

Do Farm Land Rental Markets Really Promote Efficiency, Equity and Investment in Smallholder African Agriculture?

Evidence from a Matched Tenant-Landlord Survey in Malawi.

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Outline

- I. Motivation
- II. Objectives/Contribution
- III. Context/Background
- IV. Conceptual Framework
- V. Methods and Identification Strategy
- VI. Data
- VII. Descriptive results
- VIII. Econometric Results
- IX. Conclusions/Implications

Role of land rental markets? Context

- Land markets (particularly rental markets) have role to play in African structural transformation
 - US and EU \approx 50% of farmland is rented
- Holden, Otsuka and Place (2009) first to investigate these issues comprehensively in SSA.
 - Related studies have consistent findings (Deininger et al., 2008; Ghebru and Holden, 2009; Yamano et al., 2009; Jin and Jayne 2013; Chamberlin and Ricker-Gilbert 2016).
- Rental markets enable net transfers of land
 - From land-rich to land-poor → equity gains
 - From less-able to more-able farmers → efficiency gains
- Enable productive livelihoods
 - Especially for households with insufficient land... → welfare gains
- Gains from renting are consistently clear for **tenants**. Not so clear for **landlords**
 - Chamberlin and Ricker-Gilbert find some evidence of “**stress-renting**” in Malawi and Zambia”
 - But sample is unbalanced between T and LL

Purpose of Presentation

- I. This presentations intends to share findings as regards what is happening on the ground:
 - I. Does the tenancy arrangements improve equity and production efficiency
 - II. Does it impede or promote long-term investments in productivity-enhancing technologies or short-term gains?

Why is this important

- I. As presented earlier, government intends to develop a Landlord-Tenant Bill, we hope that the Bill
 - I. Should promote production efficiency
 - II. Ensure that both Landlord and Tenants have a fair share of the outcomes of the contractual arrangements
 - III. Should encourage agricultural commercialization with the rising number of emergent farmers as noted in earlier presentation

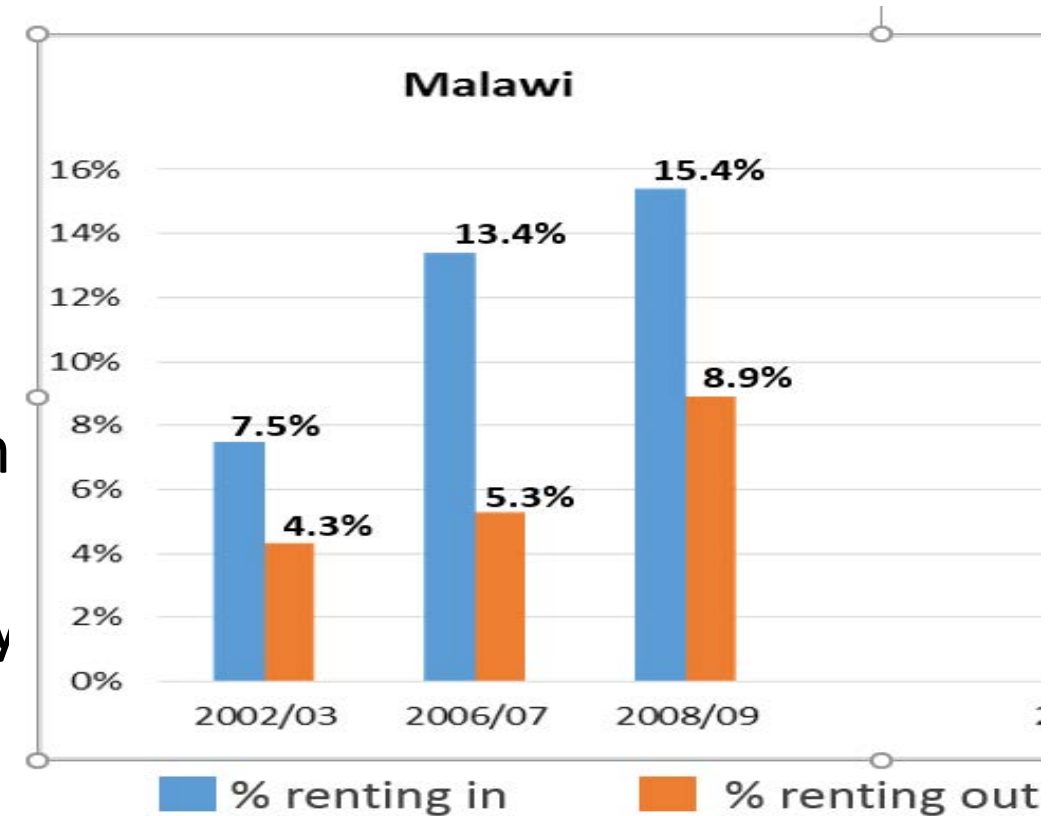
Question: Would positive benefits from land rental markets hold if LL are fully observed?

