Intra-Rural Migration and Pathways to Greater Well-Being: Evidence from Tanzania

Ayala Wineman and Thomas S. Jayne

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Motivation

- Knowledge gaps around how rural people manage to exit poverty... and the role of different types of migration.
- Most attention paid to rural-urban migration flows.
- Yet intra-rural migration is prevalent in many developing countries, including in sub-Saharan Africa (Bilsborrow 1998; Lucas 2015; Oucho and Gould 1993).
- Migration has been found to improve economic well-being, even for those who move to a rural area (Beegle et al. 2011; Garlick et al. 2015).

How?

Transmission channels of welfare change

Land access

Greater agricultural productivity

Income diversification

- Strong relationship between land access and rural household income (Jayne et al. 2003)
- Rising land pressures (Jayne et al. 2014)
- Some evidence of rural migration being driven by land shortages / land availability (Potts 2006; Beegle et al. 2011; Jayne and Muyanga 2012; Wineman and Liverpool-Tasie 2015)

Transmission channels of welfare change

Land access

Greater agricultural productivity

Income diversification

- Strong link between soil quality and economic well-being (Titonnell and Giller 2013; Barrett and Bevis 2015)
- Intra-rural migrants could potentially access land of greater agricultural potential (e.g., better soil fertility).
- Speculation that this drives migration (Baland et al. 2007)

Transmission channels of welfare change

Land access

Greater agricultural productivity

Income diversification

- Decline in rural poverty partly attributed to shift into rural nonfarm economy, migration to secondary towns (Christiaensen et al. 2013)
- Why migrate to larger villages/ secondary towns?
  - Lower migration costs
  - Higher likelihood of finding an unskilled job (Christiaensen and Todo 2014)

Our plan

- Assess whether intra-rural migrants achieve higher consumption growth, relative to other household members
- What ***else*** is changing especially for migrants that can be linked to consumption growth?
  - ➢ Does this differ by type of rural destination?

Hypotheses explored:

1. They obtain larger farms.
2. They obtain higher quality farms.
3. They incorporate more off-farm income into their income portfolios (i.e., shift away from reliance on the farm).

Method

Using two waves of the LSMS Tanzania national tracking data set...

Source: Wikimedia Commons

Method

Using two waves of the LSMS Tanzania national tracking data set, & focusing on the rural working-age population:

$$\Delta Y_{ih,2013-2009} = \alpha + \boldsymbol{M_{ih,2013}\beta} + \boldsymbol{X_{ih,2009}\gamma} + \delta_h + \varepsilon_{ih}$$

Change in outcome variable

Individual's location in 2013: **Urban** center, **more densely populated rural** location, **less densely populated rural** location

Individual characteristics

Initial household fixed effect

From Beegle et al. (2011)

From Deb and Trivedi (2006)

Validated with a multinomial treatment effects model:

$$\Delta Y_{ih,2013-2009} = \alpha + \boldsymbol{M_{ih,2013}\beta} + \boldsymbol{X_{ih,2009}\gamma} + \boldsymbol{l_{iM}\lambda_M} + \varepsilon_{ih}$$

Latent characteristics that determine migration destination

Method

Using two waves of the LSMS Tanzania national tracking data set, & focusing on the rural working-age population:

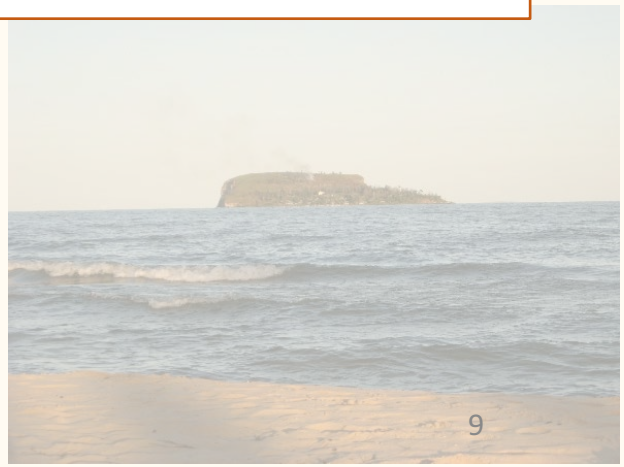
$$\Delta Y_{ih,2013-2009} = \alpha + \boldsymbol{M_{ih,2013}\beta} + \boldsymbol{X_{ih,2009}\gamma} + \delta_h + \varepsilon_{ih}$$

