

The Impact of Seasonal Food and Cash Loans on Smallholder Farmers in Zambia

Günther Fink (Harvard SPH)

Kelsey Jack (Tufts University)

Felix Masiye (UNZA)

Tuesday, 22 March 2016

UNZA School of Veterinary Science



Acknowledgments

- ATAI and IGC for funding the pilot
- IZA/DFID for funding the main study
- The IGC country team for supporting this event
- The entire IPA team for all the hard work

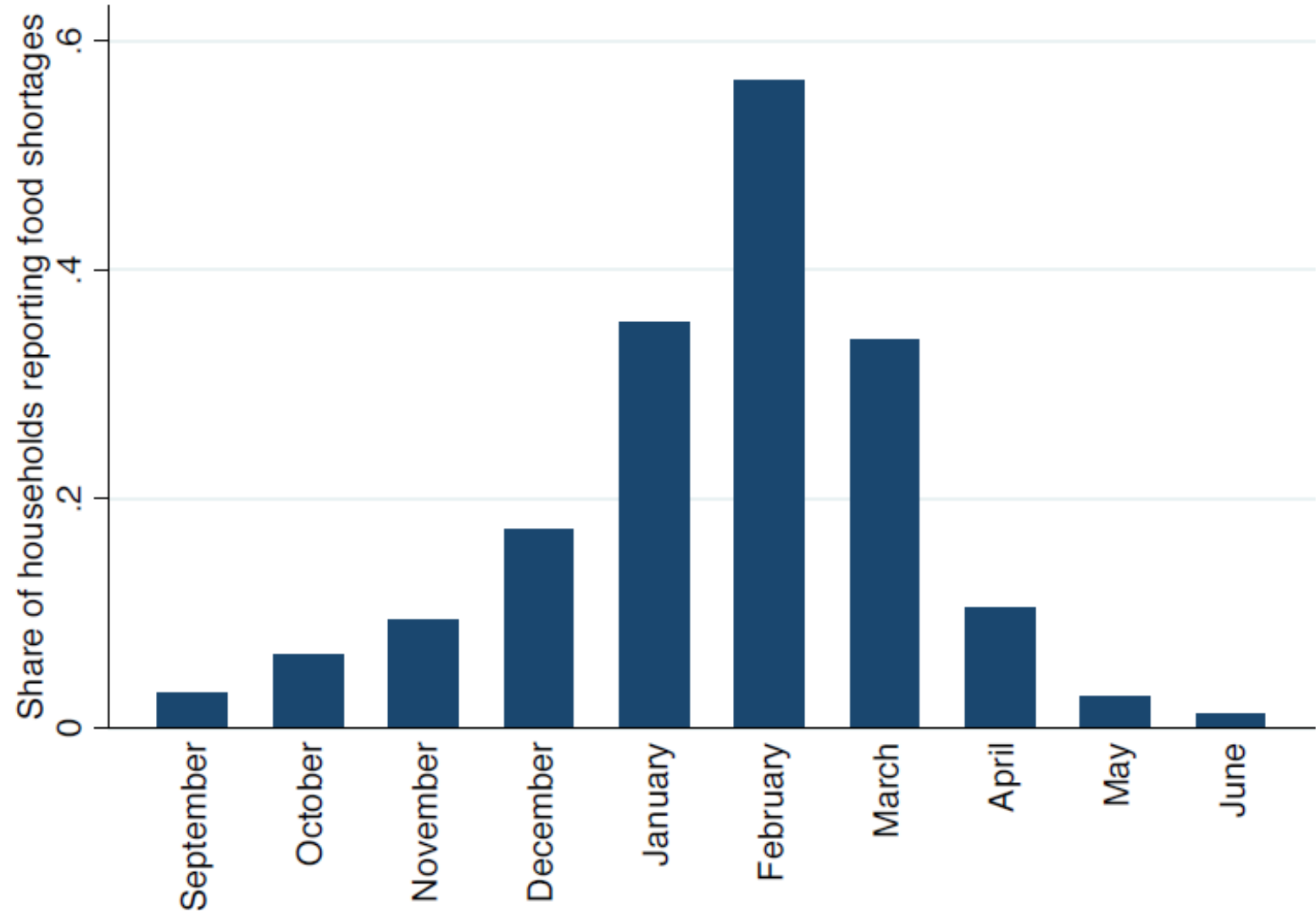
Project Background

- Small scale farming remains the primary income source in many developing countries
- In Zambia more than 60 percent of households are engaged in agriculture
- Most with farms are small (<5 hectares) and farming income is limited (< K 1000 per hectare)
- Most farming households live substantially below the poverty line

