Securing a Sustainable Path for Inclusive Agricultural Growth & Transformation

Financial and Risk Management Tools for Smallholder Farmers

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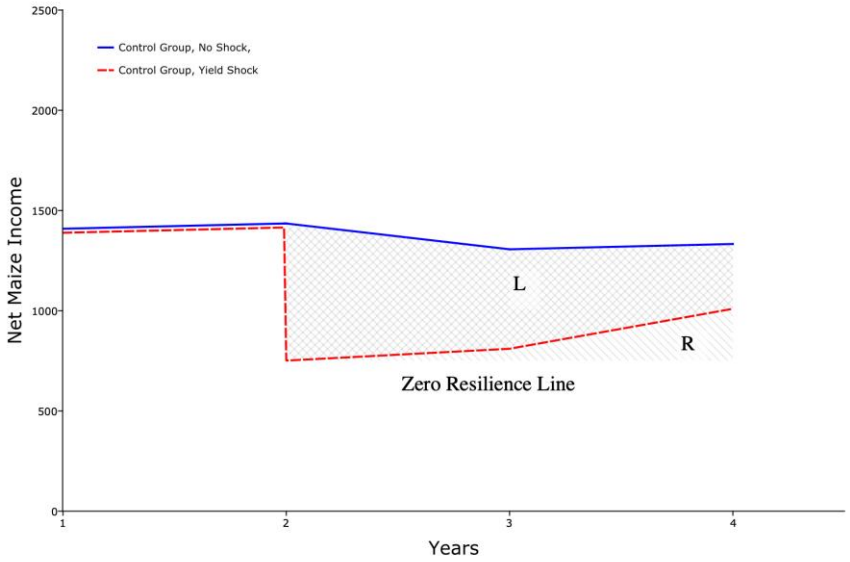
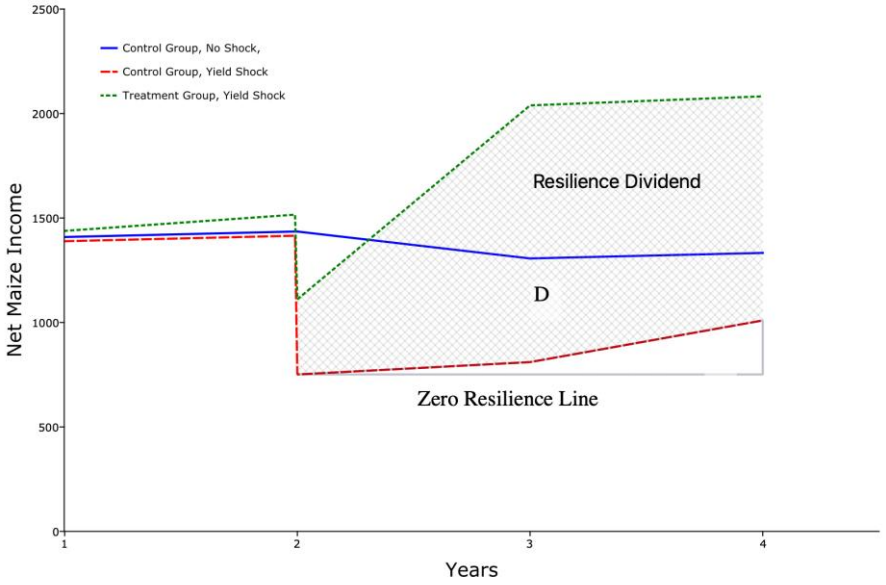
Material Foundations for Good Governance & Evidence-based Policy Reform

- This week offers an exciting array of studies on participatory governance and policy reform
- As we consider these studies, important that we not overlook the agency of political and government actors.
- In other words, why do these actors promote the institutions and policies that they do? This was a question that loomed large in the study of the so-called "East Asian Miracle"—why did East Asian governments choose inclusive growth policies?
- In an earlier study, we showed that the seemingly wise policy reform (which promoted inclusive growth through provision of public goods) was only one possible outcome of a (democratic) political system
- In particular, we showed that high levels of inequality and rural insecurity likely to result in a policy regime that does not support shared governance and growth
- In other words, we need the material foundations for a politics that delivers good governance & policy reform
- Today, my focus is on creating the material foundations needed to establish good governance as a political equilibrium

