Selling low and buying high?
Short-term loans and price arbitrage

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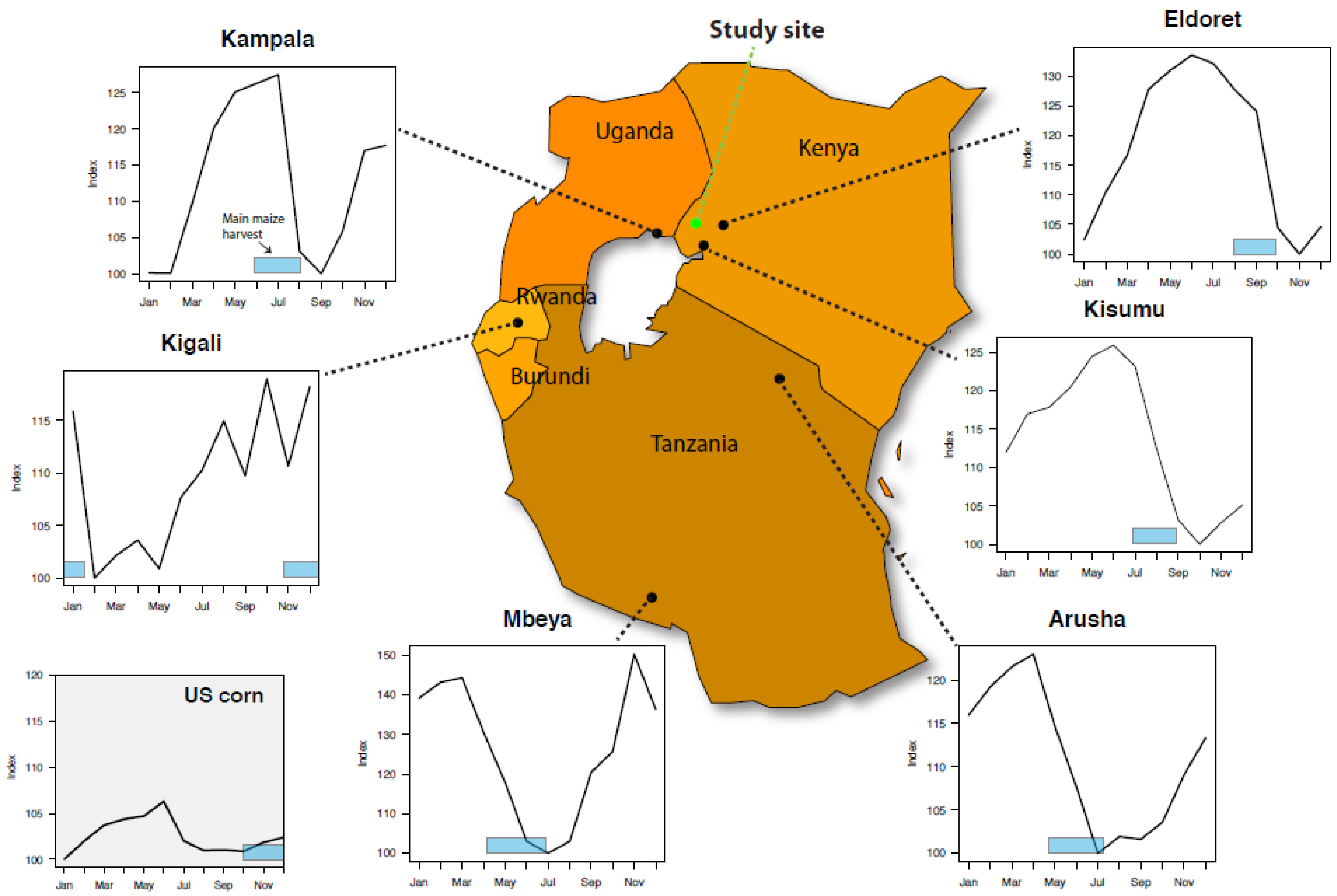
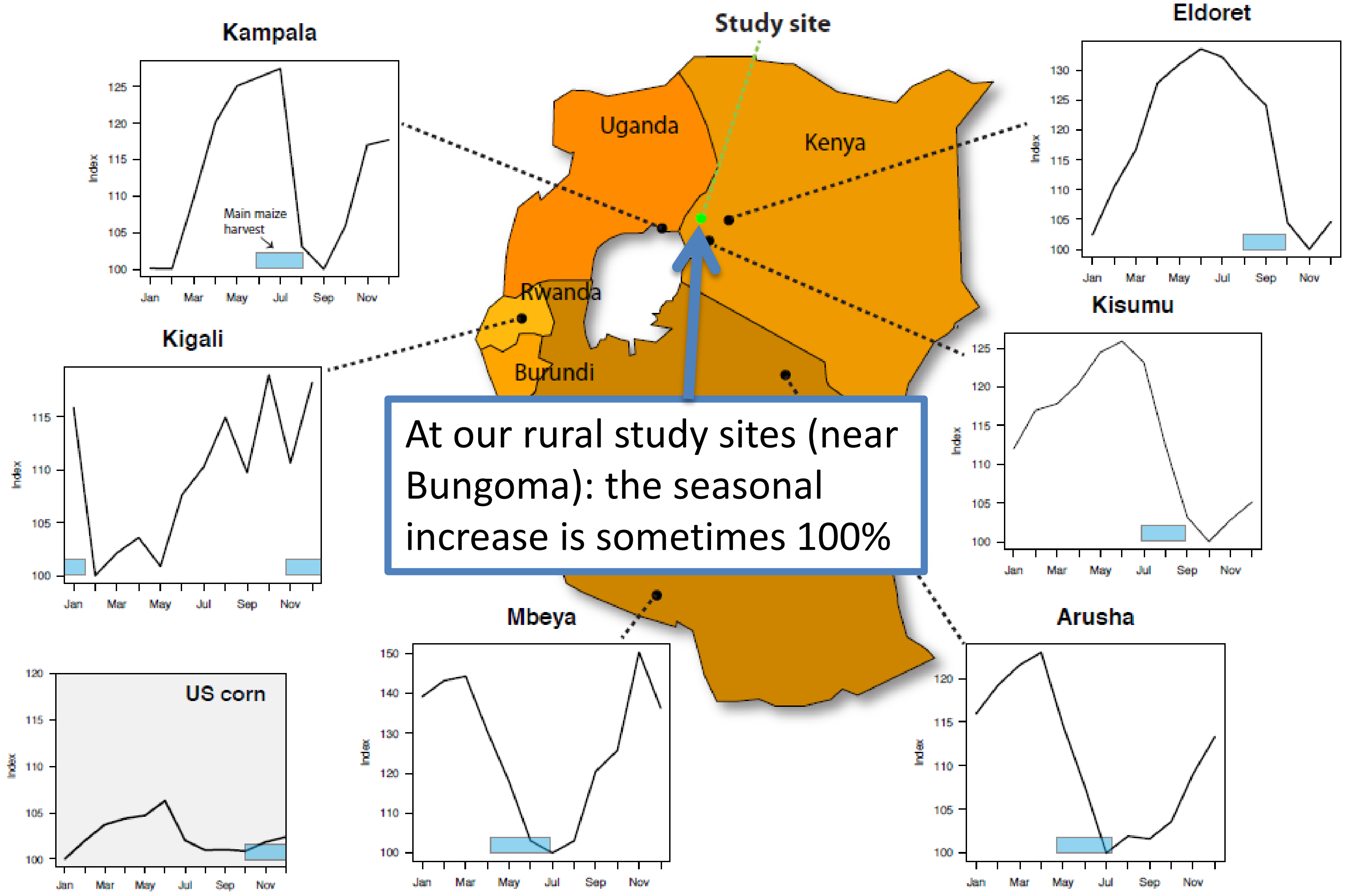
Food prices matter (a lot) for the poor