1. Do rental markets still promote:
 - a. Production efficiency
 - b. Equity (equality) in land, labor..... and other factors

 2. How do input use and investment decisions differ
 - a. On owner-cultivated and rented plots
 - b. Between Tenants and Landlords
- Collect a matched sample of Tenant-Landlord pairs and autarkic households in the same villages, in four districts of Malawi in 2016.
 - Identification strategy uses pair-FE to control for underlying unobserved factors in the T/LL relationship.

Background: Though not explicitly allowed, smallholder land renting increasing in Malawi (From Chamberlin and Ricker-Gilbert 2016).

- Based on Fixed rent cash $\geq 95\%$
- Participation growing
 - Especially in high pop. density areas.
- Rental costs relatively high
- Tenants richer than landlords on all dimension besides land
- Some *prima facie* evidence of stress renting by landlords
- Short-term contracts
- Informal



Annual inputs

- i) Number of weeding
 - ii) Application of herbicides
 - iii) Inorganic fertilizer application in kg/ha
 - iv) Maize is main crop
 - v) Hybrid maize is main crop
-
- vi) Maize yield in kg/ha

Investments

- i) Intercropping maize and legume
- ii) Apply animal manure
- iii) Apply green compost
- iv) Use soil erosion control
- v) Use minimum tillage
- vi) Leave crop residue



Data: Collection during April and May 2016

- Sampling frame
 - Identify 4 districts with high land rental activity according to 2010 IHS3
 - Worked with District Extension staff to identify Extension planning areas with high land rental activity
 - Random selection of village within each EPA
 - Within village use village list and info from village leaders about who rents in and rents out.
 - From list and sub-list,
 - i) randomly select 5 tenants for interview – then find their 5 landlords
 - ii) randomly select 5 landlords for interview – then find their 5 tenants
 - iii) Randomly select 10 autarkic households from village.
- The use of key informants to help identify respondents to answer questions about sensitive land-related issues has been used in previous studies {Macours et al. (2010); Macours (2014); Vranken et al. (2011), and Bardhan and Mookherjee (2010)}.

Target was 600 households: 200 T, 200 LL, 200 A

- 30 HH per village (10, 10, 10)
- 5 villages per district (150 HH)
- 4 districts
- After cleaning have 173 matched T/LL pairs and 187 autarkic HH, **N=533**
- 1,502 sub-plots, 404 rented in & 1,191 owner-cultivated
- Sub-plot level
 - Rented and largest owner-cultivated sub-plot measured by [GPS](#)
 - Soil samples taken on rented and largest owner-cultivated sub-plot
 - Still working on that..... 😊