Seasonal Constraints

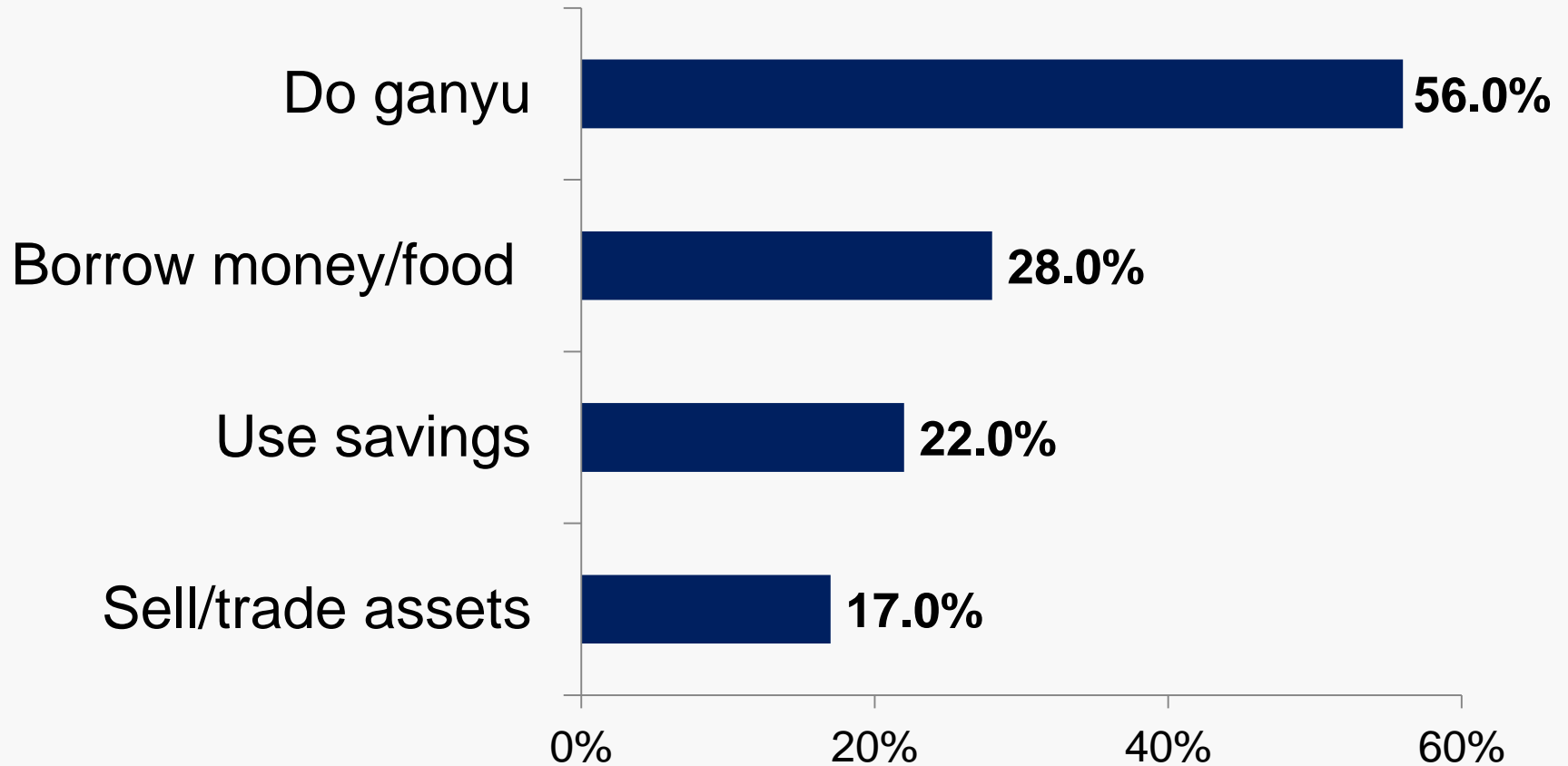
- Main crops generally become available around April
- By September, some households start to run out of food and cash reserves
- By January, a majority of households struggles to cover basic consumption needs (peak “hungry season” begins)

Seasonal Food Shortage



How Do Households Do When They Run out of Food Reserves

Percent



Ganyu Labor and Poverty

- While ganyu labor is a relatively easy way to get money or food in the short run, it may be costly for farms in the long run
- Time spent on other farms on average implies less time spent on primary farm land
- Less time on farms likely means reduced harvest → more ganyu next year (dynamic poverty cycle)

