

The BASIS Smart Development Pilot Project Agenda

Matching Financial with Technological Innovations in Southern Africa



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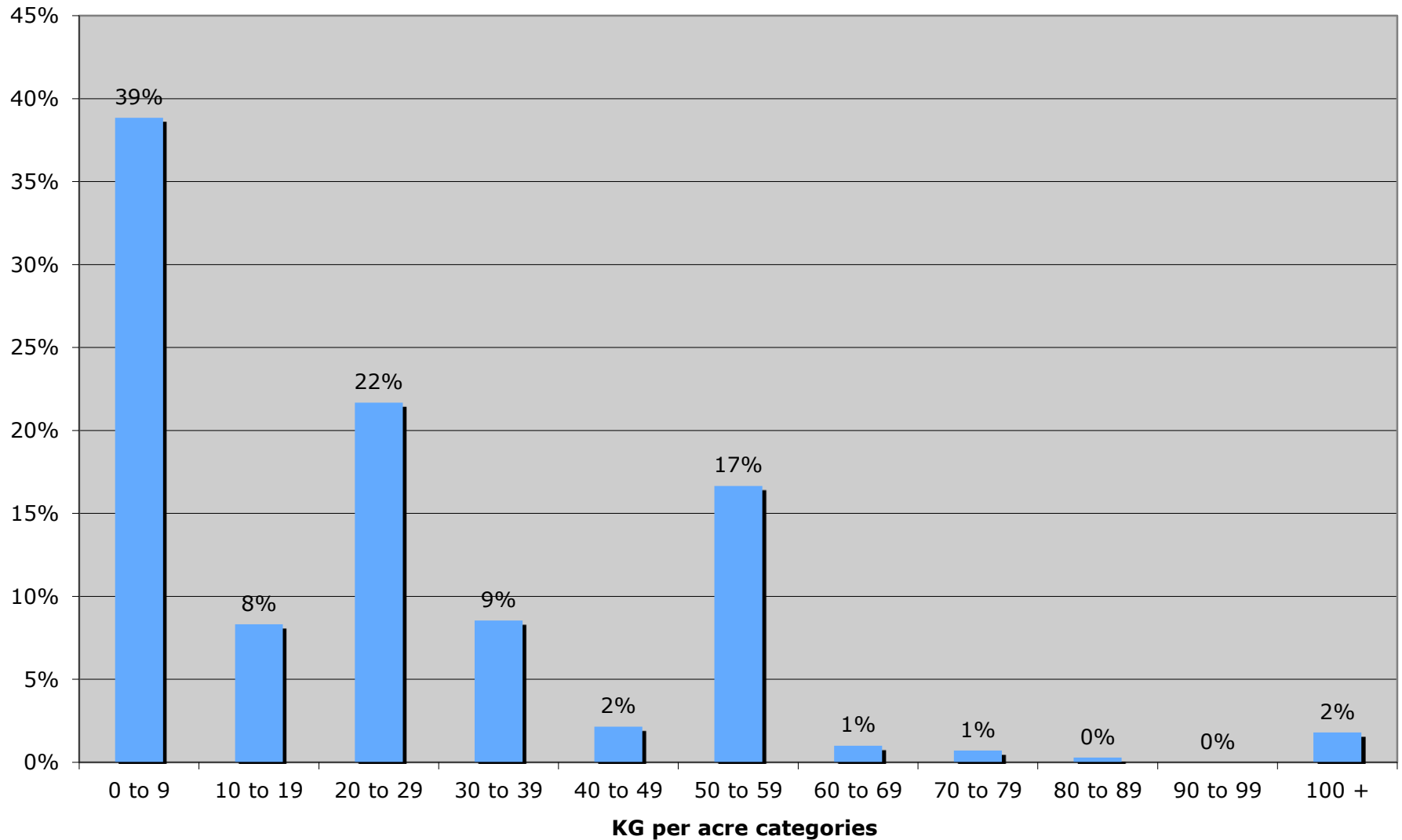
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Fertilizer per acre on maize, central Malawi

Urea per Acre of Maize



Note: Per-hectare fertilizer recommendation for central Malawi is 150 kg urea and 100 kg 23:21 (per acre: ~60kg urea, ~40 kg 23:21).