- Food is the largest consumption item for poor households, and
- Many poor households earn much of their income from selling food

>> Typical assumption: farmers have little control over the prices they face

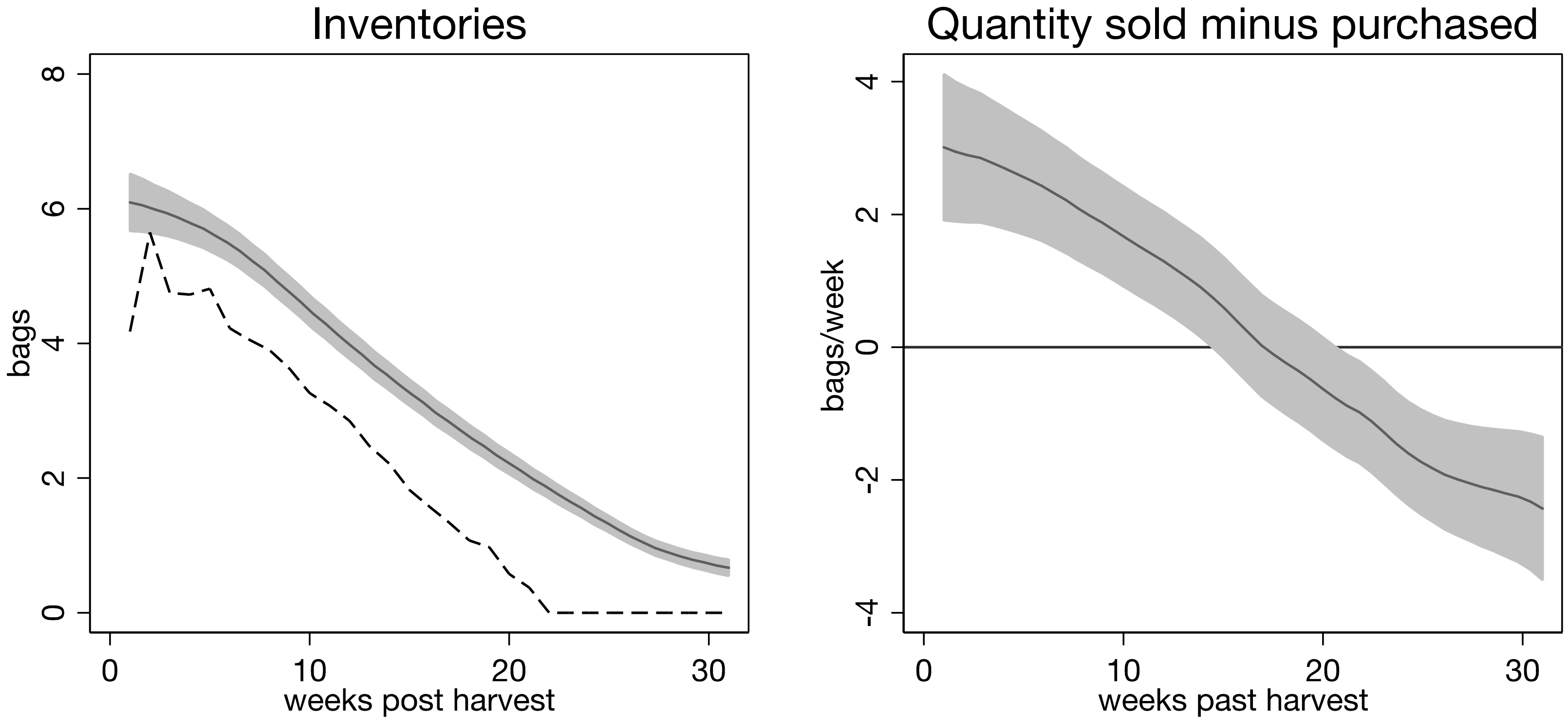

Study site
Kampala
Eldoret
Uganda
Kenya
Rwanda
Burundi
Tanzania
Kigali
Kisumu
Mbeya
Arusha
US corn
Main maize harvest
Index
Jan
Mar
May
Jul
Sep
Nov



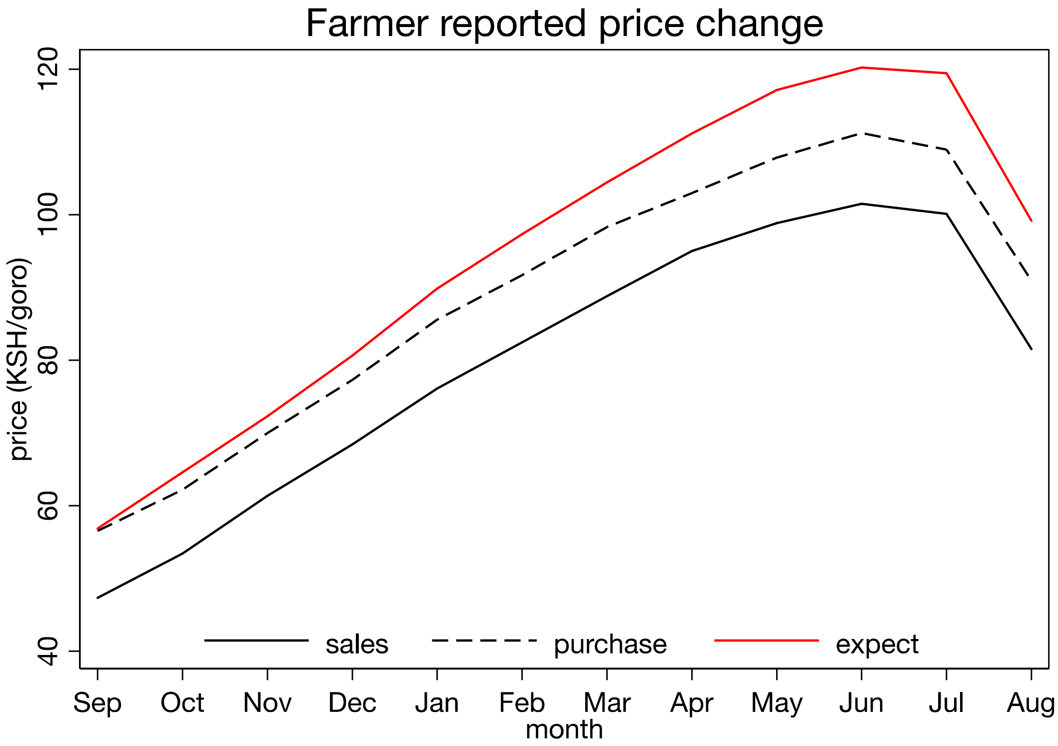
At our rural study sites (near Bungoma): the seasonal increase is sometimes 100%

So: buy low, sell high?

No – sell low, buy high!