Study Objectives

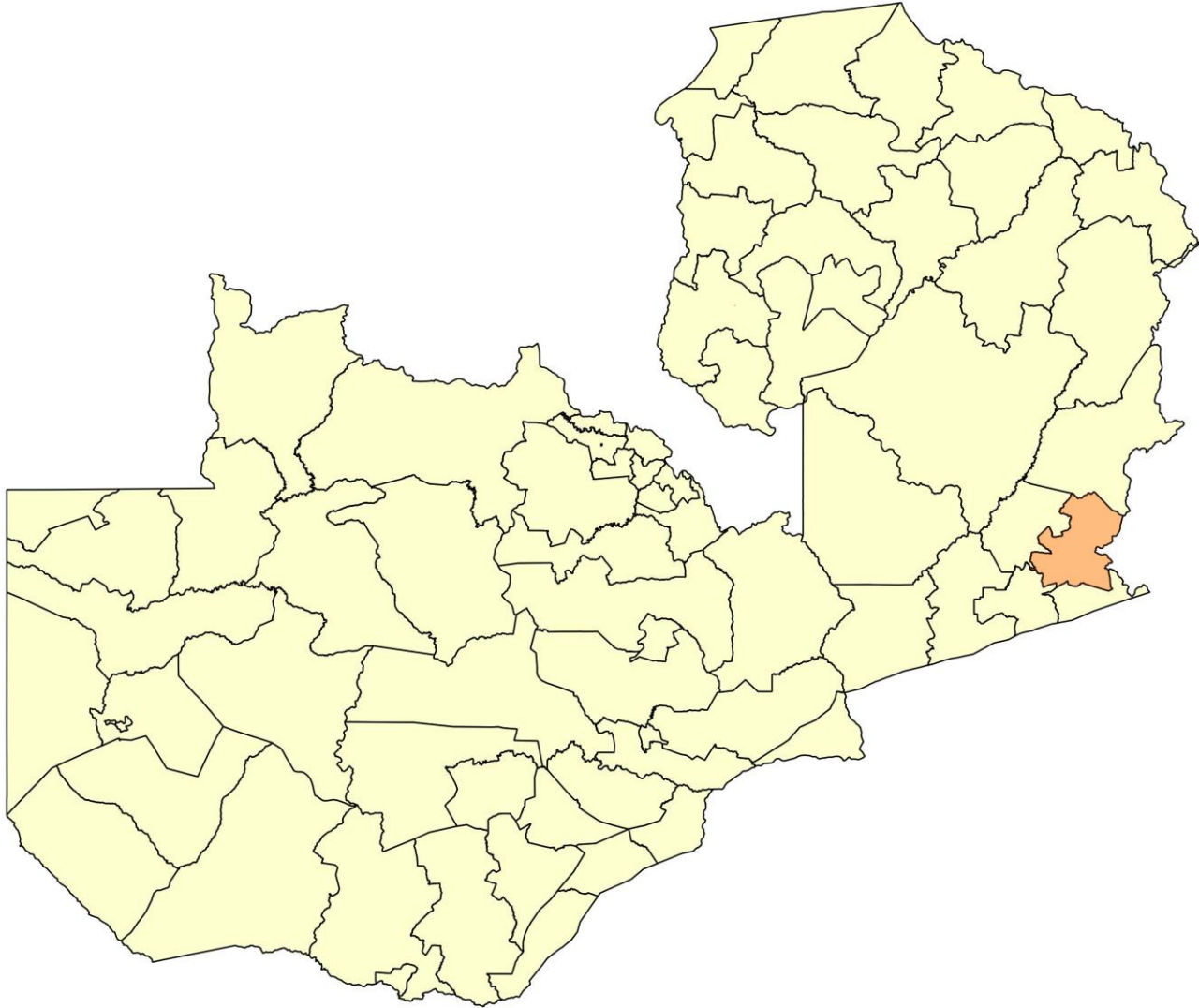
To rigorously assess whether..

1. ...access to seasonal credit reduces ganyu labor as well as other costly coping strategies
2. ...access to seasonal credit can increase agricultural output

