Credit Markets in Africa

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African Credit Markets

• Are highly segmented
• Often feature vibrant competitive microfinance markets for urban small-trading.
  • However, MF loans often structured explicitly to prevent them being used for planting.
• Have struggled to provide durable commercial sources of input financing for long-cycle agricultural investment.

Why? What are the implications?
Fertilizer use (metric tons/hectare)
Critical Role of Agricultural Lending

• ~80% of the population of SSA are farmers.
• Poverty, food insecurity concentrated in agriculture.
• Few viable export markets for manufactured goods.

• Lack of access to credit is a core barrier to the technology adoption needed to bring the Green Revolution to Africa (Otsuka and Larson 2013)
Yet, it is hard to push financing to agriculture

- Lenders dislike agricultural loans because
  - Risks are high because of correlated weather shocks
  - Costs of servicing clients are high, particularly for smallholders
  - Smallholder farmers have no credit histories; hard to get started
  - Land as collateral challenging in smallholder/informal environments
Yet, it is hard to push financing to agriculture

- Borrowers appear to have low demand for ag loans also:
  - Profits in farming are low absent complementary investments
  - Risks of unavoidable default are high
  - Timing of standard ag loans poorly timed to price fluctuations
  - In shallow markets, concerted efforts to increase production result in lower prices and disadoption
What is special about smallholder credit?

• Must think about risk aversion of borrowers
  • Loss averse
  • Deep fear of losing collateral even if available (Boucher et al 2008)
  • Behavioral issues in consumption, timing, use of credit (Duflo et al 2009)

• Credit is not the only failing market!
  • Returns to investment may simply be lower than interest rate.
  • Little evidence that credit to invest in ‘business as usual’ in ag increases profits (Maitra et al. 2014).
  • Borrowing to invest in new technology almost always increases *income* risk even if technology is risk-reducing.
Take-up is low

Morocco: 13%, with no other lenders in the area

Sierra Leone: 25%, 50% lower than bank needed to break even

Mali: 21%, compared to full take-up of cash grants

Beaman et al. 2014; Casaburi et al 2014; Crepon et al 2015;
Policy lessons preview

• Farmers’ credit needs are **different**
• Take-up of traditional credit products is often **low**
• Promising interventions
  • **Flexible collateral** arrangements
  • **Improved information** about borrowers
  • Account for **seasonal distribution** of income
  • Lending products with interlinked **risk protection**.
1. Flexible Collateral

- Land may be an unacceptable form of collateral in smallholder agriculture
  - Banks: titles unclear, seizure under default costly & difficult.
  - Farmers: ‘risk rationing’ may prohibit farmers from being willing even if expected profits positive.

- However, many large ag investments can be self-collateralizing (leasing).

- Important role for Asset Registries that support leasing

- ‘Inventory as collateral’; crops can be used to collateralize harvest-time loans (Pender 2008, Basu and Wong 2012; Burke 2014; Casaburi et al. 2014); Warehouse Receipts
Rainwater harvesting tanks in Kenya

- Variation in loan offers
  - Standard: 100% secured
  - 25% deposit, tank as collateral
  - 4% deposit, 21% pledge from guarantor, tank as collateral
  - 4% deposit, tank as collateral

De Laat et al. forthcoming
No default in all groups

De Laat et al. forthcoming
2. Improving Information

- Credit bureaus are the transformative institution when lender info is poor, competition high (McIntosh & Wydick 2006).
- Functioning credit bureaus allow borrowers to substitute ‘reputational collateral’ for physical collateral (de Janvry et al. 2010)
- Mobile phone records highly effective at predicting loan repayment (Bjorkegren & Grissen 2015)
- Alternate technologies such as fingerprinting borrowers (Gine et al. 2011).
Fingerprinting borrowers in Malawi

- Lack of information makes banks unwilling to lend
  - Cannot credibly threaten to cut off future credit
- Treatment group fingerprinted during application process
  - Biometric identification cannot be lost, forgotten, stolen