Shocks & Risk (Fear of Shocks) Inhibit Investment & Grwoth

- Governments usually enumerate the immediate costs of a drought or other natural disaster
- But these immediate costs are only part of the story, as a recent study from Tanzania & Mozambique demonstrates*
- Same study shows that stress tolerant seeds combined with insurance really reduce these costs:
  - Those with access to these technologies far less far & recover faster
  - Also learn to trust these technologies and less fearful of risk invest more creating a “resilience dividend”
- So what devices provide this kind of resilience and promote inclusive ag transformation & a more sustainable path of development?





* Boucher, S., M.R. Carter, T. Lybbert, J. Malacarne, P. Marenya and L. Paul (2024). “Bundling Genetic and Financial Technologies for More Resilient and Productive Small-scale Agriculture,” *Economic Journal*

Index Insurance, or Index Financial Products as Solution?

- Unfortunately, conventional agricultural insurance, which requires costly individual loss verification, will not work for most smallholder farmers who are often physically isolated and require modest amounts of coverage relative to verification costs.
- Index insurance, which does not require individual loss verification because insurance payouts are linked to an objective loss index, has been offered as a solution to the risk management problems of smallholder farmers
- However, index insurance is expensive, complex and risky, making its adoption a heavy lift for farmers. Despite evidence of impact when adopted, sustained adoption remains weak.
- To solve this problem, implementing a set of indexed financial products that are easier to adopt and ultimately complement each other in terms of cost, protection and learning:

How insurance, contingent credit, and commitment savings work together

A Single Index for Multiple Tools to Manage Weather-Related Risk

An index that can predict crop losses can be the foundation of more than agricultural index insurance. New financial instruments can leverage the same index to meet an individual farmer's access and preferences while also complementing each other to provide more complete protection.

Agricultural Index Insurance (II)

For the cost of an insurance premium paid in advance, II releases payouts if the undelying index predicts crop losses.

- Includes leverage: a small pre-paid amount unlocks a large future amount.
- Requires trust in the index and cash for premiums.

Contingent Line of Credit (CLOC)

Farmers who are pre-approved for a CLOC receive a loan in the event that the underlying index predicts crop losses.

- Includes leverage: zero up-front cost to unlock a large amount in an emergency.
- Requires creditworthiness.

Contingent Savings Account (CSA)

A farmer can use a CSA to save money more safely with the promise of receiving interest if the underlying index predicts crop losses.

- No leverage: only gives access to the amount saved plus interest in an emergency
- Requires cash.

Experiments with Indexed Financial Tools

Ethiopia: Tenancy Reform Risk Management Project

Focus Area: Land rental & credit access for tenant farmers

Partners: Abay Bank, Sarota Union of RuSACCOs, Ministry of Agriculture, Nyala Insurance

Key Interventions: Developing a tenancy reform risk management model with contingent credit and risk-pooling mechanisms

Nepal: MAP Resilience Fund (Mutual Assistance Pool for climate resilience)

Focus Area: Climate resilience for vegetable farmers

Partners: Muktinath Bikas Bank and local vegetable cooperatives

Key interventions: Mutual Assistance Pool (MAP), contingent credit (CLOC), and commitment savings

Bangladesh: Climate-Smart Finance (integrating insurance, savings, and contingent credit)

Focus Area: Integrated indexed financial solutions for smallholder rice farmers

Partners: BRAC Microfinance, Sena Insurance

Key Interventions: Index-based insurance, commitment savings for climate events, and contingent lines of credit

- While happy to discuss any of these, I will now focus in on the Tenancy Reform Risk Management Project in Ethiopia