Raising farm output with rural finance

- Facilitate **credit** to buy fertilizer

- Encourage farmers to **save** for their own fertilizer purchases

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Low credit supply in rural Malawi

- Most farmers cannot obtain credit because lenders find rural lending unprofitable
- 74% of farmers we surveyed have not borrowed from a bank/MFI in the last 10 years

Identification problems in rural lending

- Difficulties in identification lead to repayment problems for MFIs
 - Borrowers default, then take new loans under other names
- Easier when multiple lenders operate in same area
- A main problem: lack of a national identification system and credit bureau
 - Can't sanction defaulters by excluding them from future lending
 - Good borrowers can't prove they are reliable
 - Upshot: limited credit supply to rural areas

Biometrics and loan repayment

- Fingerprinting could help in future identification, in absence of a national ID system
- Helps lenders identify past defaulters
 - Within own institution
 - Across banks (requires pooling of credit reporting and sharing of fingerprint database)
- Research question: can fingerprinting of borrowers raise repayment?
- If so, may raise lending profitability and encourage lenders to expand rural lending

Project set up

- Loans to ~1,200 paprika farmers in central Malawi
 - Dowa, Dedza, Mchinji, Kasungu
- Malawi Rural Finance Company (MRFC) provides loans of ~MK 17,000 for paprika seeds, fertilizer and chemicals
- 50% of paprika clubs are randomly selected to be fingerprinted
 - Use of fingerprints explained to farmers
 - Aids in identification of defaulters as well reliable borrowers
- A “field experiment”, analogous to a medical trial with randomized treatment and control groups
 - Funded by World Bank and USAID

Fingerprinting

- Farmers fingerprinted in August and September 2007



Demonstrating fingerprint identification



Packing paprika for sale



Treatment vs. control comparisons

- Treatment group: farmers fingerprinted in August-September 2007 (prior to loan application)
- Control group: all other farmers in sample
- Note: *all* farmers were given same education module emphasizing importance of credit history