What's going on? Farmers' expectations



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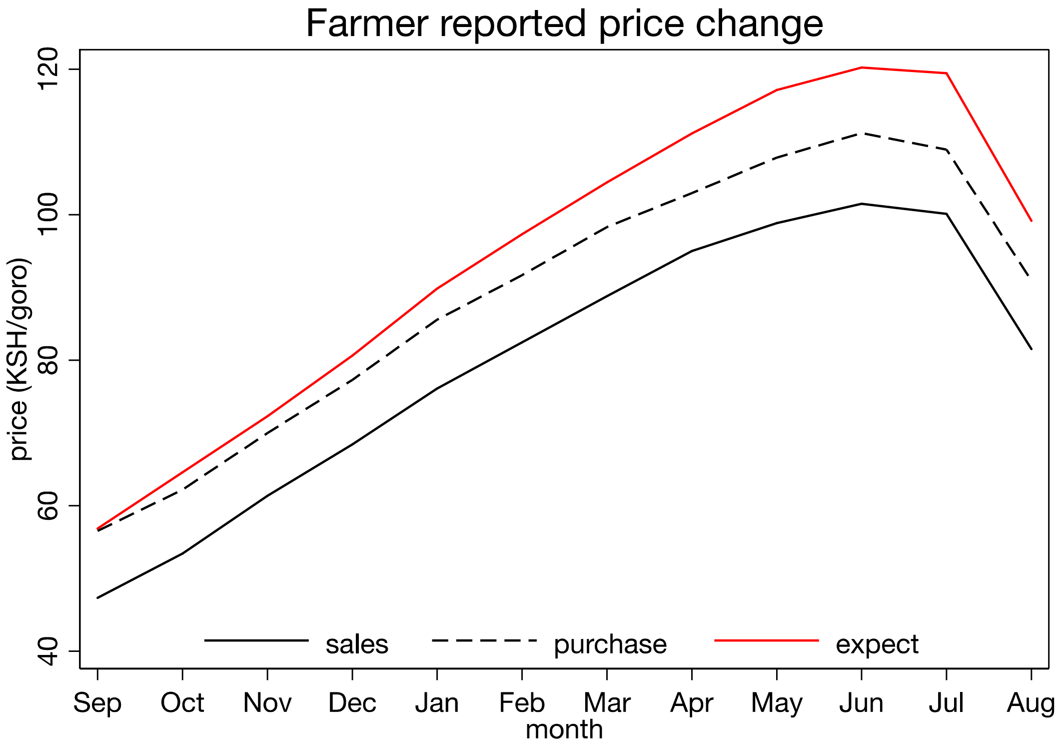


Q:

"Why do you sell at harvest instead of later, when prices are higher?"

A:

"I need the cash now."

One Acre Fund (OAF) offered a storage loan

- Offer cash (~$100) at harvest (T1) or three months after harvest (T2) to randomly selected OAF farmers (N=1600)
- Stored maize (corn) served as collateral
- 10% interest, repay flexibly
- Take-up of the loan was very high: >60%

- Intervention carried out in two successive years, with T1 offer in Year 2 (N=1000 farmers)

Data and methods

- Re-visited treated and control farmers multiple times throughout the year to carefully track their inventories, sales, purchases, consumption, etc.

- A **pre-analysis plan** registered on the AEA registry on 6 September 2013 before analysis of post-treatment data

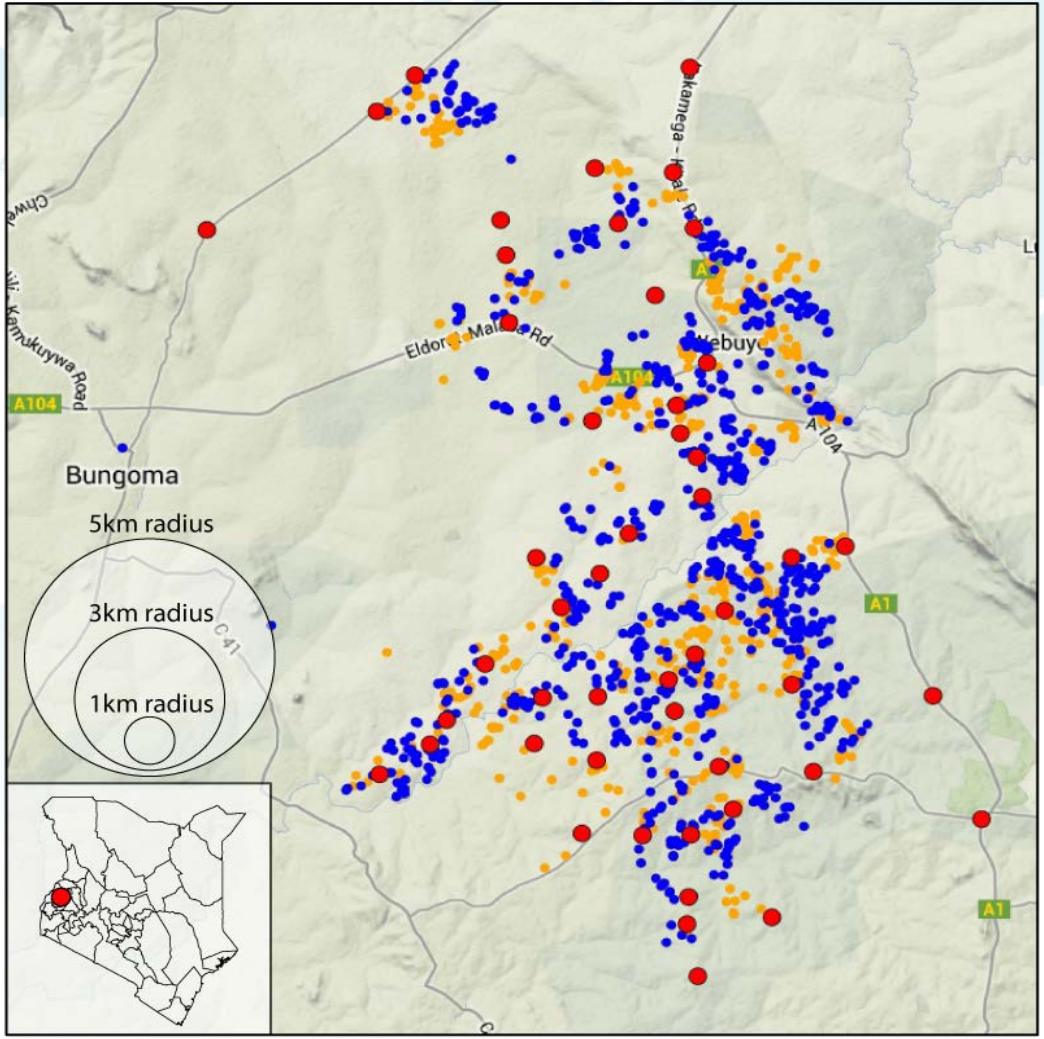
But what if the loan “works”?