The Productivity Gap under Sharecropping

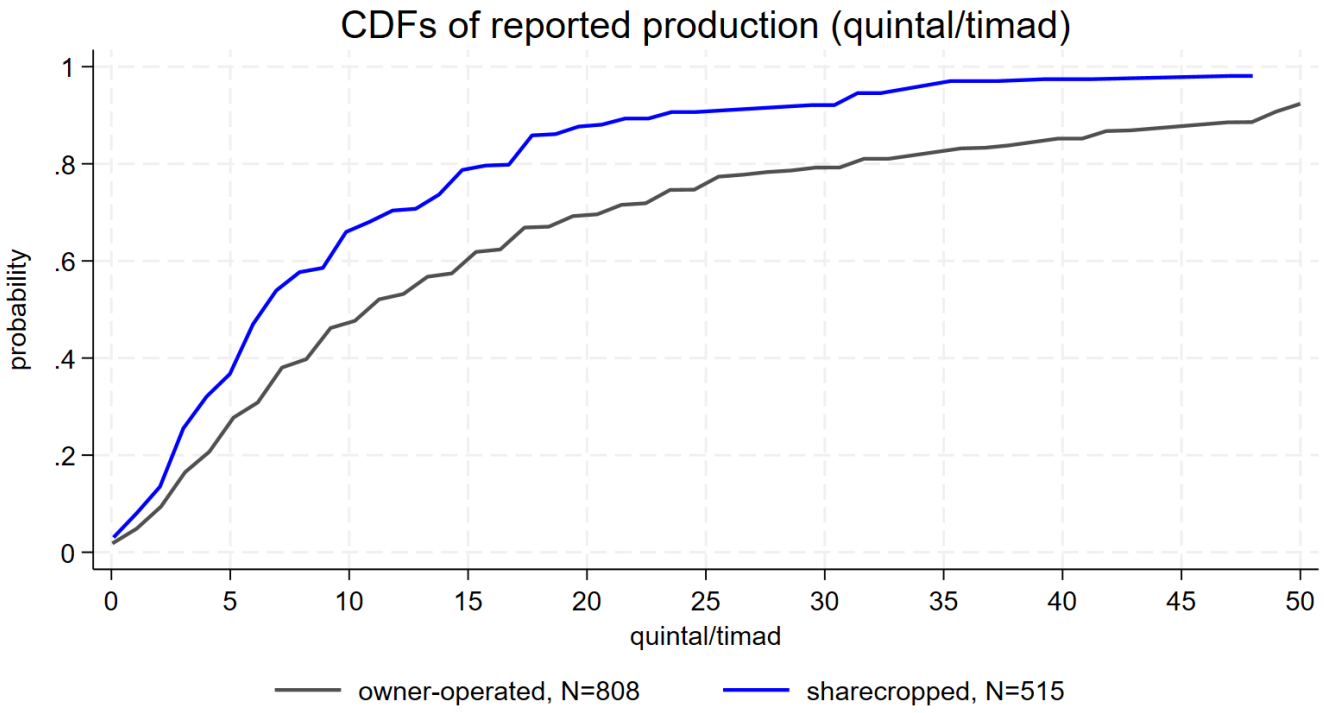
- In 1776 the *Wealth of Nations*, Adam Smith described sharecropping as a holdover from the past and claimed that fixed rents plus well-defined tenant rights "contributed more to the present grandeur of England than all their well-boasted regulations of commerce taken together".
- A century later (1890), Alfred Marshall codified the "marginalist intuition" behind Smith's observations
  - "For, when the cultivator has to give to his landlord half of the returns to each dose of capital and labour that he applies to the land, it will not be to his interest to apply any doses the total return to which is less than twice enough to reward him"
- Decades of empirical research shows that the productivity-depressing effect of sharecropping:
  - Observational studies (*e.g.*, Shaban (1989)) find same farmer produces 33% less output on a sharecropped versus an owned plot
  - A recent randomized controlled trial (Burchardi *et al.,* 2019) finds a 60% differential
  - Ethiopia-specific literature (non-RCT) finds 16% to 43% productivity differential
- With land rental becoming more important in Ethiopia, & with the vast majority of rentals structured as share contracts, the potential productivity losses from sharecropping are large

The Sharecropping Productivity Gap in Ethiopia

- Describe momentarily a new program intended to allow farmers to move from sharecropping
- Just completed baseline survey reveals a huge productivity gap between yields on fields farmers own versus on those that they sharecrop
- The median farmer is producing almost twice as much on non-sharecropped land
- We also asked farmers to perform the following thought experiment for us,

  What if you had two, identical 1 timad parcels . You own one of the parcels and you rent-in the other parcel on shares. Assuming favorable weather and farming conditions, how much QQ of maize do you think you would produce on the parcel you own. How much would you produce on the sharecropped parcel?