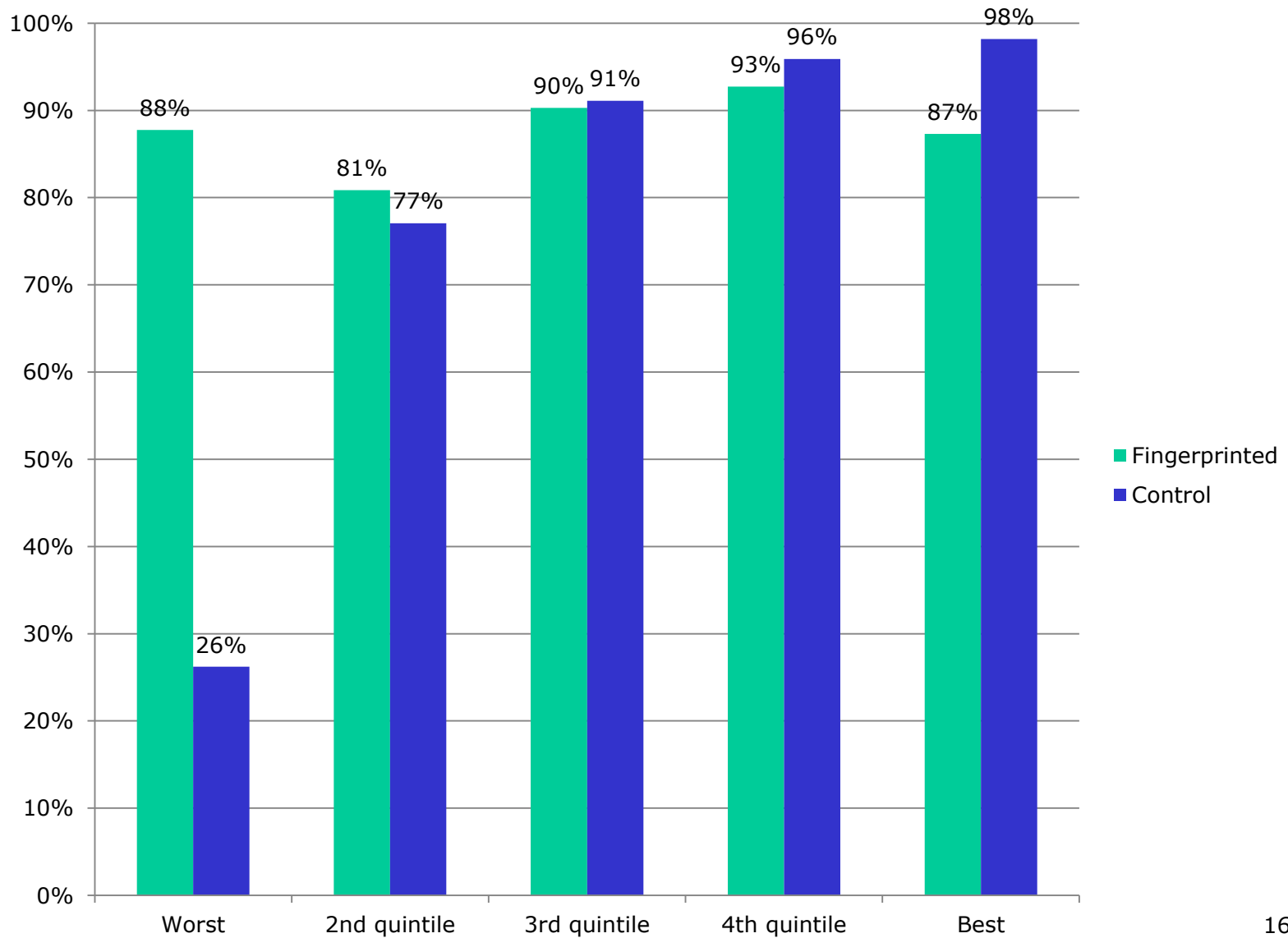
Summary of learnings from experiment

- Biometric fingerprinting can raise repayment rates
 - Overall, repayment rises from 80% to 88%
 - Particularly for borrowers with the lowest likelihood of repayment (the “worst” borrowers)
 - For the worst borrowers, repayment rate more than triples (rises from 26% to 88%)
- In response to fingerprinting, worst borrowers use more inputs (esp. fertilizer) and do more cash sales
- No substantial effects for “better” borrowers