- Farmers would likely sell less at harvest time, and sell more later on in the season:

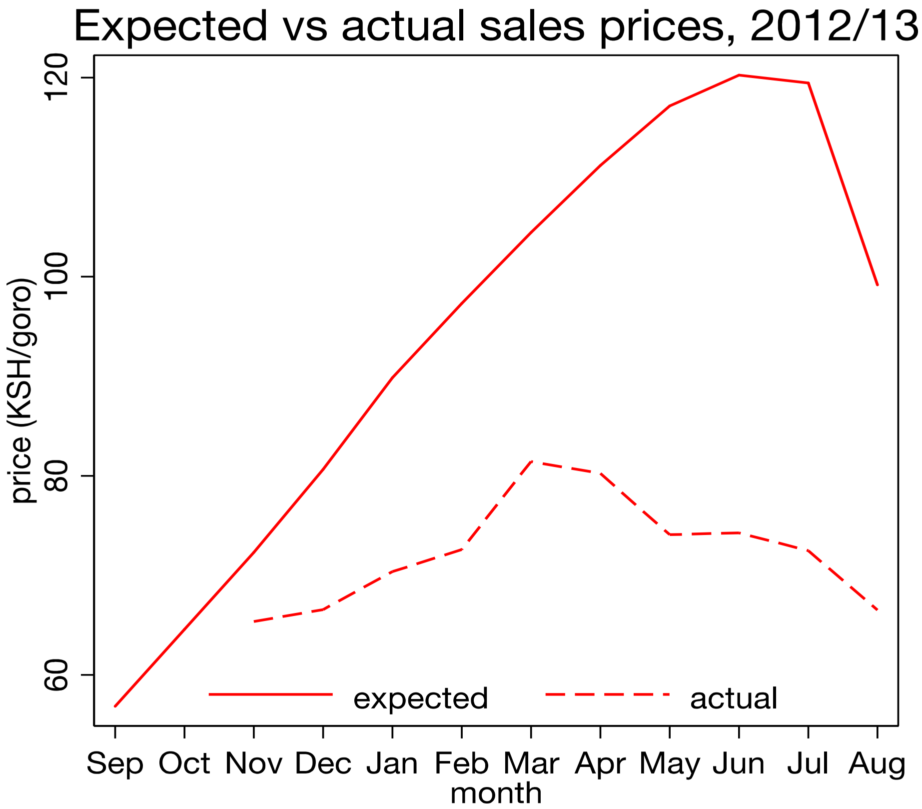
  >> This could reduce the local price rise over time

  >> But could also reduce the profitability of the loan!