  Their answers to this thought experiment reveals a similar productivity loss from sharecropping



Why Is Sharecropping so Common If It Induces Low Productivity?

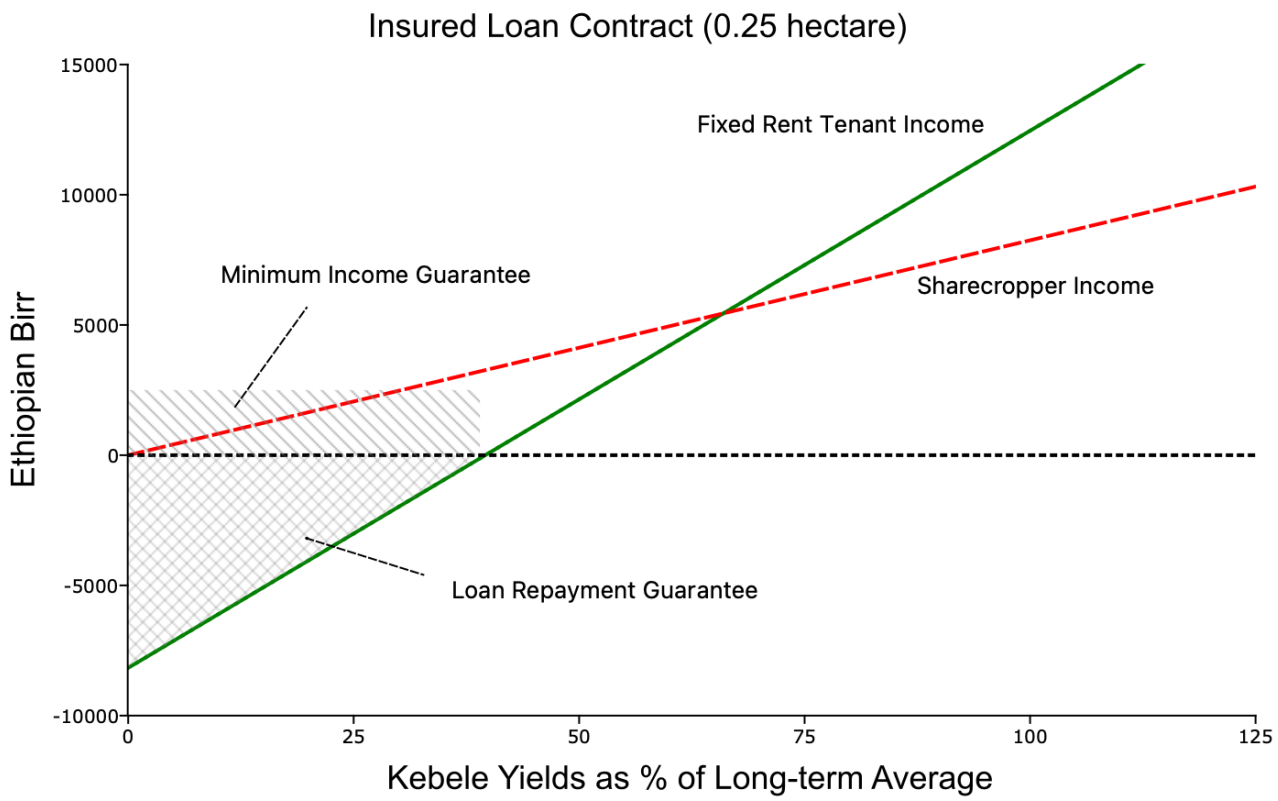
- The economics literature has long been puzzled by the so-called “Marshallian Paradox:” If sharecropping carries such a substantial productivity loss, why is it so commonly used?
- Most common explanations in the economics literature are:
  - Liquidity constraints (share contracts do not require up-front capital, unlike fixed rent)
  - Risk constraints (share contracts split the risk between tenant & landlord, again in contrast to fixed rent where tenant bears all the risk)
- If these constraints drive the second-best choice of share contracts, then a system of insured loans would seem to open the door to substantial productivity improvements by allowing farmers to shift to fixed rent contracts and reap substantial productivity gains
- Before detailing the insured loan system we have devised to open this door, let’s look at what Ethiopian Farmers say about why they sharecrop despite the recognition by many that they would have higher yields and incomes under fixed rent

Why Then Is Sharecropping so Common?

