

# Do Transactions Costs Affect Youth Access to Farmland in sub-Saharan Africa? Evidence from Tanzania



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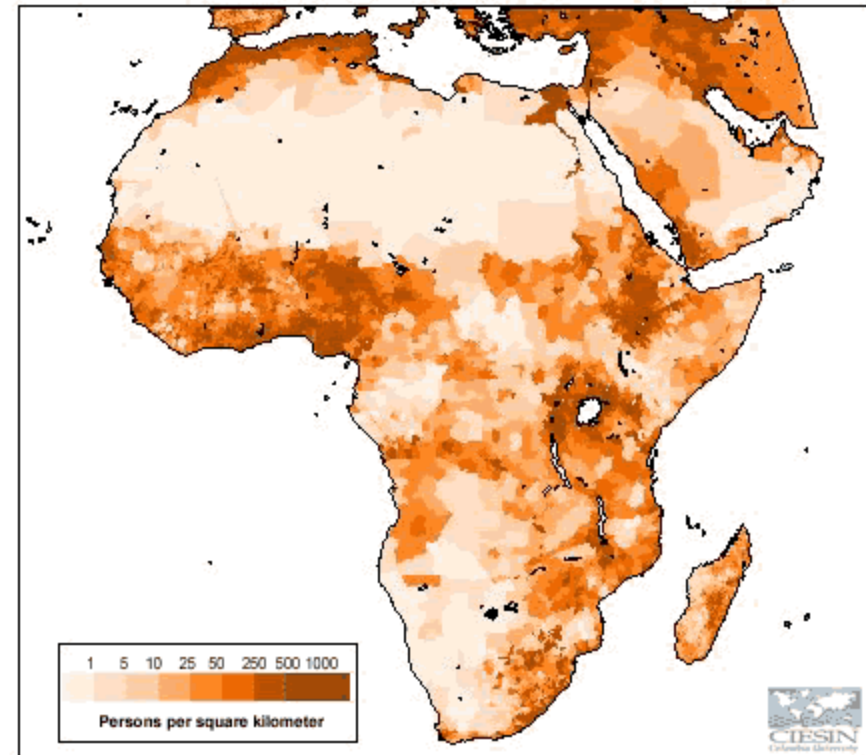
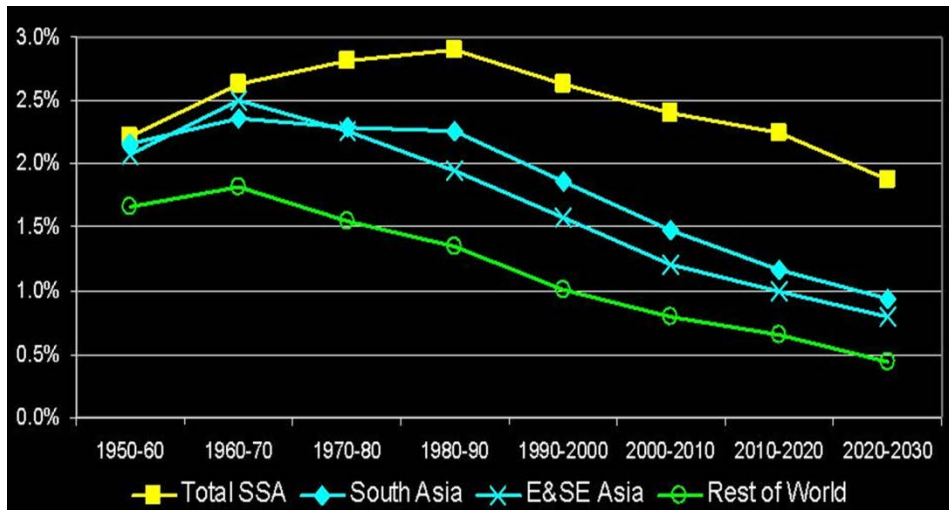
# Motivation

