

Leveraging Social Networks to Enhance Agricultural Extension

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Evidence to Action: Building Markets for Small-Scale Farmers

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TRANSLATING RESEARCH INTO ACTION

Learning about new technologies

Farmers learn about new technologies in many ways

- Direct trainings and conversations with extension agents
- Learning on the network: can learn from peers who have tried new technologies or been trained by agents
 - In Malawi: Extension agents often use “lead farmer” platform, train a few people per village, let network learning do the rest
 - Training a few to influence many

Integrating Networks into Extension

- Lead Farmer model assumes learning on the network is important
- We know learning on the network happens... but we don't know much about how it takes place.
 - Are there farmers who are particularly useful hubs for information?
 - Can we identify them? Easily? Is network theory helpful in doing so?
 - If so, can we get more people to adopt a technology?

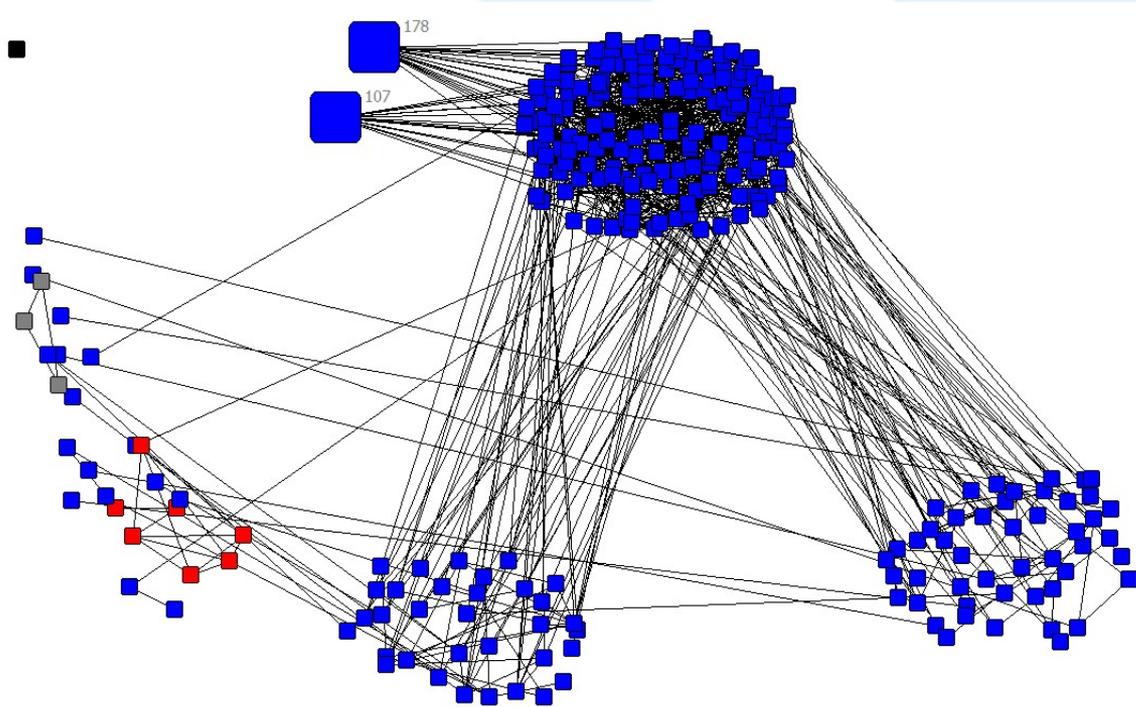
Our project in Malawi

- Joint with Lori Beaman, Ariel BenYishay, A. Mushfiq Mobarak
 - Thanks to funders Bill & Melinda Gates Foundation (ATAI initiative) & 3ie
 - Partnership with Malawi Ministry of Agriculture and Food Security
- Randomized intervention to try and leverage network theory in Extension
- Approach: First, map out social connections through a census
- Then, choose the “best” possible people to train
- Compare adoption with “best” partners against existing extension methods

Mapping out Networks

- In three districts in Malawi, we completed a full census in 200 villages
- Ask questions about who people consult on agricultural decisions, previous tech adoptions, and so on
- Census completed using laptops to maximize matching





Who are the best partners?