- The baseline survey asked farmers who said they would produce more under fixed rent to answer:
  - You indicated that you would produce more under fixed rent and yet you continue to rent land under sharecropping. What don't you rent more land under fixed rent?
- Their answers are largely consistent with the economic literature:
  - 62% say liquidity constraints prevent them from taking land under fixed rent
  - 6% say fixed rent contracts are too risky
- In addition, 38% indicate that their biggest problem is that landlords are reluctant to rent-out under fixed rent
- While few baseline respondents are landlords, we did informally interview landlords about reluctance to rent land under fixed rental; Answers are twofold:
  - Landlords worry about losing land rights if use fixed rent contracts
  - Landlords do not want money up-front nor in cash (self- and other-control problems)
- Let's now examine program being rolled out to solve these problems

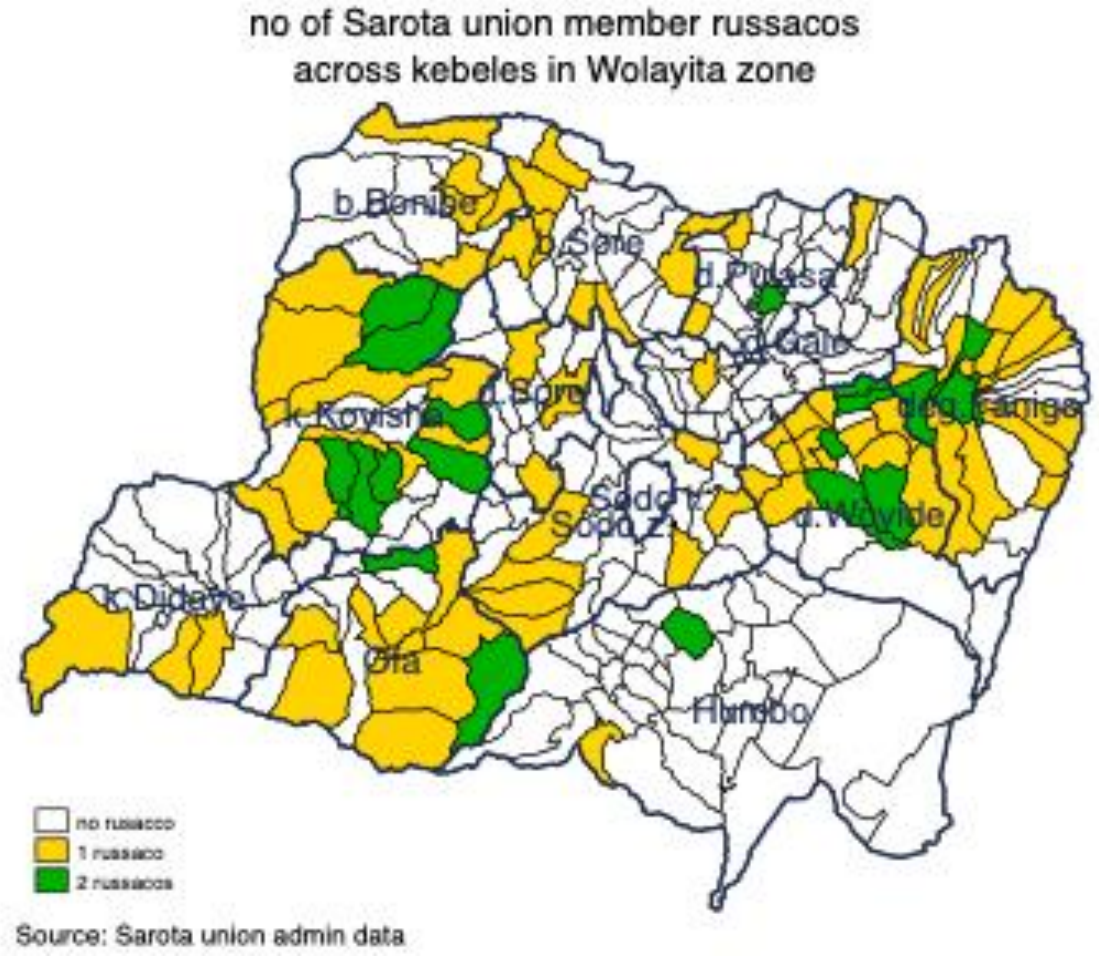
Designing a Solution to Relax Constraints to Fixed Rent Contracts