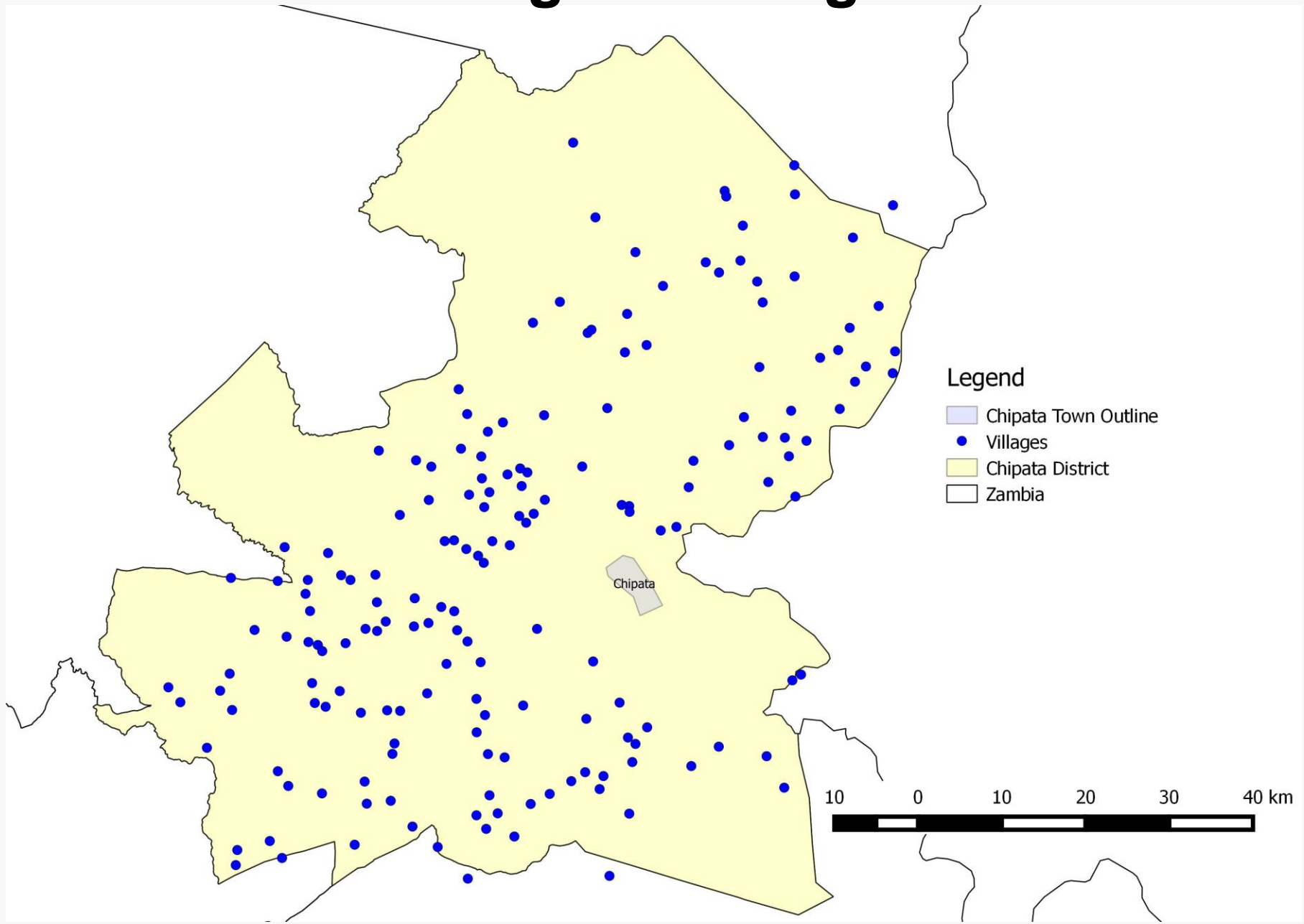
Study Overview

- 1 year pilot in 2012/2013
- Main study: November 2013 – September 2015
- Target population: Rural small scale farmers (2-12 acres of land)
- Sample size: 3200 farmers across 175 villages

Study Location



Village Coverage



Sample Characteristics

	Mean	Median	Min	Max
Did ganyu	0.62	1	0	1
Hired ganyu	0.32	0	0	1
Acres cultivated	4.53	4	2	12
HH size	5.33	5	1	19
Female headed	0.25	0	0	1
Age of hh head	42.84	40	17	93
Harvest value (USD)	584.76	456	0	8954
Number of crops	3.01	3	0	8
Livestock value (USD)	686.94	150	0	15000
Any borrowing	0.14	0	0	1

Sampled Population: Small scale farmers in 175 villages (N=3200)