Table 1: Averages for key variables by rental market status

Variable Category	Variable	Tenants	Landlords	Autarkic
Land	Pre-rental landholding in ha	0.844	1.854	1.278
	Cultivated area in ha	1.713	0.961	1.160
Input purchases	Kgs commercial fertilizer purchased	169	30	79
	Kgs of commercial maize seed purchased	10	4	4
Savings and assets	Household savings in USD	83	10	40
	household received credit (0, 1)	0.387	0.295	0.326
	total value all assets USD	748	119	234
Demographics	Number of family members	5.462	4.988	5.086
	female headed hh (0,1)	0.104	0.260	0.299
	head is a migrant (0,1)	0.497	0.301	0.278
	head age	40.439	47.231	49.428
	head years schooling	7.775	4.751	5.139
	Adult equivalent	4.531	4.128	4.225
	Dependency ratio	1.033	1.297	1.212
Revenue	Member works as casual laborer on other farm	0.277	0.584	0.428
	total cash from non-farm work USD	445	83	140
Scales	Grit score ⁱ	30.34	28.65	29.81
	discount rate ⁱⁱ	55,477	39,725	45,535
	risk preferences ⁱⁱⁱ	169,383	229,392	70,741

N= 533, 173 tenants, 173 landlords, 187 autarkic;

ⁱ scale from 8-40, higher score = more grit and higher ability;

ⁱⁱ higher score = lower discount rate, less present bias;

ⁱⁱⁱ lower score = less risk averse

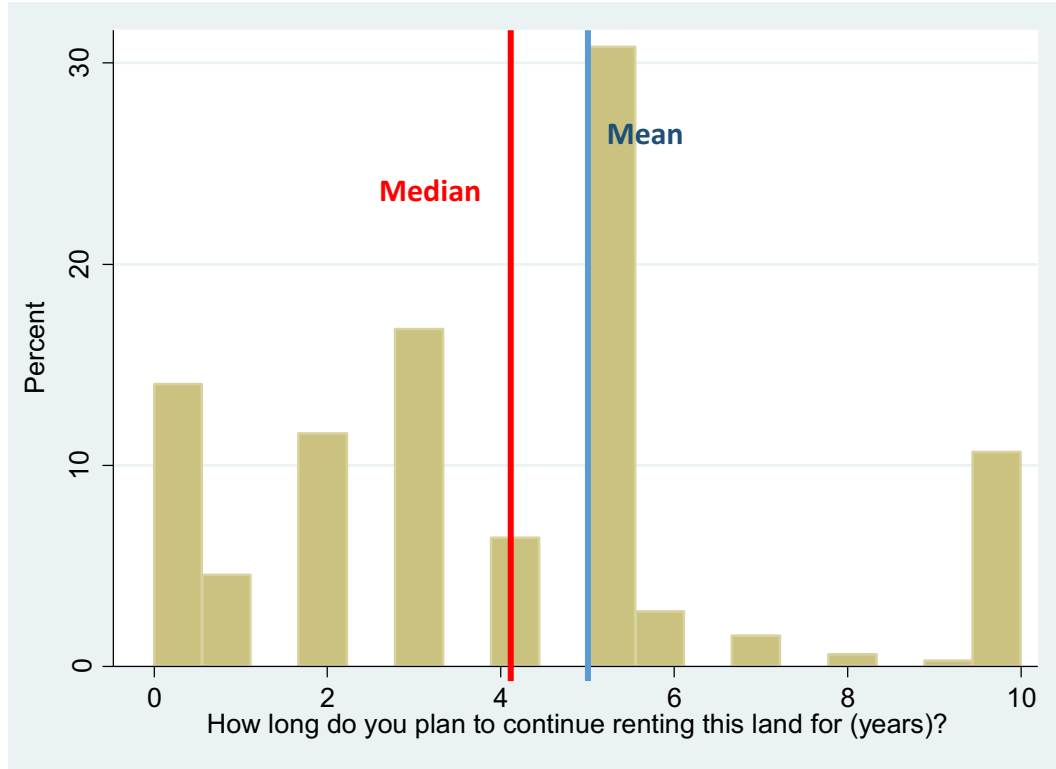
Table 2: Rental market comparisons by market participation status