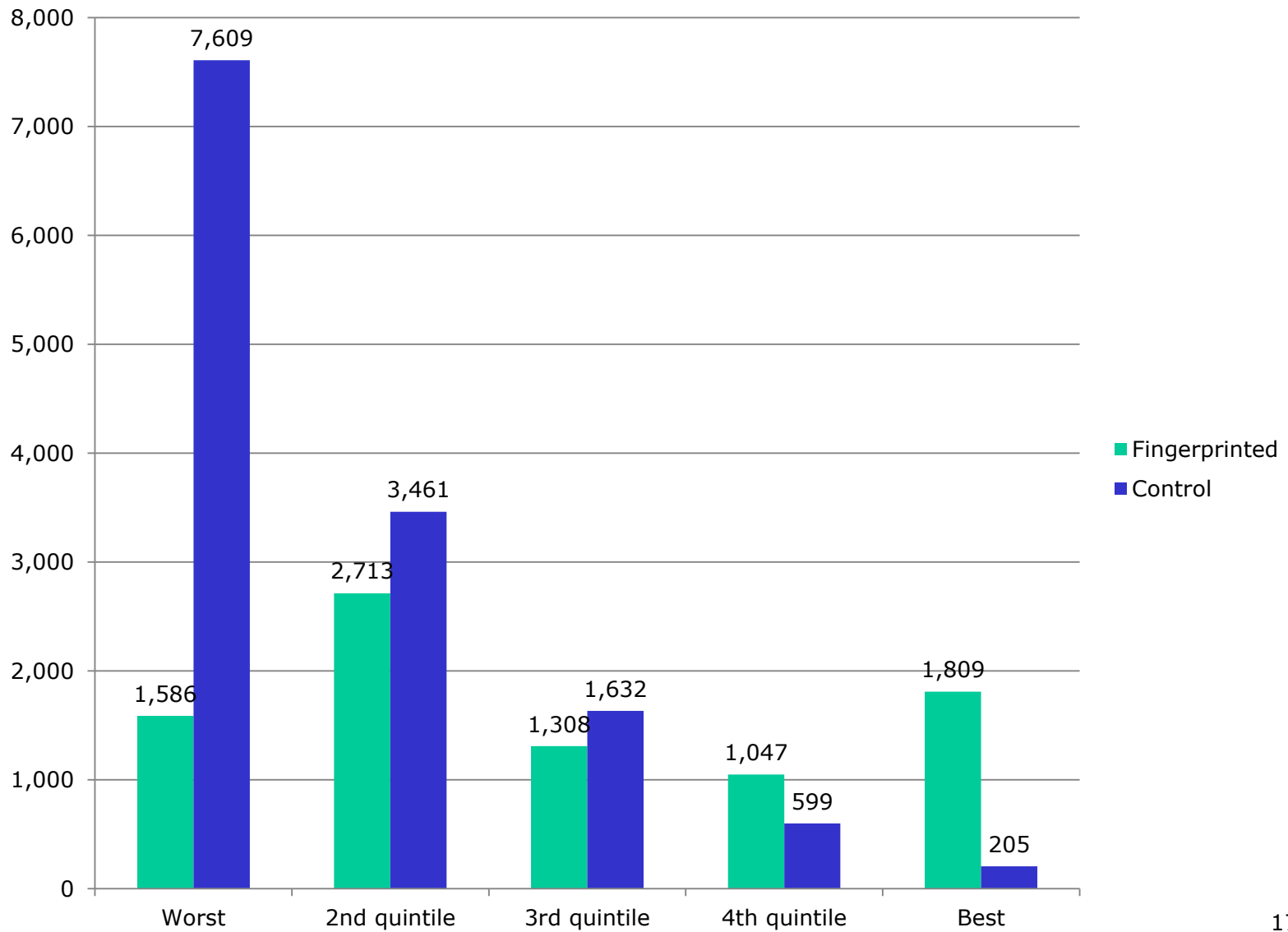
Treatment (fingerprinted) vs. control

	<u>Treatment</u>	<u>Control</u>	<u>Difference</u>
Total borrowed (MK)	16,584	17,295	-711
<u>Repayment by Sep. 30</u>			
Balance (MK)	1,726	2,494	-768
% paid	88%	80%	8%

Repayment: % of balance paid by Sep. 30



Repayment: balance as of Sep. 30 (MK)