Year I

Control group
58 villages

Maize loan
58 villages

Cash loan
59 village

Year II

Control
Group:
N=38

Maize
loan
N=10
Cash
loan
N=10

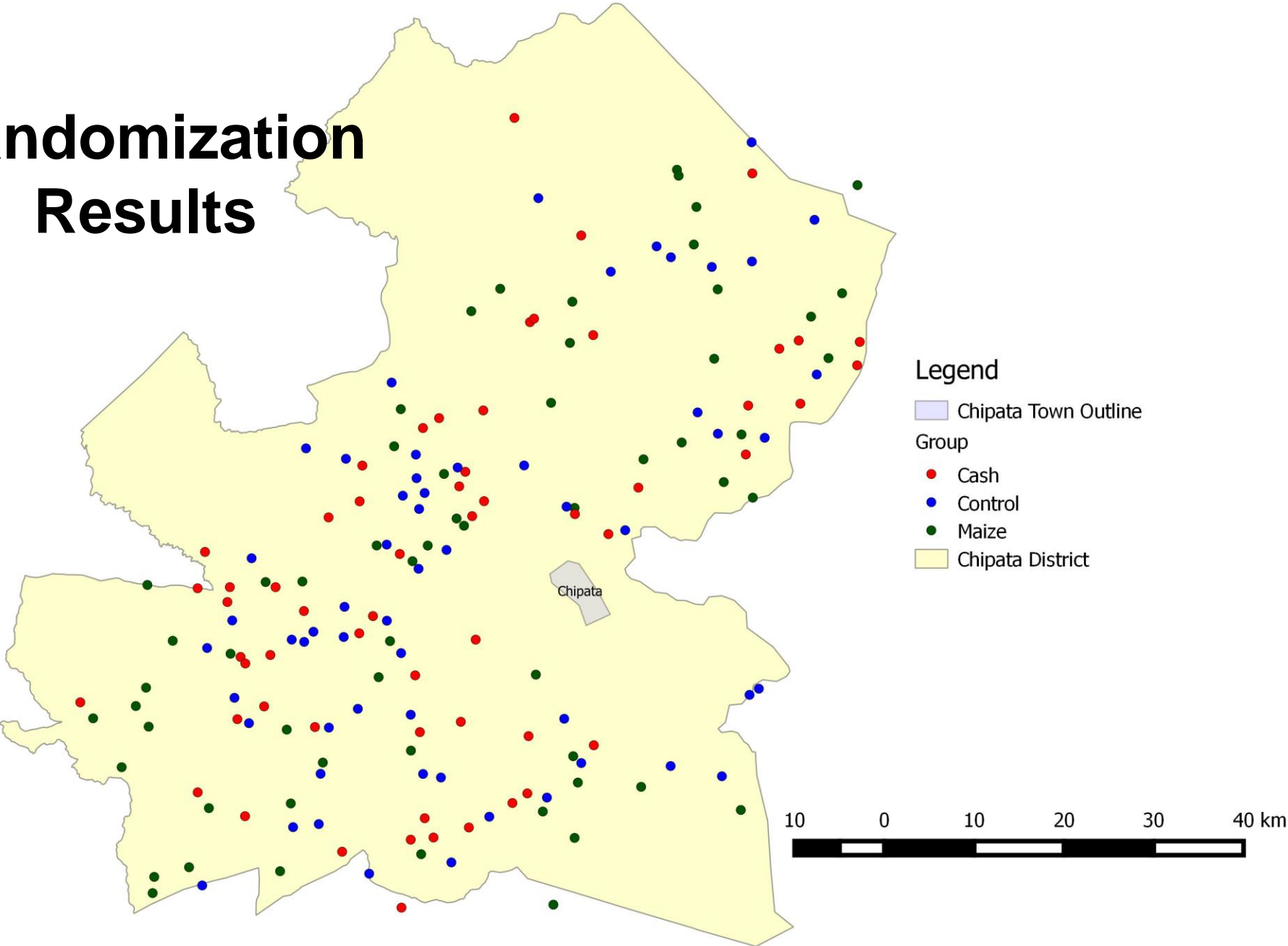
Control
N=28

Maize loan
N=30

Control