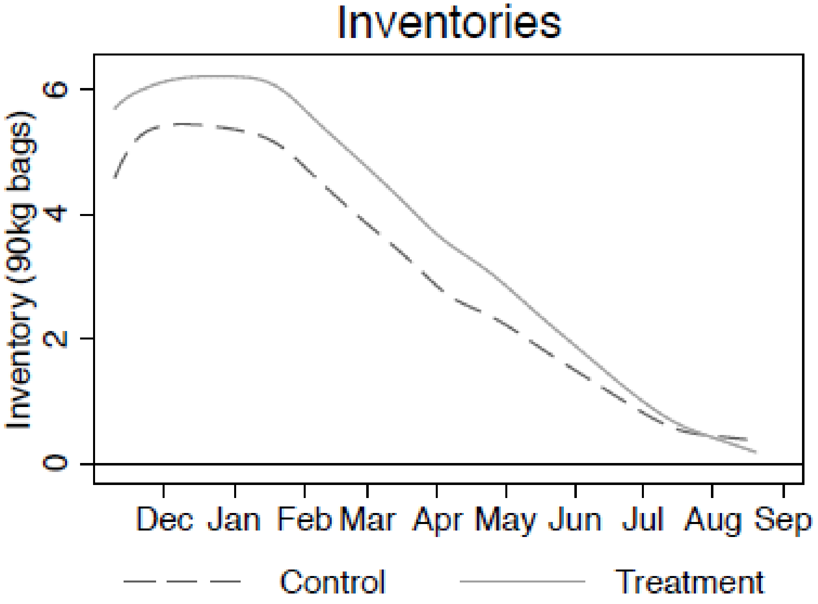
- To understand these price effects, we also randomized the density of loan offers across markets (N=52 markets).

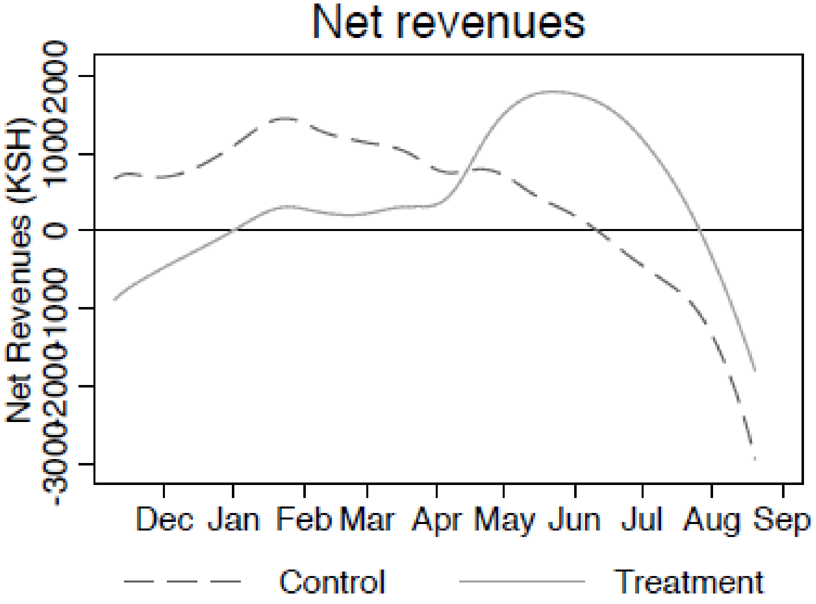

Bungoma
5km radius
3km radius
1km radius
A104
A1
Eldoret - Malaba Rd
Kakamega - Kitale Rd
Webuye
Kamukuywa Road
C 41

Price rise was relatively small in 2012/13, 2013/14 (20-25%)