Policy implications

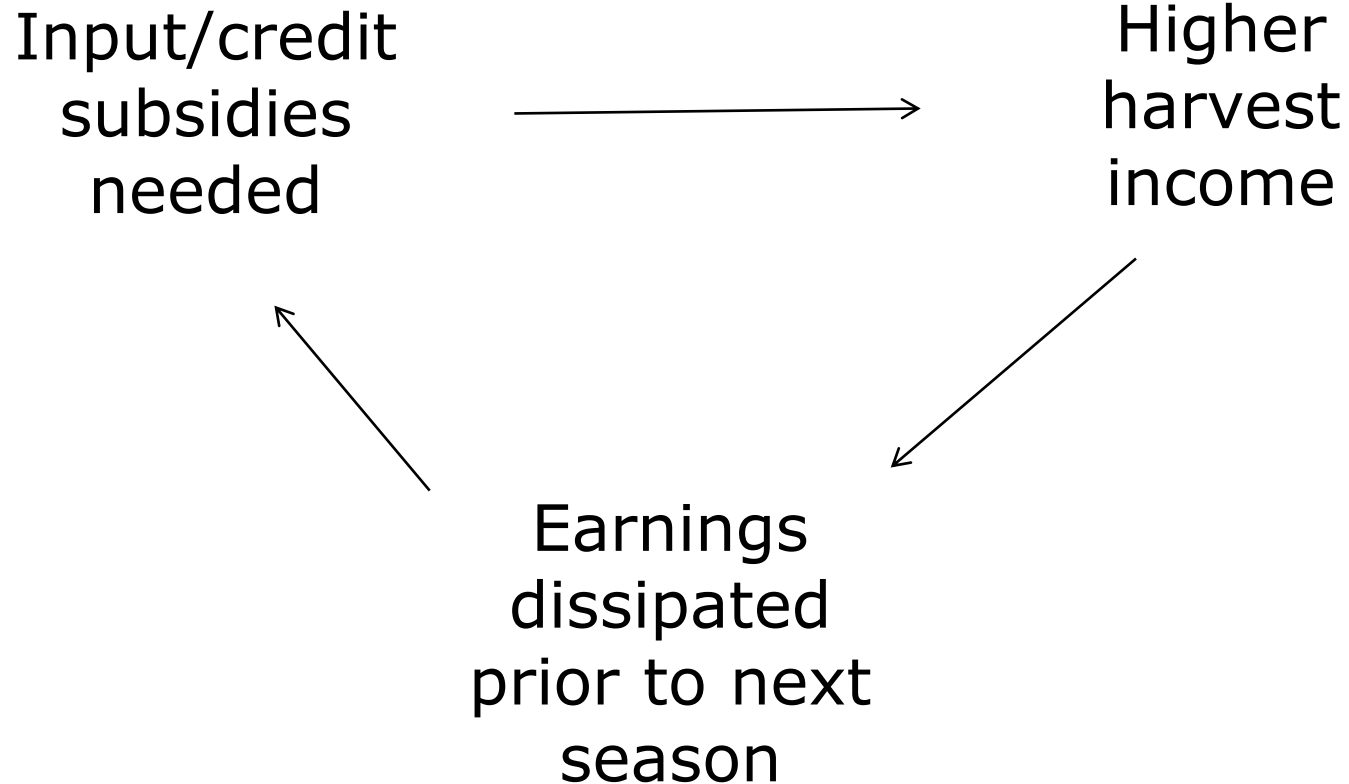
- Biometric identification can raise repayment rates, particularly for the “worst” borrowers
- If resources for biometrics are scarce, focus on areas with worse repayment performance
- But impacts likely to be larger when:
 - Credit bureau established to share information across lenders
 - Prevents defaulters from taking new loans from other lenders
 - System has been in place for longer, so that farmers observe system in practice