N=29

Cash loan
N=30

Randomization Results



Seasonal Loan Interventions

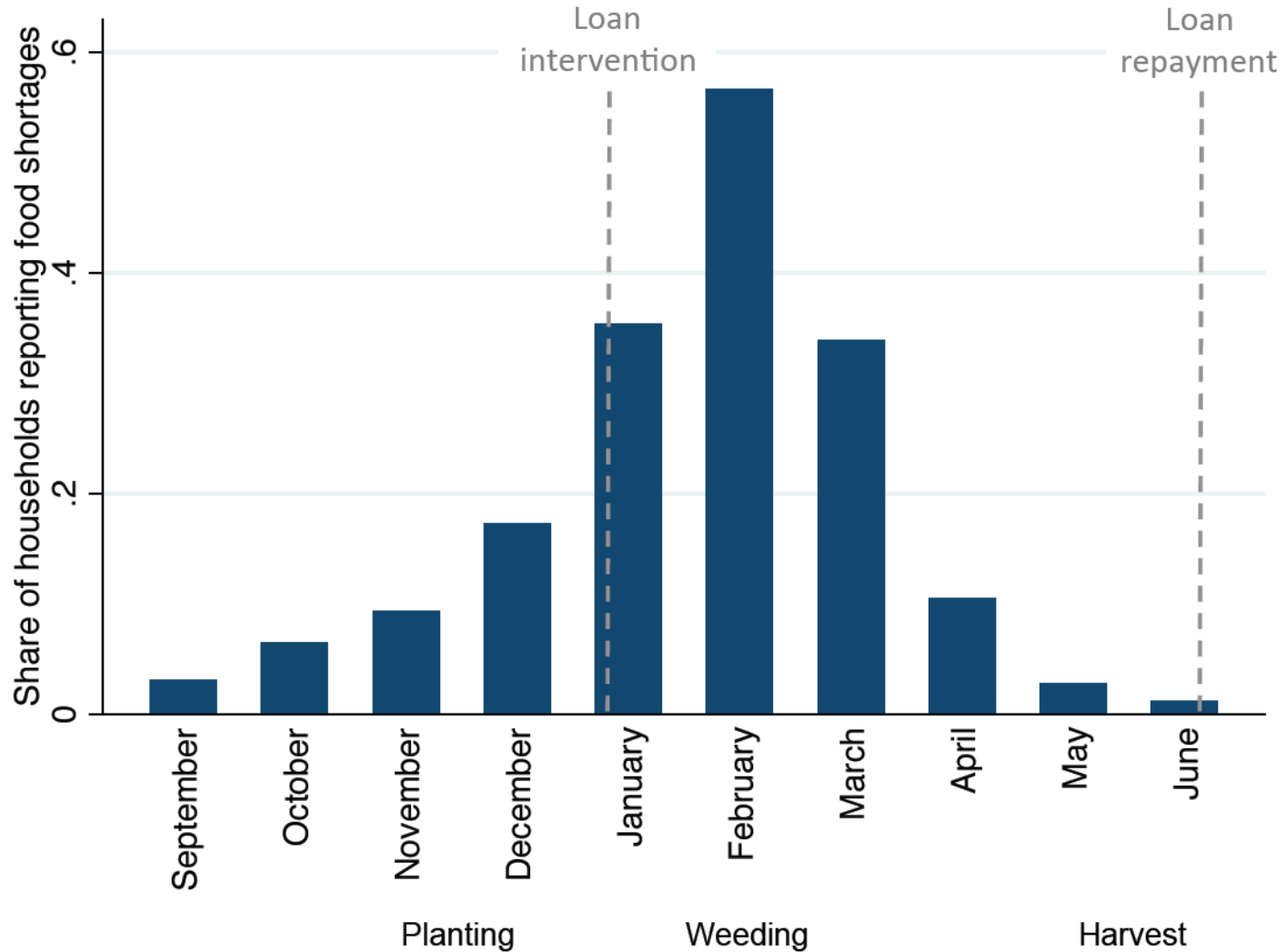
Cash loan

- ✓ Receive: 200 Kwacha in January
- ✓ Pay back: 260 Kwacha or 4 x 50 kg bags of maize in June/July