Results at the farmer level, Years 1 and 2





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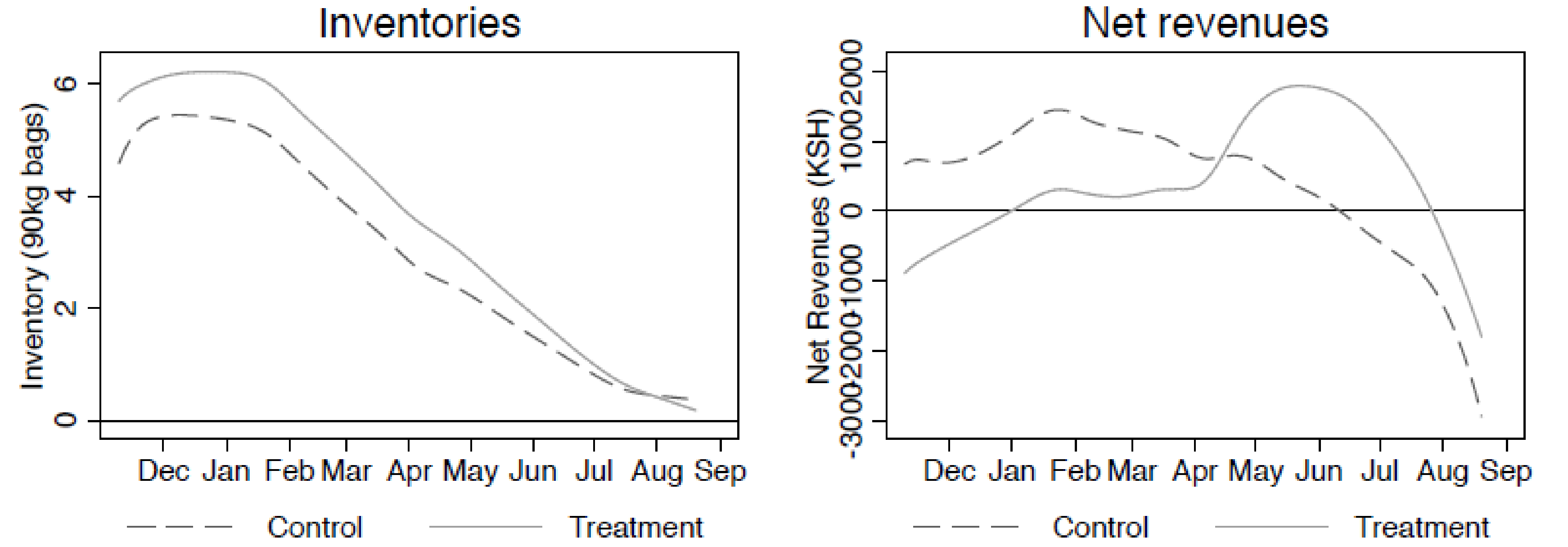
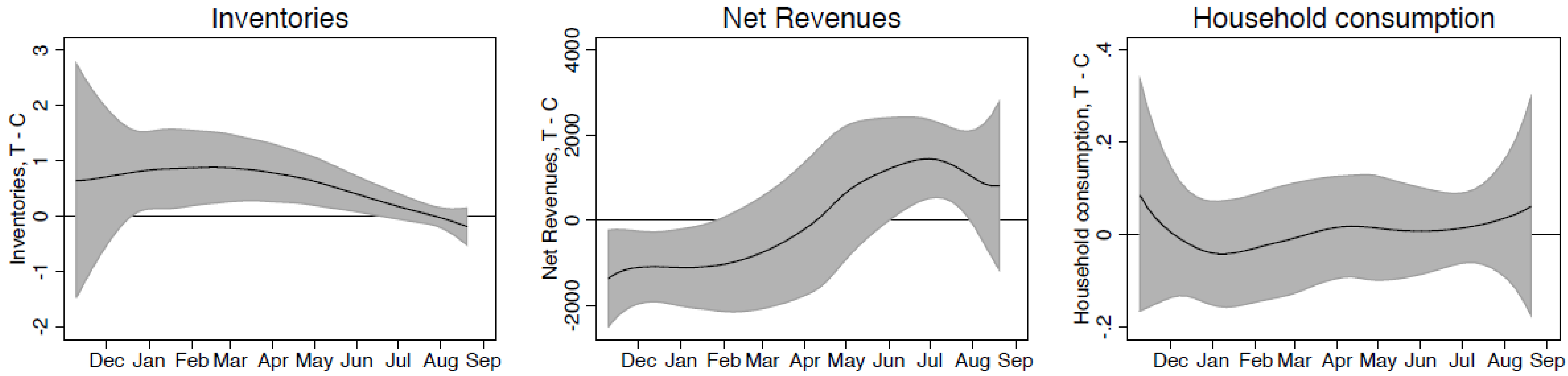


Even with a relatively small price rise: +20% ROI in revenues (after repayment) for farmers who got the loan vs. control