Strategies for raising farm output

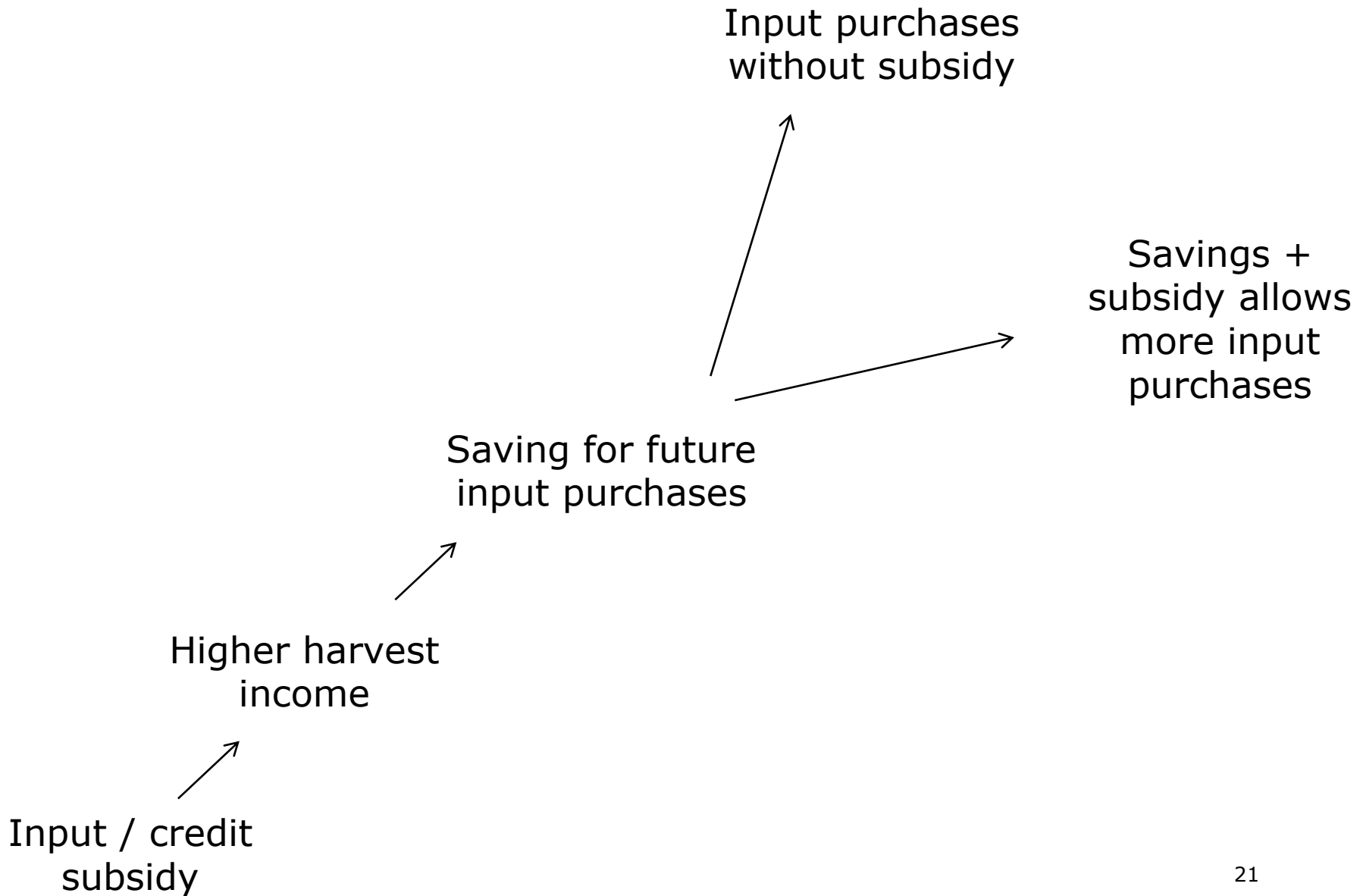
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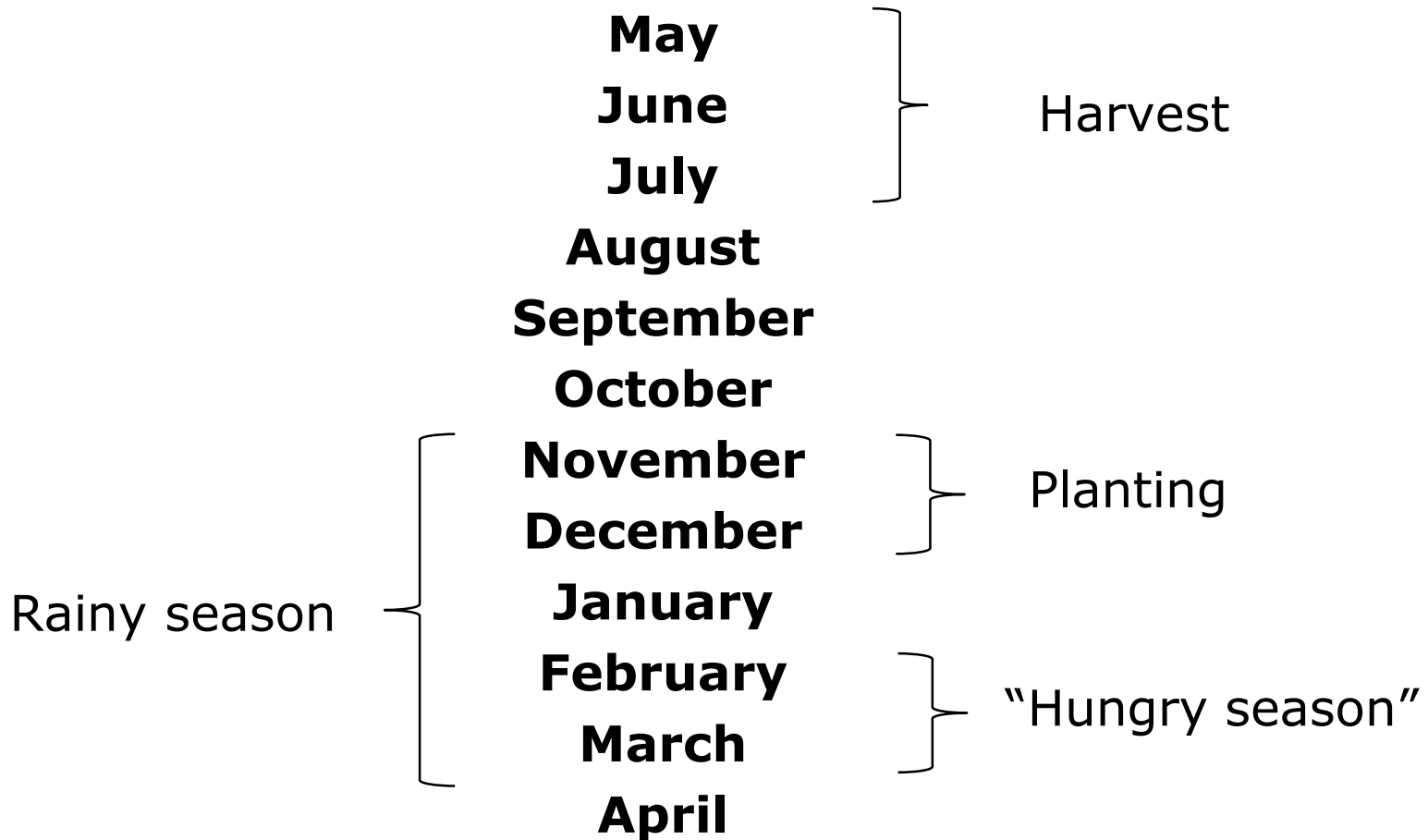
Vicious circles in input or credit subsidies