	Response by tenant	Response by landlord
Rental agreement is fixed rent or borrowed	0.99	0.95
Rental partner same ethnicity	0.84	0.80
Rental partner lives in same community	0.72	0.78
Rental partners main occupation is farming	0.86	0.70
Have a written rental agreement with partner	0.08	0.07
Number of additional seasons over the past 5 that this was rented ? (mean median)	1.50 1.00	1.70 1.00

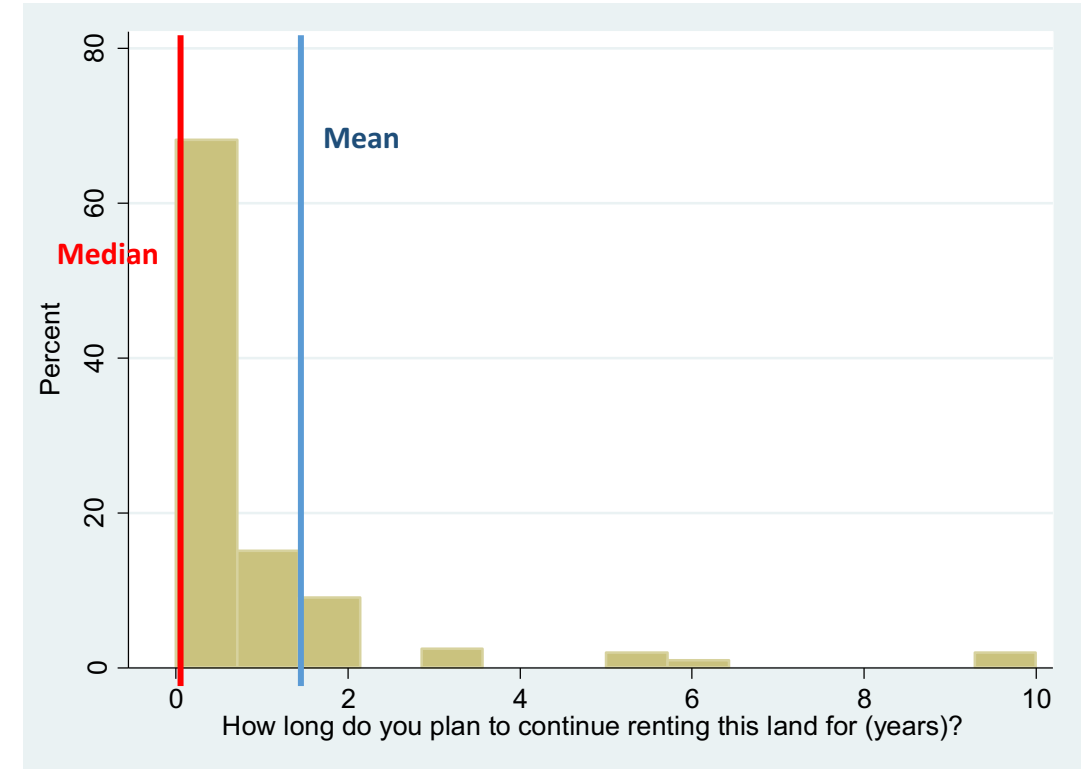
- Most rental partners are same ethnicity & live in same community
 - consistent with tenure insecurity as found elsewhere (Macours 2015 in Guatemala)
- Most (not all) landlords and tenants are farmers by occupation
- Agreements are short-term and informal

Number of years in the future you plan to continue this arrangement?