Change in **outcome variable**:

- Value of consumption per adult equivalent per day (ln);
- Land area accessed;
- Indicator of local soil quality;
- Farm profits per acre;
- Individual income-generating activities; measures of household reliance on farm versus other sources of income

Individual's **migrant status** in 2013:
Self-reported + triangulated by location

'Urban' = main town in district
+ other urban areas



Descriptive results

Prevalence of migration from rural households, 2008/09 to 2012/13

	Status in 2012/13		
	Remained in same location	Migrated to rural location	Migrated to urban location
Rural residence in 2008/09 N=4,844 representing 12.64 million	**88.21%** 11.15 million	**8.07%** 1.02 million	**3.72%** 0.47 million

Characteristics of migration

Distance moved (km)	Mean = 125
Moved within the same district	46%
Moved to new district in same region	20%
Moved to new region	34%
Moved to an **urban** center	32%
Moved to a **more densely populated rural** location	22%
Moved to an equally or **less densely populated rural** location	46%
Observations	539

Descriptive results

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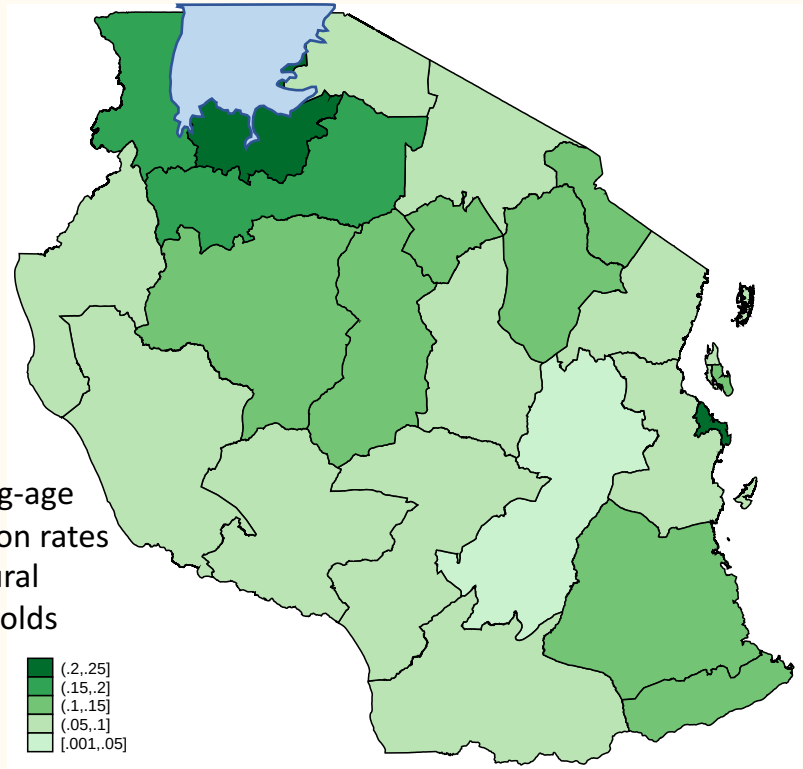
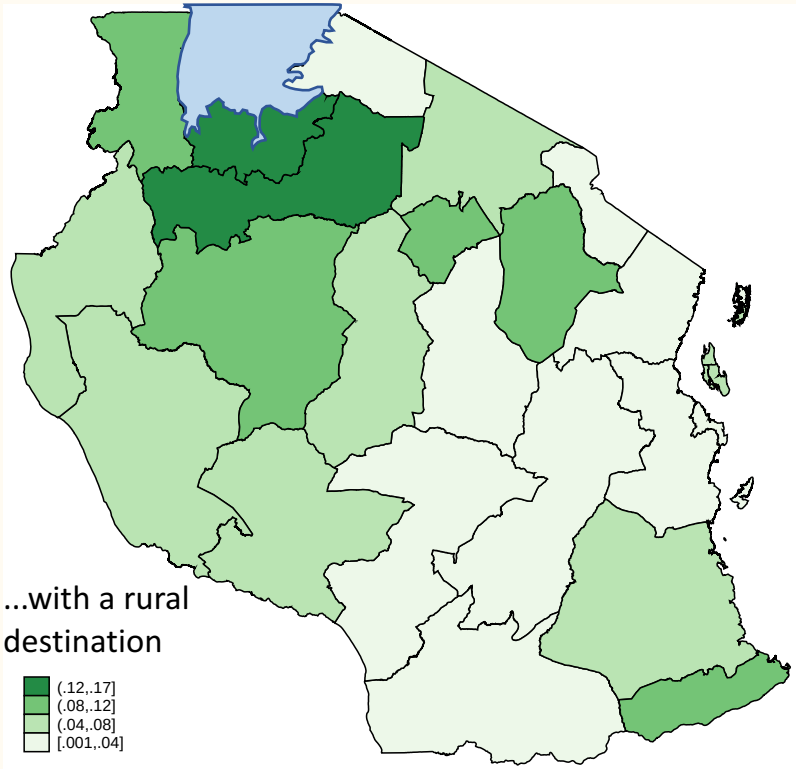
	Remained in same location	Migrated to rural location	Migrated to urban location
Rural residence in 2008/09 N=4,844 representing 12.64 million	**88.21%** 11.15 million	**8.07%** 1.02 million	**3.72%** 0.47 million