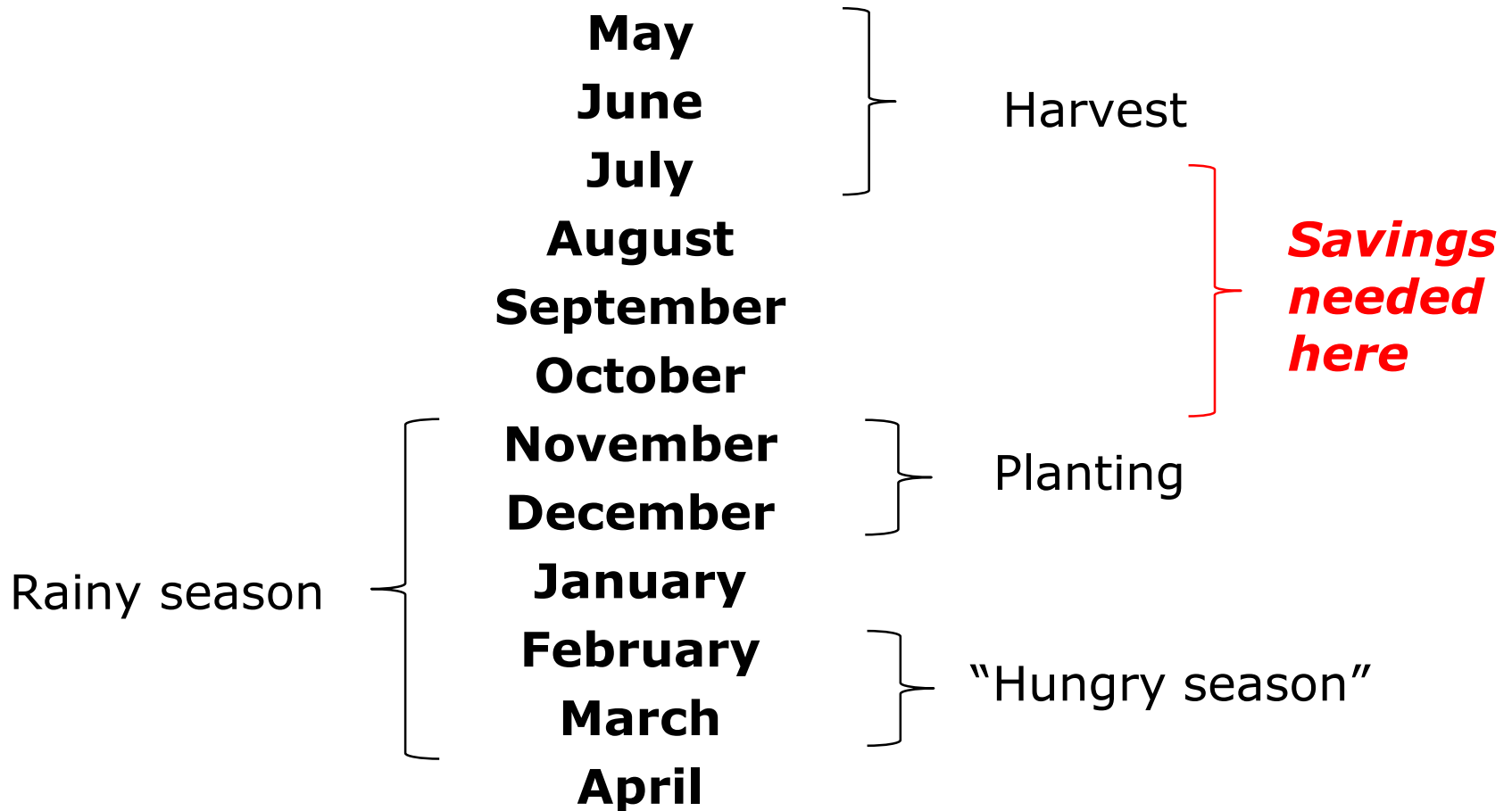
Breaking the vicious circle with savings