Tenants



Landlords



	Response by tenant	Response by landlord
Number of years that you plan to continue in this arrangement (mean)	4.70	1.14
Number of years that you plan to continue in this arrangement (median)	4	0
Plan to eventually buy(sell) this rented-in(out) sub-plot	63%	4%

Table 3: Main reason for engaging in rental market

Landlords

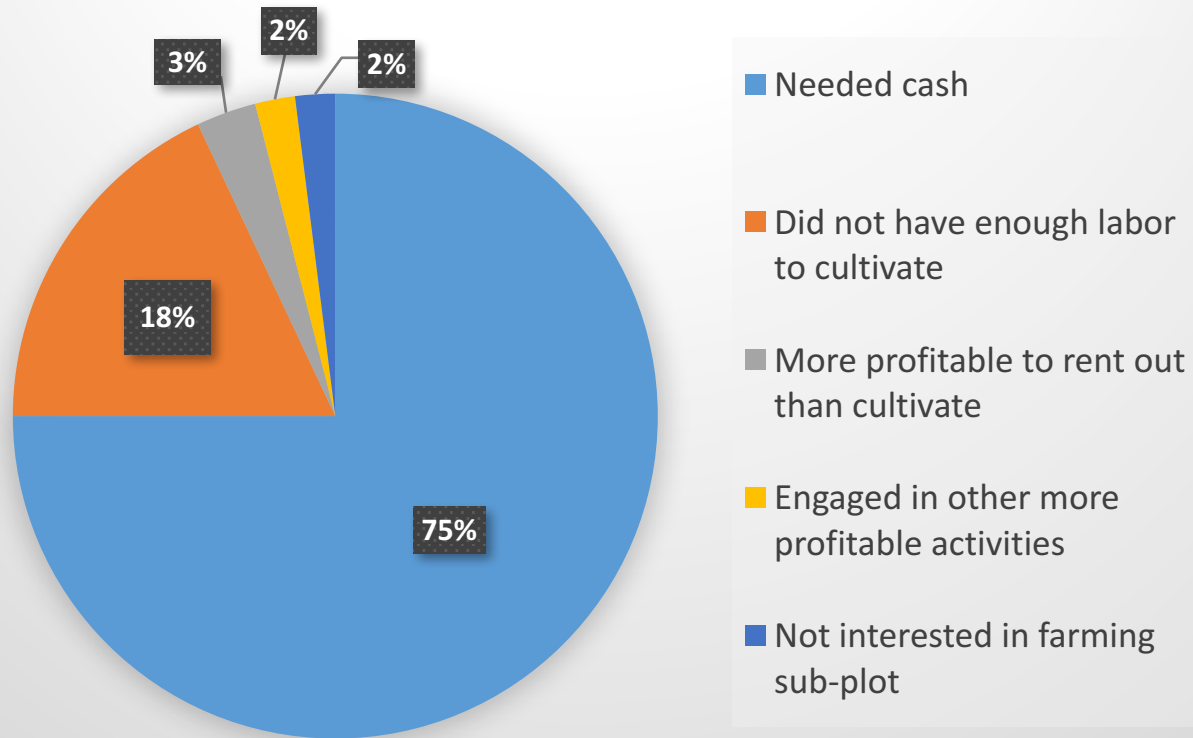
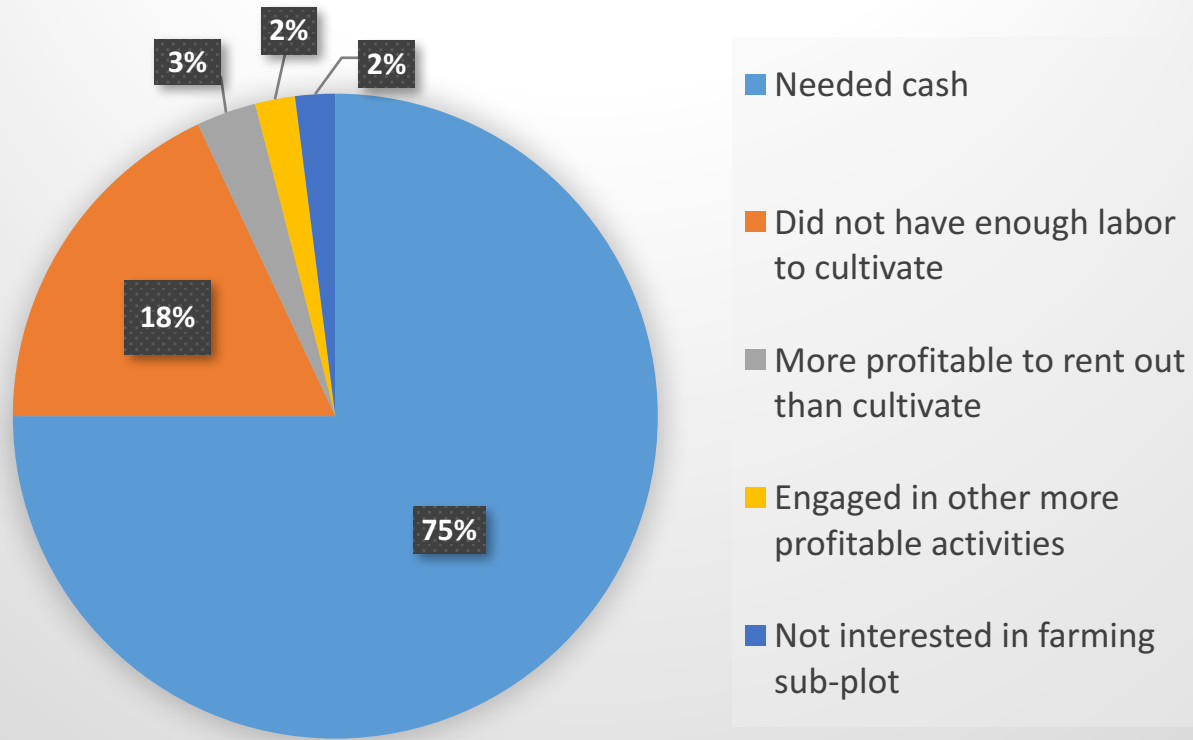
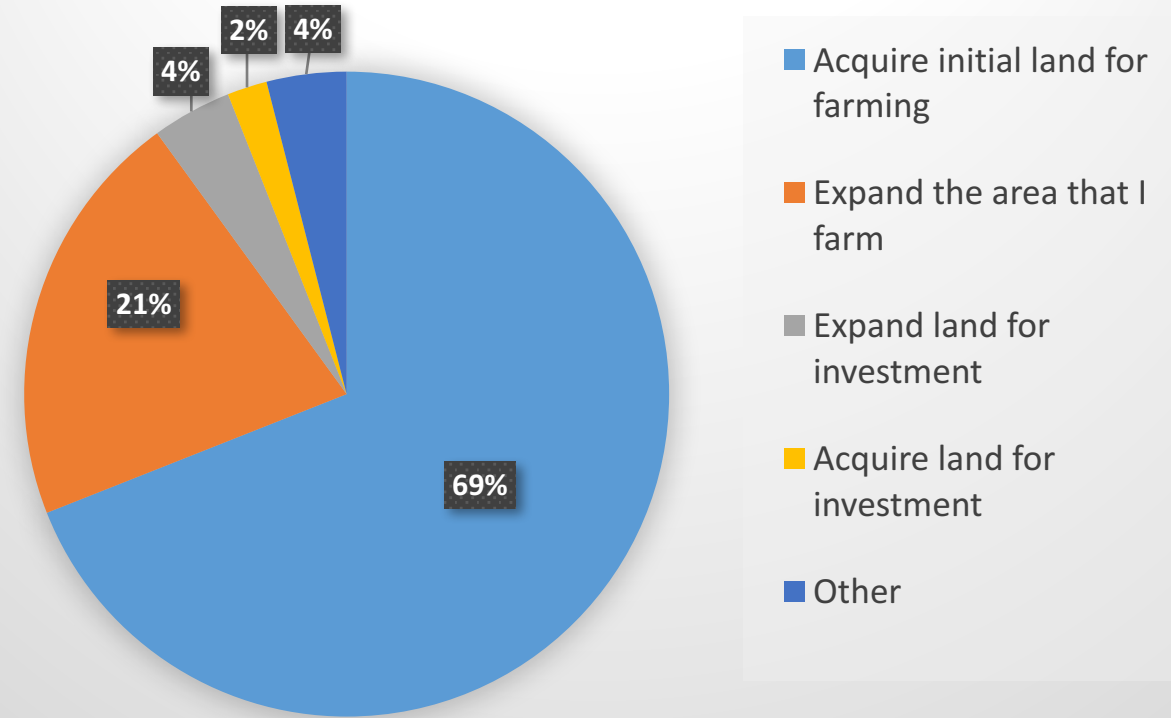