- Created a Fixed Rent Loan Fund with a Commercial Bank and a way to intermediate loans to tenant farmers so that they can pay fixed rents
- Two elements key to securing loan fund
  - Land certificate collateralization
  - Interlinked insurance contract that repays loan when yields are low
- To enhance desirability of loan for tenant farmer
  - Loan repayment insurance guarantee
  - Minimum income guarantee that approximates earnings that tenant would have received as sharecropper
- Discuss details of how insurance will work in a moment
- To enhance desirability for landlords:
  - Register fixed rental contract to allay security concerns
  - Offer deposit of fixed rent in a commitment account to protect money until harvest time



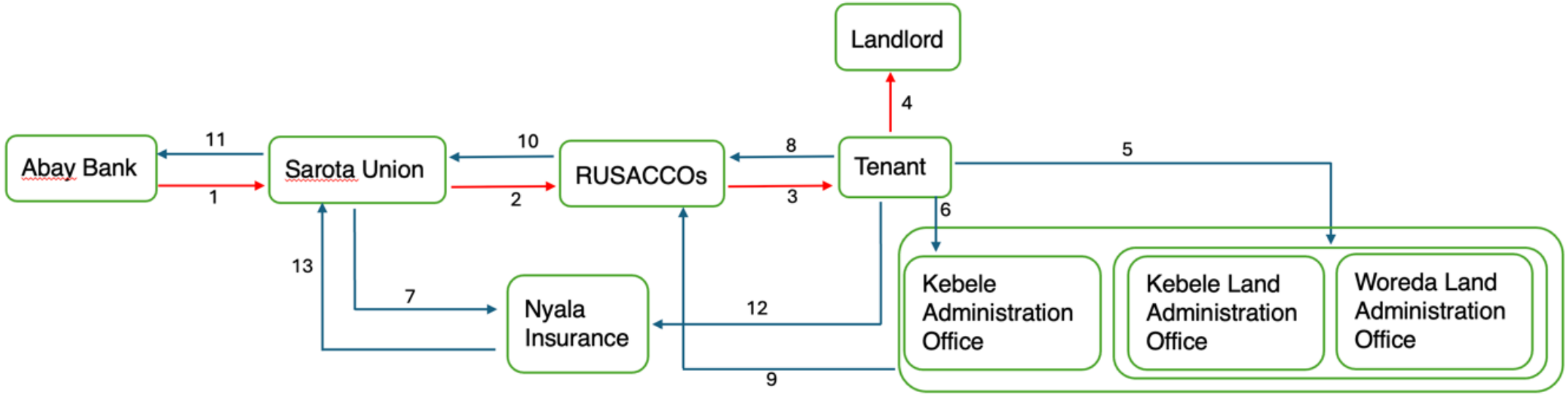
Study Area & Partners

- With a letter of support from the Rural Land Administration & Use Directorate, we began in April 2024 to develop the needed relationships with financial institutions to offer Insured Annual Land Rental Loans in Wolayita Zone
- But separation of sources of loanable funds (Bank) & relationships with farming communities (Sarota Union of Cooperatives & their affiliated Kebele-level RUSACCOs—see map)
- Required the creation of a commercial relationship between these entities
- Enlisted Nyala Insurance & AfricaRE to provide the needed insurance contract