The agricultural cycle in Malawi



The agricultural cycle in Malawi



Commitment savings

- Idea:
 - Let farmers specify amounts to be placed in special accounts
 - Farmers can specify date at which they regain access to funds (no access prior to release date)
- Helps farmers with their self-control problems
- Also may help farmers resist demands from relatives and friends
- Further help to farmers: direct deposit
 - Keep cash out of hands entirely

Implementation

- Offer farmers opportunity to have cash crop proceeds direct deposited into:
 - Ordinary accounts
 - “Commitment” accounts
- Offer 1-2 months before harvest
 - Before temptation sets in
- 2008 pilot in Malawi shows high demand for commitment accounts
- Follow-up work in 2009 and beyond:
 - Malawi
 - Mozambique

2008 test results among paprika farmers

S.No.	Name	Amount in ordinary savings a/c	Amount in commitment savings a/c	Date for commitment account
1.	Maliko Chithumba			
2.	Najele Munganyade			
3.	Samson Kawone	15,000	10,000	Oct. 20, 2008
4.	Kachepsya Chiwolagaga	7,000	5,000	Nov. 25, 2008
5.	Waiti Bunayi	15,000	10,000	Nov. 10, 2008
6.	Mangani Fikisoni	10,000	9,000	Nov. 7, 2008
7.	Masauko Janga			
8.	Pusaikaziyo Fumu	5,000	5,000	Oct. 30, 2008
9.	Jekeseni Yeduwadi			
10.	Macdonald Lusitiko			
11.	Bulaka Sanuni	25,000	5,000	Oct. 1, 2008
12.	Greya Chiweza	7,000	18,000	Nov. 5, 2008
13.	Edward Jekeseni	10,000	5,000	Nov. 30, 2008
14.	Patili Mtemwende	6,000	5,000	Feb. 5, 2009
15.	Labisoni Shilingi	4,000	6,000	Oct. 30, 2008

In sum

- New strategies for improving rural finance in Malawi show considerable promise
- Biometric fingerprinting raises repayment rates, particularly for the “worst” borrowers
 - Challenge will be implementing on a wider scale, and actually using fingerprint data for screening
- Commitment savings can help farmers “self-finance” their input needs
 - Much evidence of demand for the product
 - But impact still to be determined