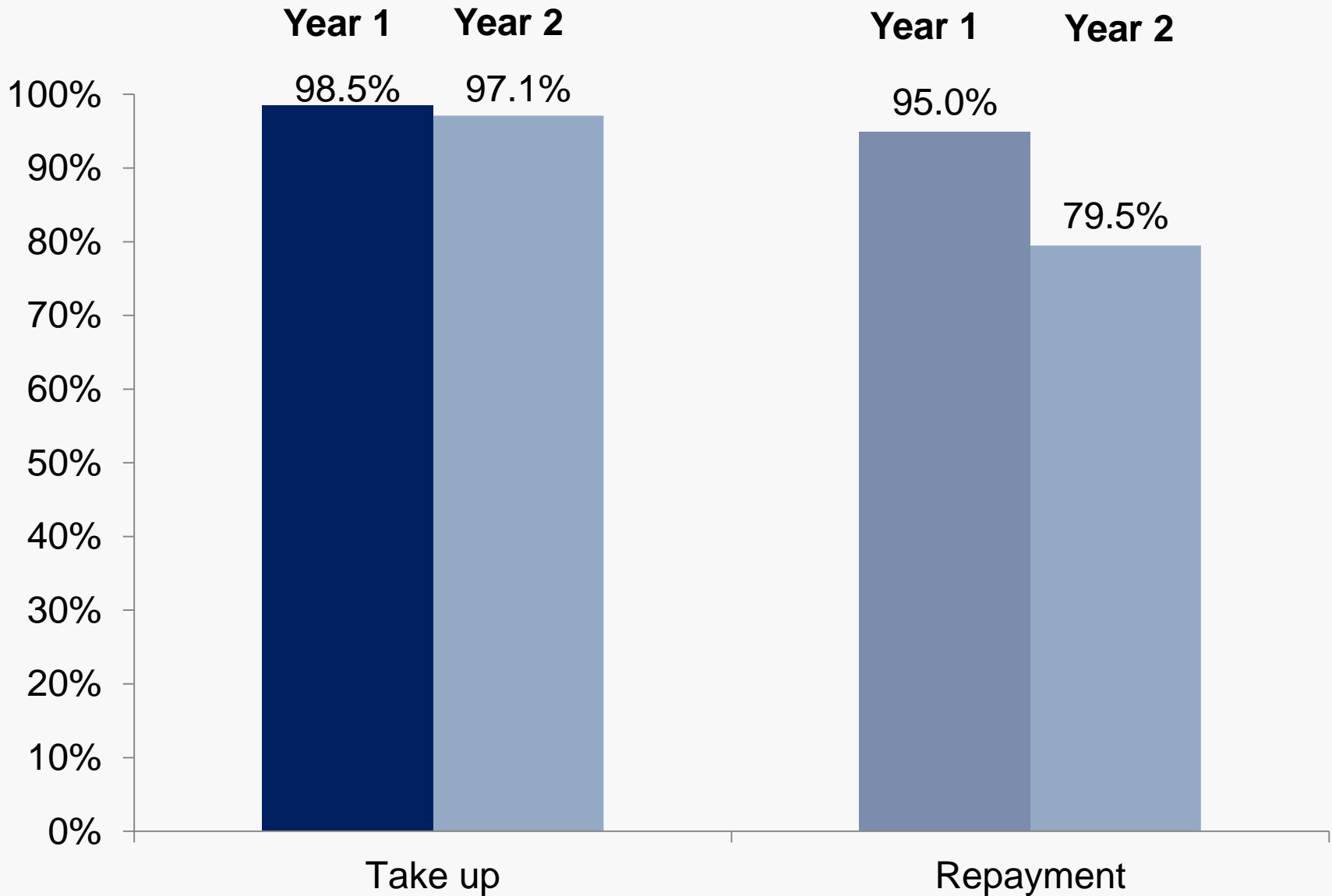
Food loan

- ✓ Receive: 3 x 50 kg bags of maize in January
- ✓ Pay back: 260 Kwacha or 4 x 50 kg bags of maize in June/July

Intervention Timing



Results 1: Uptake and Repayment



Results 2: Impact on Food Security

	Worry about food	No food in household	Sleep hungry	Went 24 hours without eating
Any loan treatment	-0.129*** (0.020)	-0.106*** (0.020)	-0.108*** (0.021)	-0.048*** (0.015)
Observations	2775	2776	2775	2776
Control group mean	0.679	0.269	0.261	0.127

- 19% reduction in food concerns
- 39% reduction in food scarcity in household
- 39% reduction in sleeping hungry

Results 3: Impact on Labor

	Any ganyu sold	Ganyu hours per week	Any ganyu hired
Any loan treatment	-0.027** (0.013)	-1.139*** (0.325)	0.051*** (0.013)
Baseline mean	0.609	3.417	0.321
Observations	6012	5799	6032

- 5% reduction in doing ganyu
- 33% reduction in hours ganyu
- 15% increase in hiring ganyu

Results 4: Impact on Borrowing

	Formal loan	Informal loan (kaloba)	Sold asset	Sold livestock
Any loan treatment	-0.012 (0.017)	-0.019*** (0.005)	-0.001 (0.008)	0.018 (0.014)
Baseline mean	0.440	0.070	NA	NA
Observations	6030	6033	6032	6033

- 32% reduction in high interest rate loans
- No impact on formal loans or assets

Results 5: Impact on Self-Rated Health

	Overall health	Walk 5k	Carry 50kg	Carry water
Any loan treatment	0.076***	0.023*	0.030**	0.019
	(0.026)	(0.013)	(0.013)	(0.012)
Control group mean	3.1	0.70	0.60	0.70

Statistically significant but small increases in self-assessed health and fitness (reported in harvest season)

