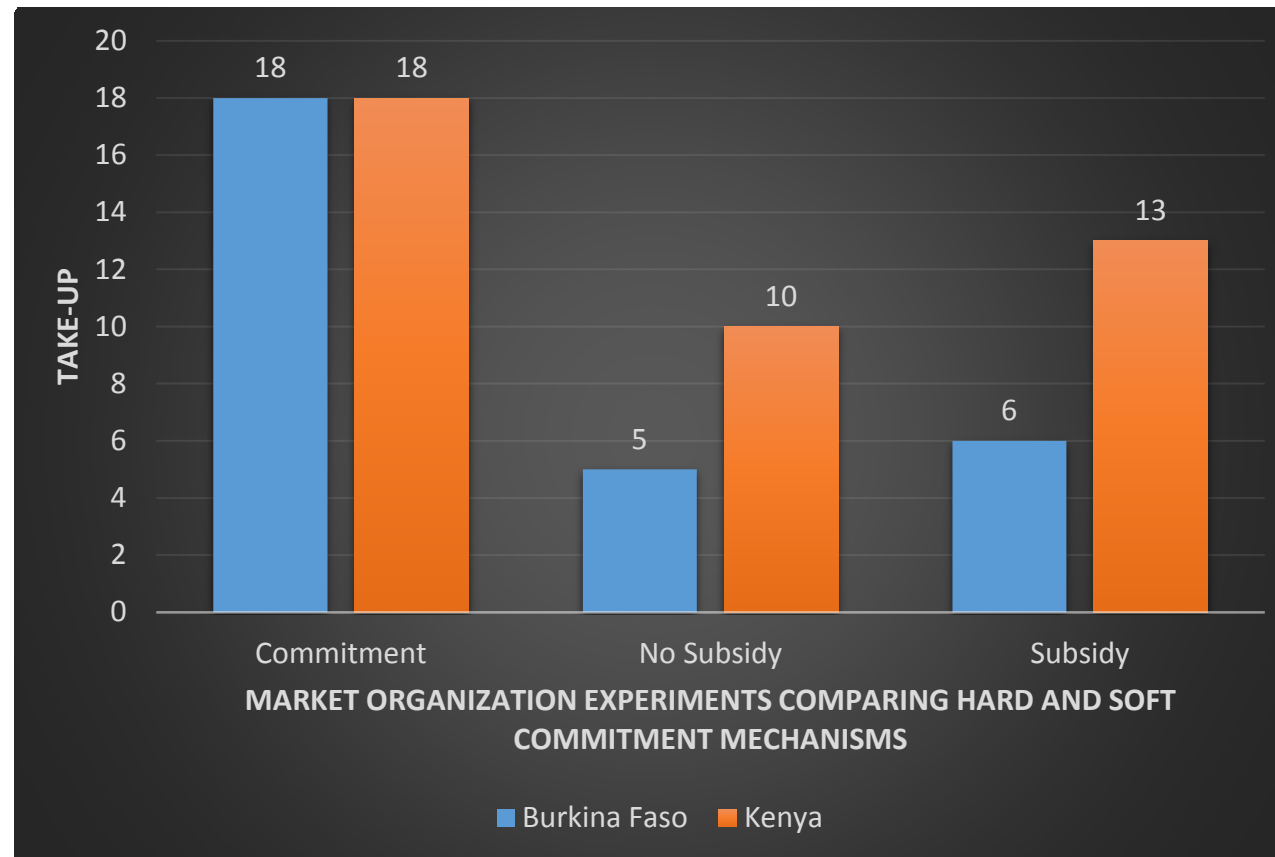
- Examples:

- Opting out, rather than in; down payments; savings envelopes; warehousing;

- Permit revisions to the plan under certain conditions

- Default of down payment

Market Organization Experiments



Burkina used a soft commitment mechanism and a 20% subsidy. (Dillon and Porter 2016)
Kenya used a hard commitment mechanism and a 50% subsidy (Duflo et al. 2011).

Policy implications for closing yield gaps

- Targeting and gender
 - Predominant extension strategies to target ‘thought leaders’ may reinforce information inequality, particularly among female farmers.
 - Random distribution of starter packs had a larger effect on take-up relative to targeting most central or people with the highest number of links.
- Whither agricultural subsidies?
 - If commitment mechanisms induce higher take-up with little cost, why shouldn’t private sector approaches to build capacity among agricultural input dealers and supply chains to provision fertilizer earlier be a prioritized policy option?
 - Digital and financial inclusion could facilitate earlier orders and planning for farmers and ag input dealers.

Policy implications for closing yield gaps

- Liquidity constraints, savings and credit
 - Would commitment mechanisms combined with savings or credit lead to higher take-up and larger welfare gains?
 - Mixed results on microcredit effectiveness may be due to non-investment uses of credit
 - Are adoption rates 'high enough' using only commitment mechanisms?
- Are 'nudges' paternalistic?
 - In designing programs, we don't have to assume that the poor are irrational. We only have to assume that the timing of a decision matters. Offering alternative times to purchase fertilizer doesn't limit a farmer's choice set.