Population growth + already high rural population density in SSA

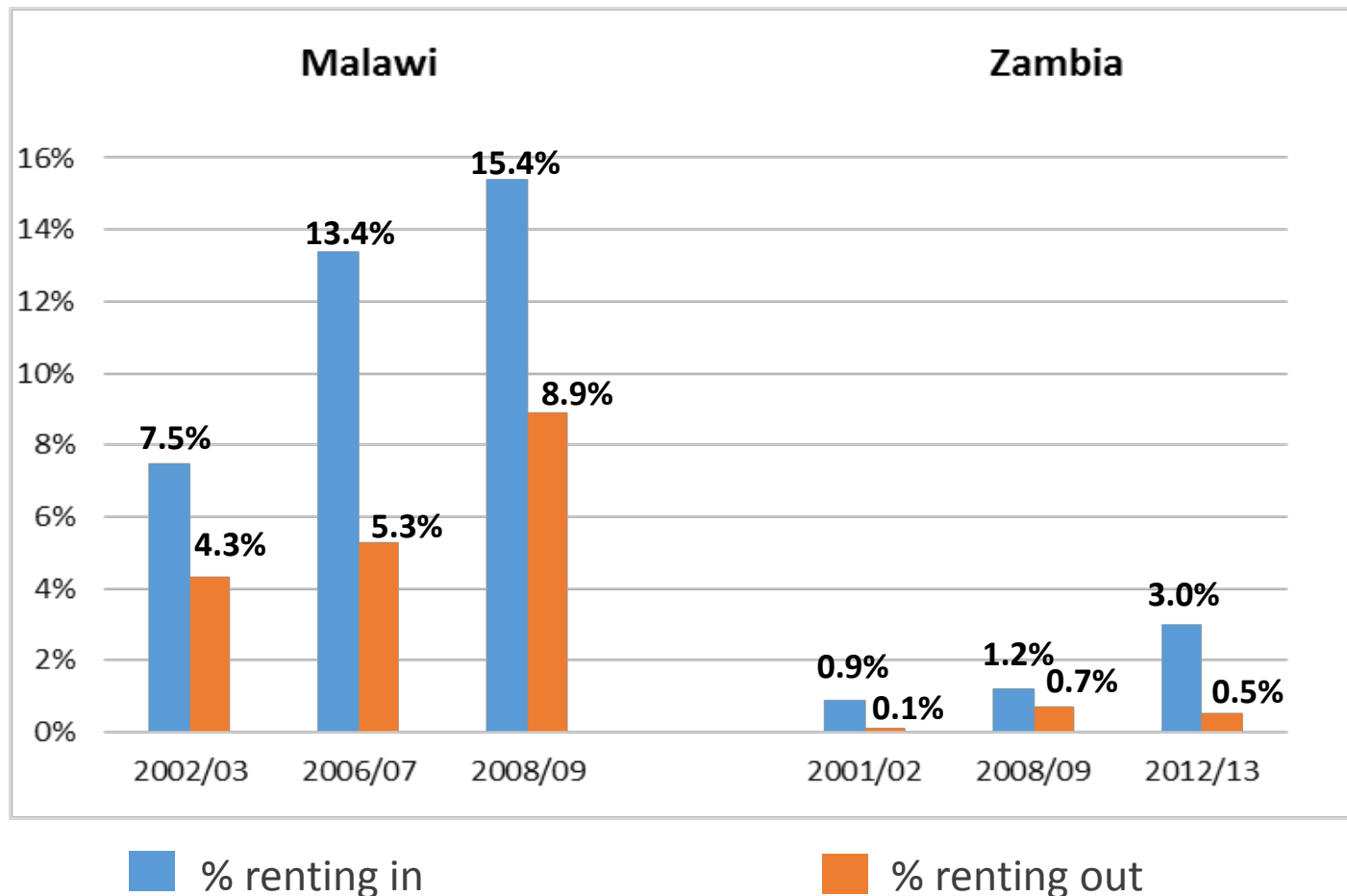


Declining farm sizes in SSA

Annual population growth by region



# Land rental market participation is rising at the same time



Source: Chamberlin and Ricker-Gilbert (2016)

Most arrangements in Malawi, Zambia, and Tanzania are up front cash rentals.

Consistent findings in many regional studies (Holden, Otsuka, and Place, 2009; Lunduka 2009; Jin and Jayne 2013)

# Our Questions/Hypotheses

- 1) Are rental markets a pathway for land acquisition for younger farmers?
  - Are younger farmers more likely to rent in land than older farmers?
  - Hypothesis: yes, particularly in land scarce areas...
  
- 2) Are the transactions costs associated with renting in land higher for younger farmers than for older farmers?
  - Hypothesis: possibly...

# Definitions

## Transactions costs

- Social capital and political capital associated with finding, negotiating, and enforcing rental agreements.
- Travel time/distance to rented fields
- Access to credit and capital needed to make upfront payments to rent in land.

## Youth

- Depends....
  - Vary the definition [ < 30, < 40, < 50]
  - Story is consistent

# Data

## Tanzania, LSMS-ISA

- Three waves
- Nationally Representative
- 2008/09, 2010/11, and 2012/13

YEAR	TENANT	LANDLORD
2008/09	9.1%	1.1%
2010/11	6.2%	1.1%
2012/13	7.5%	1.5%
TOTAL	7.5%	1.3%



Analysis focuses on the tenant side of the market

# Conceptual Framework: HH rental market position

- Utility maximizing farm household in the context of incomplete markets.
- Household makes land ownership and allocation decisions to be in 1 of 3 regimes.

Benefits from renting in

I	Rent-in (tenant) ( $A^* > \bar{A}$ )	$MP(\bar{A}) + \varepsilon_i \geq r + T^{in}$
II	Autarky ( $A^* = \bar{A}$ )	$r - T^{out} < MP(\bar{A}) + \varepsilon_i < r + T^{in}$
III	Rent-out (landlord) ( $A^* < \bar{A}$ )	$MP(\bar{A}) + \varepsilon_i \leq r - T^{out}$

Benefits from renting out

- where  $A^*$  is the optimal operational land size
- $\bar{A}$  is the household's land endowment,
- $r$  is the market rental rate
- $T^{in}$  and  $T^{out}$  are transaction costs associated with renting-in and renting-out land.
- $MP(\bar{A}) + \varepsilon_i$  is the marginal value product of cultivating an extra unit of land evaluated at the level of autarkic land endowment