Results 6: Agricultural Output

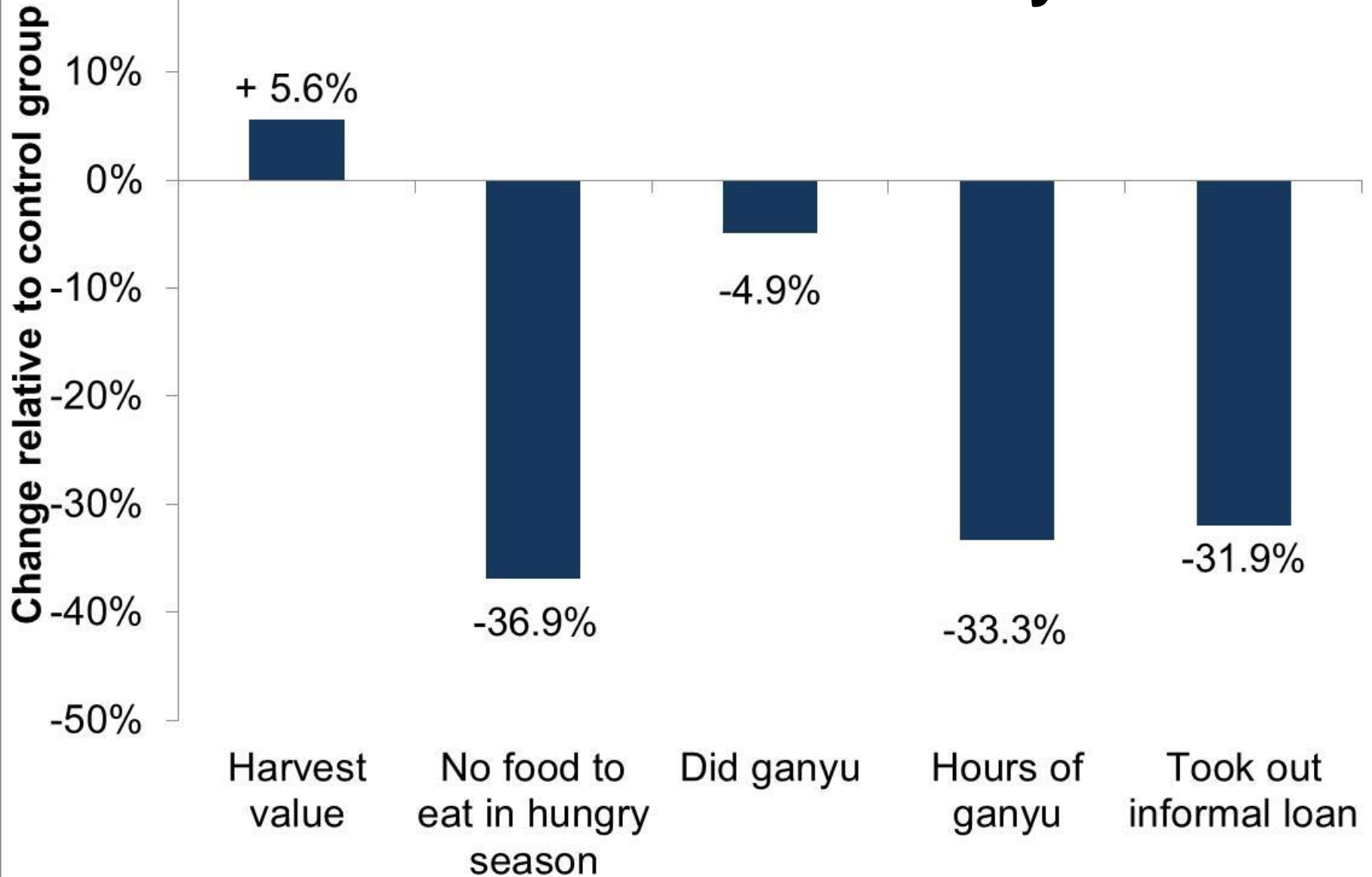
	Acres harvested	Quantity harvested	Value (constant prices)
Any loan treatment	0.155**	106.6**	202.1**
	(0.06)	(50.5)	(93.4)
Observations	9171	9172	9172
Year 1 control group mean	4.4	2185	3640

- 3.5% increase in harvest field size
- 106 kg (4.8%) increase in total harvest quantity
- KR 202 (5.5%) increase in harvest value

Other Results

- No impact was found for other agricultural inputs such as seeds for fertilizer – loan amount likely too small to alter these
- No impact found on height and weight of children or adults; overall improvements in nutrition not sufficient to compensate for seasonal shortages.
- Overall prevalence of undernutrition remains very high in this population; up to 50% among children under-5 in our sample

Overall Result Summary



Year 1 vs. Year 2 Differences

- Overall, the 2015 (Year 2) harvest was about 15% lower than the 2014 (Year 1) harvest, mostly due to less favorable rainfalls
- Weaker harvests were associated with lower repayment (particularly in areas with repeated programs)
- Weaker harvests were also associated with lower intervention impact on agricultural output

Cash vs. Maize Loans

- No major differences in take up and repayment
- Maize loans appear to have marginally bigger effects on nutrition and food security
- Cash loans have larger impact on
 - labor selling (doing ganyu)
 - labor hiring (hiring ganyu)
 - agricultural output

Cash vs. Maize Loan Implementation

- For the project, all activities were closely coordinated with local headmen/women, who supported collection
- Net loan returns was positive (IR 30% requires 77% repayment)
- Implementation cost for our project was substantial
 - ~ K 1800 per village for cash
 - ~ K 4000 per village for maize (maize is bulky!)
 - ➔ very large compared to loan volume handled (20*200)
- ➔ More effective delivery platforms would be needed for larger programs

Summary and Conclusions

- Rural farmers face substantial seasonal resource shortages, which result in inefficient labor allocation and output losses
- Seasonal loan programs can reduce constraints, reduce hunger and increase wellbeing
- The loan program tested worked well overall, but is relatively costly from an implementation perspective
- Alternative delivery options as well as saving mechanisms should be considered and evaluated