Table 3: Main reason for engaging in rental market

Landlords



Tenants



Input use by rental status

Tenants

Landlords

Inorganic fertilizer:

Herbicides:

Hybrid maize:

Maize yields:

Input use by rental status

	<u>Tenants</u>		<u>Landlords</u>
Inorganic fertilizer:	More	>	Less
Herbicides:			
Hybrid maize:			
Maize yields:			

Input use by rental status

	<u>Tenants</u>		<u>Landlords</u>
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Input use by rental status

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Hybrid maize:	More	>	Less
Maize yields:			

Input use by rental status

	<u>Tenants</u>		<u>Landlords</u>
Inorganic fertilizer:	More	>	Less
Herbicides:	More	>	Less
Hybrid maize:	More	>	Less
Maize yields:	Higher	>	Lower

Soil fertility investment by rental status

Tenants

Landlords

Animal manure:

Green compost:

Soil erosion control:

Minimum tillage:

Leave crop residues:

Soil fertility investment by rental status

	<u>Tenants</u>		<u>Landlords</u>
Animal manure:	Less	<	More
Green compost:			
Soil erosion control:			
Minimum tillage:			
Leave crop residues:			

Soil fertility investment by rental status

	<u>Tenants</u>		<u>Landlords</u>
Animal manure:	Less	<	More
Green compost:	Less	<	More
Soil erosion control:			
Minimum tillage:			
Leave crop residues:			

Soil fertility investment by rental status

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Minimum tillage:			
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Soil fertility investment by rental status

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Animal manure:	Less	<	More
Green compost:	Less	<	More
Soil erosion control:	Less	<	More
Minimum tillage:	Less	<	More
Leave crop residues:	Less	<	More

Main Findings and Implications:

I. T and LL pair are mainly of same ethnicity and live in same communities

- i) Therefore, missing LL in other studies likely due LL not wanting to talk or way surveys are conducted
- ii) Not some unobserved land-grab
 - although that may be happening.....
 - but population based surveys wont capture it.

II. Matched sample supports previous work using unbalanced samples

- i) Rental markets create production efficiency
- ii) Rental markets create land and labor equity
- iii) i) and ii) consistent with previous literature
- iv) but T wealthier than LL pair on all other dimensions, so is that equity?

Findings and implications:

III. Tenants bringing management ability and capital into agriculture

- i) Seems good on the surface
- ii) But mostly going for short term gains
- iii) At the expense of longer-term soil fertility
 - Likely due to the nature of the rental arrangements

IV. Clear evidence of stress rental by landlords

- i) Renting out most valuable assets to meet consumption needs
- ii) Social dynamics between T and LL pairs need to be explored
 - Are LL so desperate that they allow soil to be mined?

Policy Implications

Malawi passed land bill in 2016

- i) If tenure security improves, land rental markets may grow
- ii) Right now seems to be a trade-off between short term yield gains and longer-term soil fertility by tenants and rented plots.
- iii) Would tenure security lead to better (re: written) rental contracts?
 - Less stress-renting, and soil mining?

Need to recognize that rental markets are an important part of structural transformation process.

- i) Should be recognized and encouraged!
- ii) But: need to shift resources towards training farmers on soil fertility management.
- iii) Provide support for would be landlords (ie: credit, extension) as they are incentivized to farm sustainably on their own plots if they want to.

We hope to do a follow up survey post-land bill.

Thank you for your time and suggestions!



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