Source: Sarota union admin data

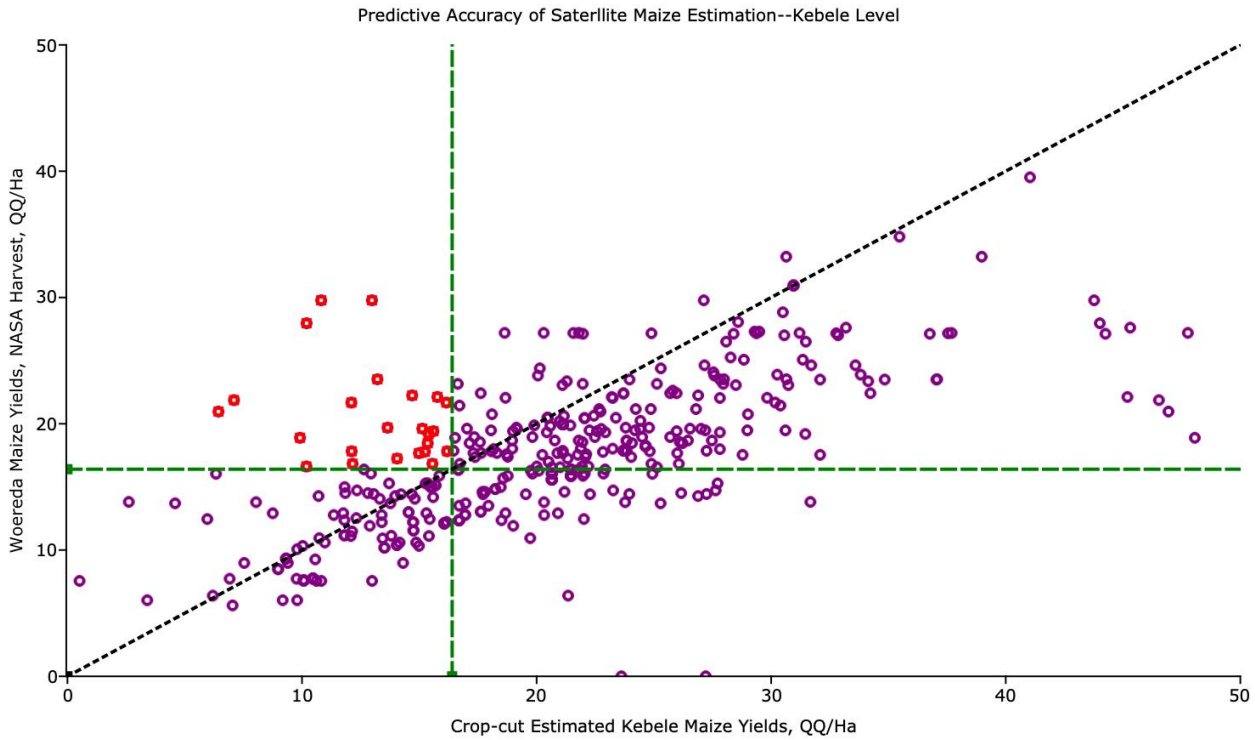
Flow of Loan Funds & Securitization



- Abay Bank has approved a 9.9 million Flexible line of credit for the Union (12 month term allowing early repayment)
- Union will follow its usual procedure of lending funds to local RUSACCOs that will then on-lend to approved tenant loan applicants (8-month term allowing early repayment for reduction in interest costs)
- Securitization
  - Guarantee letter from regional government (still outstanding)
  - Insurance that first pays loan balance
  - Level 2 land certificate
- Also facilitate contract registration to assure rights of landlords and tenants

Fail-Safe Index Insurance Contract

- Goal is to provide protection at the kebele level
- Working with the NASA Harvest program at University of Maryland, using a flexible machine learning model to estimate Woerda yields using remote sensing information
- Even if model fits Woereda yields well, there is still a chance of false negatives, meaning Kebele yield is below strike point, but Woereda yield is not (red dots in diagram)
- In these cases, a Kebele audit committee can request a Kebele level crop cut
- Idea is to get accuracy of a Kebele level area yield index at a small fraction of the cost
- Continue to work on improving remote sensing model



Conclusion

- Program has been initiated:
  - Sarota Union & their RUSACCOs have made necessary changes to by-laws
  - Loan from Bank to Union has been approved
  - Training of Kebele level officials
- Research
  - Randomized branches into treatment & control groups
  - Baseline data collected
- Will it work & will it start to provide the material foundations for sustained good governance?
- Stay tuned for take-up report and eventually impacts on production