-- after Jin & Jayne (2013)

# Land rental markets in the presence of transactions costs

- $R = \zeta A^*(a, H) + \beta \bar{A} + \epsilon$
- where  $R$  is the amount of land rented in ( $R > 0$ ) or out ( $R < 0$ ),  $\bar{A}$  is actual (pre-rental) farm size and  $A^*$  is optimal (desired) farm size, and  $u$  is an error term.
- $a$  is farming ability,  $H$  is a set of household and community conditioning factors.
- Skoufias (1995) showed that if markets allow for full adjustment, the coefficient on  $\hat{\beta}$  would be  $-1$  for rent-in (and  $1$  for rent-out)



# Empirical Model

1) Decision by individual (i) on amount to rent in at time t: (tobit)

$$R_{it} = \beta \bar{A}_{it} + \gamma h_{it} + \alpha \bar{A}_{it} h_{it} + \mathbf{H}_{it} \boldsymbol{\zeta} + \epsilon_{it}$$

$\hat{\beta}$  Tests level of TCs in rental market adjustment

$\hat{\alpha}$  Tests  $H_2$ : if transactions costs are decreasing with age.

Reduced form model of distance from home to plot j:  
(linear)

$$D_{ijt} = \rho h_{it} + \mathbf{U}_{ijt} \boldsymbol{\pi} + \mathbf{H}_{it} \boldsymbol{\eta} + \epsilon_{it}$$

$\hat{\rho}$  Tests if younger farmers travel further to their plots

# Identification Strategy

Concerned that self-selection into rental market participation may be an issue

- Omitted variable bias:
- Positive impact of “social capital” or something similar on rental decisions and age

$$\epsilon_{it} = \mu_i + u_{it}$$

## Mundlak-Chamberlain device in non-linear models

Correlation between covariates and unobserved heterogeneity  $\mu_i$  controlled for using MC device:

Auxiliary model:

$$\mu_i = \psi + \bar{\mathbf{H}}_i \xi + b_i \text{ where } b_i = (0, \sigma^2)$$

Cannot assume results to be fully causal

# Descriptive Results

**Figure 1: Percentage of households renting in, by age of household head**



**Table 1: Age Share of Sample**

age category	share of full sample	share of tenant sample
<30	16	16
30-40	26	36
40-50	22	22
>50	37	27

**Table 2: Median ages of tenants and non-tenants**

	NON-TENANT	TENANT
2008/09	47	39
2010/11	47	39
2012/13	48	39

**Table 3: Intensity of renting in, by age categories**

AGE CATEGORY	MEAN AMOUNT OF LAND RENTED IN (HA)	% OF OPERATED LAND WHICH IS RENTED IN
<30	0.68	71%
30-40	0.88	65%
40-50	0.83	64%
>50	0.76	57% <sup>11</sup>

# Regression results: Distance to plot

Dep var: Km to plot from home

	(1) POLS
HH head age	-0.06*** (0.000)
Rented in (=1)	2.64*** (0.000)
Other controls	Yes
Number of obs.	18,603
R-squared	0.06

On average a household head who is twenty years older lives one kilometer closer to the plot

On average rented in plots are 2.64 kilometers further from the home than owner operated plots.

# Regression results: Hectares rented in

	(1)	(2)	(3)	(4)	(5)	(6)
log of pre-rental land	-0.93*** (0.000)	-0.97*** (0.000)	-1.01*** (0.000)	-1.01*** (0.000)	-1.02*** (0.000)	-0.57*** (0.000)
age of head	-0.02 (0.527)	-0.02 (0.505)	-0.01 (0.585)	-0.01 (0.563)	-0.01 (0.583)	-0.01 (0.572)
log of pre-rental land * [head age < 30]		0.22** (0.016)				
log of pre-rental land * [head age < 40]			0.23*** (0.001)			
log of pre-rental land * [head age < 50]				0.12* (0.086)		
log of pre-rental land * [0 < head age < 30]					0.26** (0.015)	
log of pre-rental land * [30 < head age < 40]					0.22** (0.012)	
log of pre-rental land * [40 < head age < 50]					0.03 (0.747)	
log of pre-rental land * head age						-0.01*** (0.002)
Other Controls	Yes	Yes	Yes	Yes	Yes	Yes
Number of obs.	6814	6814	6814	6814	6814	6814
R-squared	0.19	0.19	0.20	0.19	0.20	0.20

# Conclusions

- Younger farmers in Tanzania are more dependent on land rental markets than older households ( $H_1$ ).
  - Both in terms of accessing participation and intensity of participation
- Younger farmers seem to experience higher transactions costs seem to be higher for rental market participation ( $H_2$ ).
  - Reasons may include weak contract enforcement, reputation effects, and limited social and economic capital.
  - Travel further to their plots

# Implications

Tanzania like many countries in SSA face a demographic “youth bulge”

May drive labor out of rural areas without access to farmland.

Questionable if non-rural sector can absorb them.

Facilitating land transactions and ensuring they occur equitably is essential.

# Thank you!



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