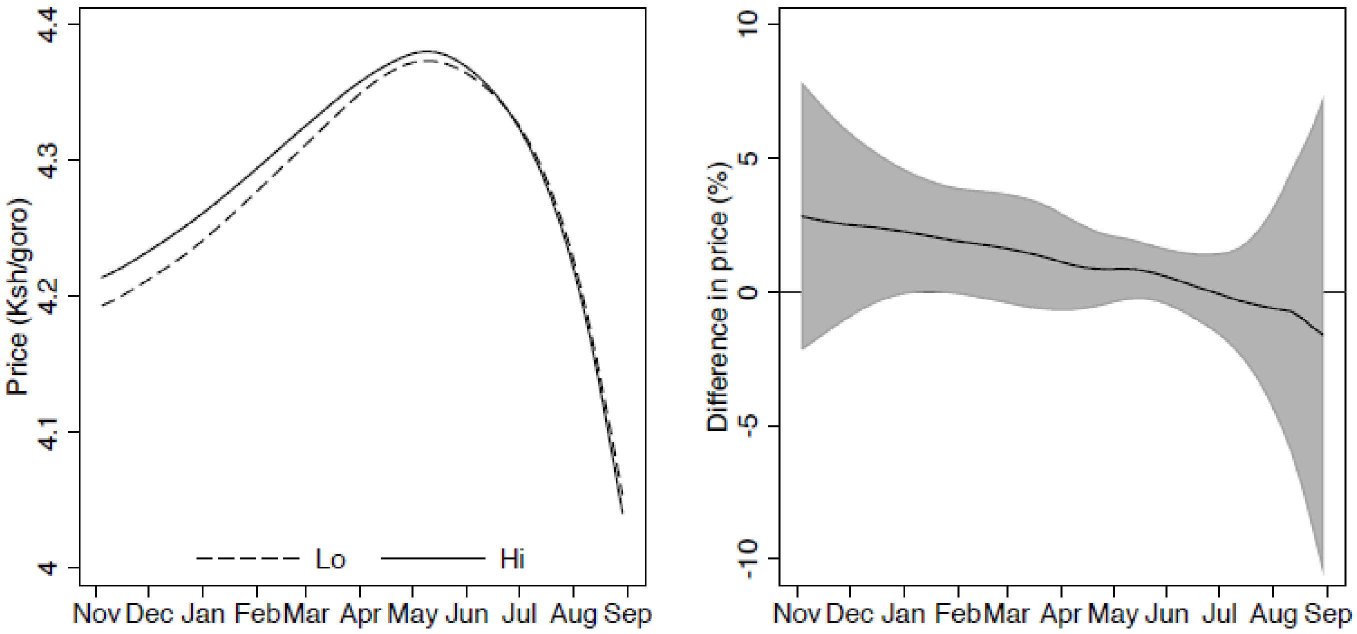
Treatment effects over the season



Modest consumption gains in the treatment group (4%) but not statistically significant

What happened to prices?

Difference in prices, high versus low treatment loan density areas



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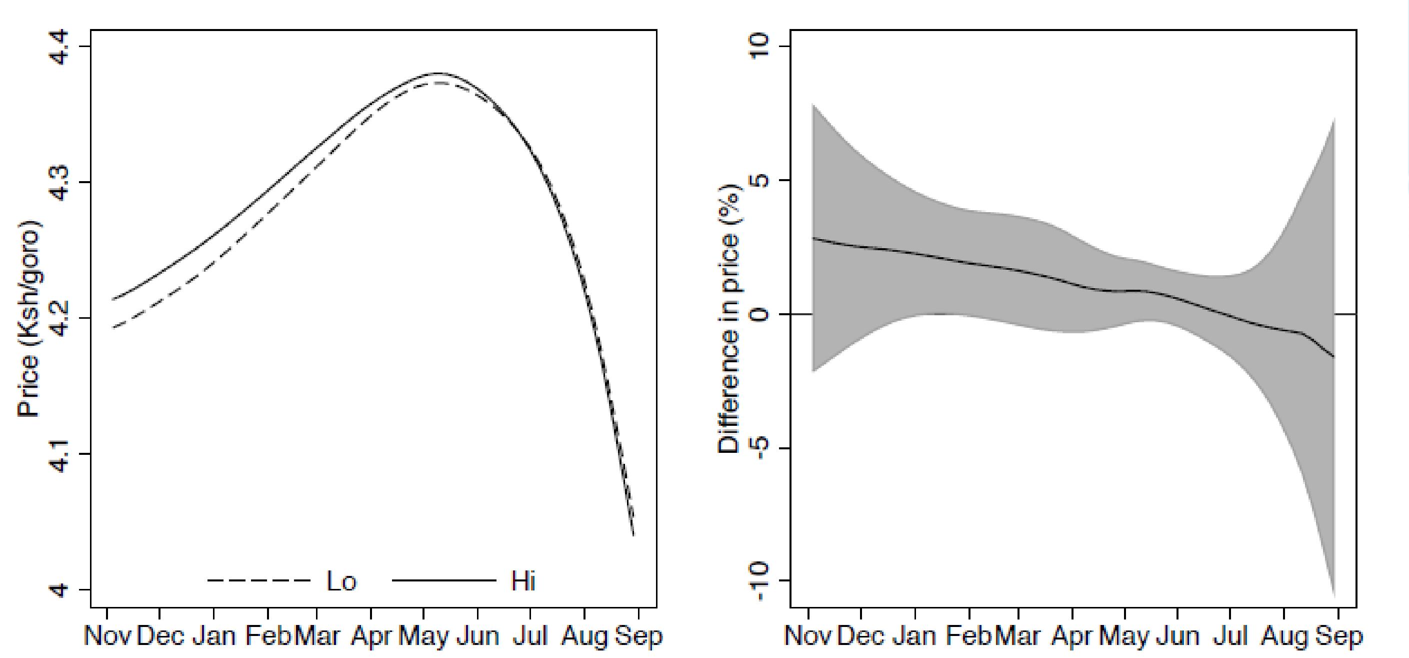

Prices are smoother in higher loan density areas, with post-harvest prices ~3% higher, consistent with lower grain sales just after harvest

What did these price effects mean for farmers?

- Reduced the return on the loan in “high density” areas, as the arbitrage opportunity was smaller (since more overall saving was occurring)
- Boosted revenues of control farmers (not significantly)
  - But probably also had **positive spillovers** outside our sample, by smoothing price fluctuations over time
- Implication for evaluation: positive social gains but GE effects reduce estimated program impacts

Two Years of Farmer Loans – Conclusions

1. Access to **well-timed credit** – here, offered right after the harvest – can help improve the profitability of small farms in Kenya
2. Improvements in credit markets can spill over into other areas that matter for the poor, reducing **seasonal price swings** in rural grain markets
3. **Long-run** impact (2015): no lasting gains for treatment farmers once credit program ended, no "graduation"