Gine, Goldberg, and Yang 2011
UNPAID BALANCE (MWK) 2 MONTHS AFTER LOAN WAS DUE

STATISTICALLY SIGNIFICANT DIFFERENCES ARE BOLD

Gine, Goldberg, and Yang 2011
3. Accounting for Seasonal Variation in Income

- Intra-seasonal price fluctuations in many African grain markets over 100%.
- Long-cycle ag lending is risky and often forces farmers to sell at the worst time to repay loans.
- Why not make short-term loans to allow farmers to store & sell when prices are higher?
  - Short-term loans feature less interest, (maybe) less risk.
  - General equilibrium benefits: flatten price contours even for those who don’t use.
  - Arbitrage rule: price shouldn’t change faster than interest rate + wastage rate.
- Complementary intervention to post-harvest storage improvements.
Source: Burke 2014, from western Kenya
Harvest-time loans in Kenya

- Loans allowed farmers to:
  - Buy/keep maize at low prices
  - Store while prices rose
  - Sell later at higher prices
- Temporal arbitrage increased profits
  - Concentrated in areas where fewer farmers offered loans (sign of spillover effects)
4. Sharing Risk in Agricultural Lending

• Ag default is composed of both avoidable risks (MH) and unavoidable risks (weather).
• Lenders must be protected against correlated risk in portfolio
• Borrowers must be protected against a sufficient share of unavoidable risk to make them willing to use collateral
Key challenge of ag financing: sharing risk

Collateral when lenders are risk neutral and borrowers are risk averse: Risk Rationing (Boucher & Carter)

Safe return from farming forms the opportunity cost of borrowing, nails down indifference curve of worst contract the borrower will accept.

Full-info eq

Safe return under self-financing

Lender break-even

Borrower return in bad state

Borrower return in good state

ICC
Is Weather Index Insurance the Solution?

• Appears to be the ideal solution (no MH, removing only unavoidable risks from lender & borrower), but . . .
  • Unsubsidized uptake on WII has been very low almost everywhere in the world; from 1-18%, not enough to sustain private market.
  • NO examples of commercial WII going to scale without heavy government subsidy (contrast to microcredit).
• Efforts to interlink credit and insurance explicitly have also been problematic
  • Demand is low: Gine and Yang find that demand for interlinked loans in Malawi is LOWER than demand for standalone loans.
  • Ahmed et al: uptake of interlinked loans in Ethiopia ~ 2%
  • Conditionality undermines ‘culture of repayment’?
Can we insure the lenders instead?

• Meso-level products can be offered to ag lenders
  • India’s National Agricultural Insurance Scheme
  • Client is sophisticated
  • Don’t need to insure entire portfolio, lowers costs.
  • Can be effective if credit markets are supply constrained.
  • Should borrowers be informed of nature of insurance? Should lenders attempt to collect loans even if paid out by insurance?
    • Lender-driven solutions not effective if risk rationing is main constraint in market.
What is the effect on ag system risk?

• WII, when successful, induces an increase in variability of ag output. This can make ag wages more volatile (Mobarak & Rosenzweig 2013).

• Credit used to invest in superior seed technology has similar effect of decreasing income risk but decreases output variability, hence insuring laborers.
  • Also provides most protection to the most vulnerable farmers (de Janvry et al. 2014)
Conclusions:

- Credit is key to ag investment, but many African markets are too risky and too low-return to be viable without additional investment (infrastructure, information systems).
- Microfinance is a viable pathway to income diversification, facilitates ‘moving out’ of ag.
- Complementary institutions critical for ‘moving up’ w ag credit: credit bureaus, credit registries, weather monitoring systems.
- Some promising ways of using information, timing, and new types of collateral to unlock credit; ‘move around’ risk.
- Risk is a dominant issue for credit; insurance and credit likely to need to be grown hand-in-hand.