- Depends on how adoption diffuses through the network
- Will people adopt if they are exposed to one person with the new tech? Do they need multiple people telling them it is effective to be persuaded?
- In general, different optimal people – tradeoff of lightly exposing many versus intensively exposing a few

Evaluation Strategy

Treatment 1: Simple Contagion

- Selection of partners so that the most people adopt if knowing one adopter is usually sufficient

Treatment 2: Complex Contagion

- Selection of partners to maximize adoption if most people need to know at least 2 adopters

Treatment 3: Geography predicts connections

- Use geography as a proxy to full social network mapping

Control

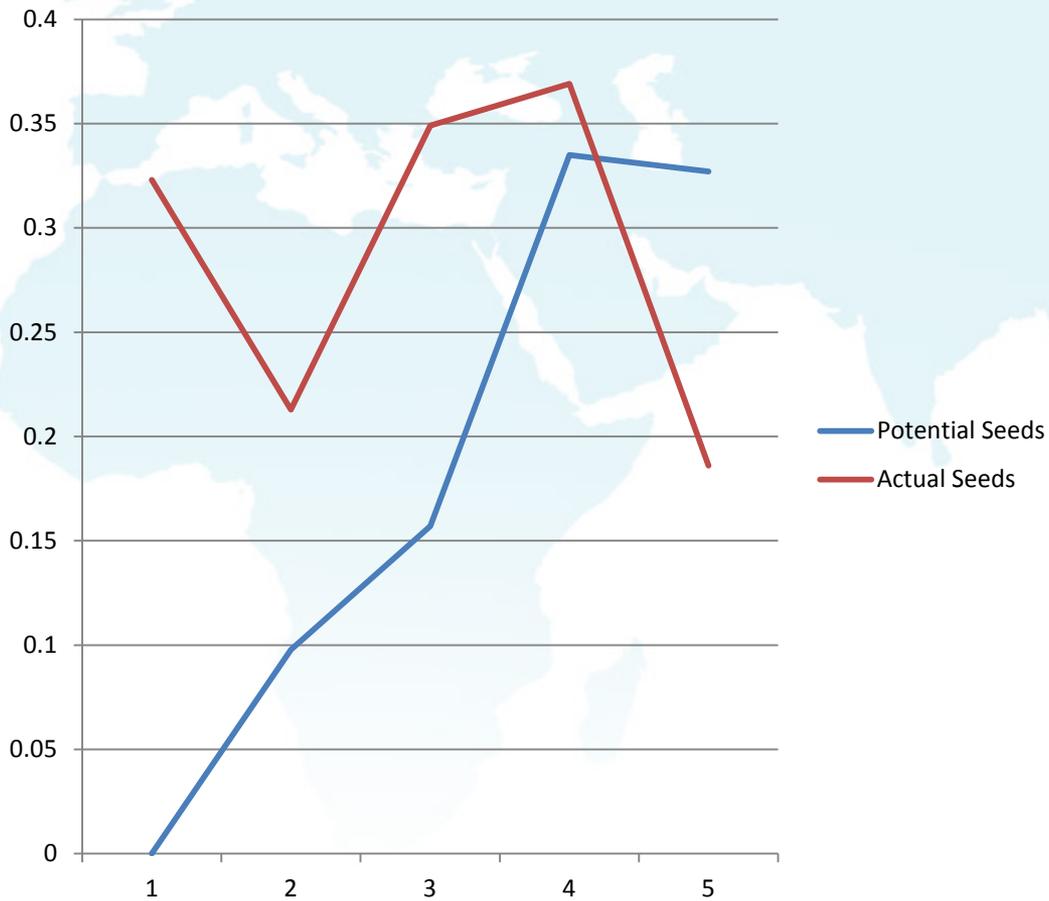
- Business as usual: extension agent asks village head to nominate partners

Training

- Malawi MoAFS train our partner farmers in basin planting
 - Plant maize seeds at the bottom of a small pit – allows water to be used more effectively, prevents runoff
 - Requires labor (to dig pits) but no capital
 - Familiar in West Africa, unfamiliar in Malawi
 - Profitable in agronomic trials, but in the field Malawi?
- Randomized treatment allows direct comparison
 - People we trained vs. people we would have trained if it had been a different treatment group

Pit Planting results in big increases in yields

- Seed farmers on average have 12% higher yields than the potential partners in the village across 3 years of survey
- Seeds adopt Pit Planting about 30% of the time
- Implies a 50% or so yield increase to pit planting
- Our estimates suggest labor time is roughly equivalent to alternatives.



Who we train mattered

- Gradual adoption over time in all villages (from 0 to 8% over 3 years), but
- Simple and Complex treatments beat control
 - 3-7 percentage point treatment effects – much of the overall adoption rate
 - Remember, this is above extension workers choosing carefully – not obvious that network data would beat this
 - Complex – which exposed as many people as possible to both sources of information – performs best in large villages, where learning is probably more difficult
 - BUT – geographic villages look much like control

Conclusions

- First: There are important and valuable technologies for which information is the only constraint to adoption
 - Farmers, like the rest of us, are not perfectly informed
 - Sometimes, even with these technologies, adoption is slow and difficult (still fairly low and increasing in year 3)
- Previous studies: social learning is important for tech adoption
- This study: We can identify partners that increase the speed of diffusion through social networks
 - Looks like best is to treat the densest part of the network intensively rather than going for broad-based exposure.
 - These partners are, though, hard to identify
 - Avenue for future research (& collaboration to bring this to scale!): how to scalably make networks work for policy