Reasons for migration

	To rural area	To urban area
Work	6%	17%
Services/ Housing	22%	31%
Land	9%	0%
Other family reasons	27%	26%
Marriage	31%	16%
School	0%	4%
Other reason	5%	6%
Observations	356	183

Rates of mobility from rural households

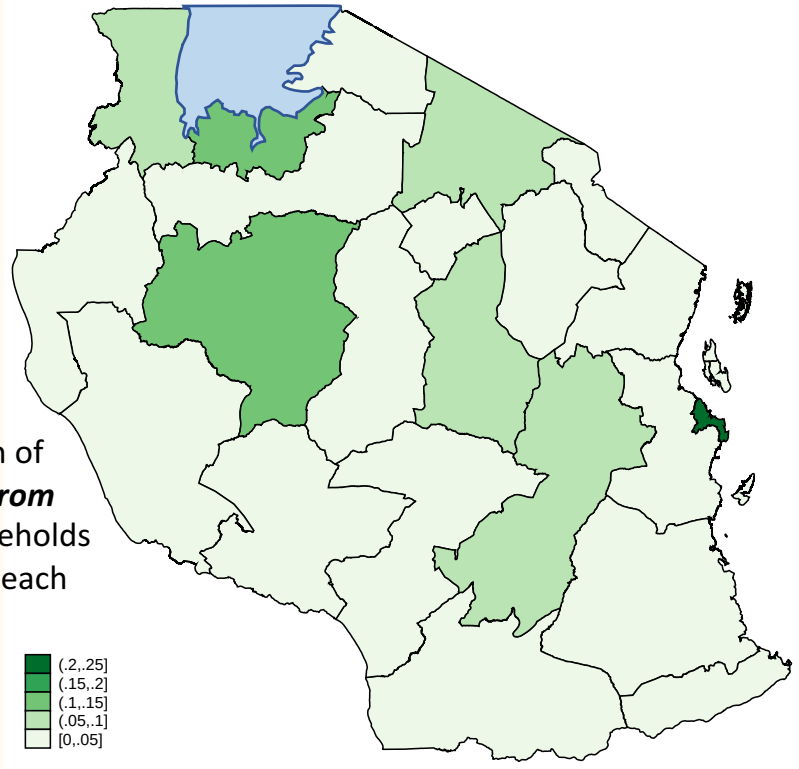




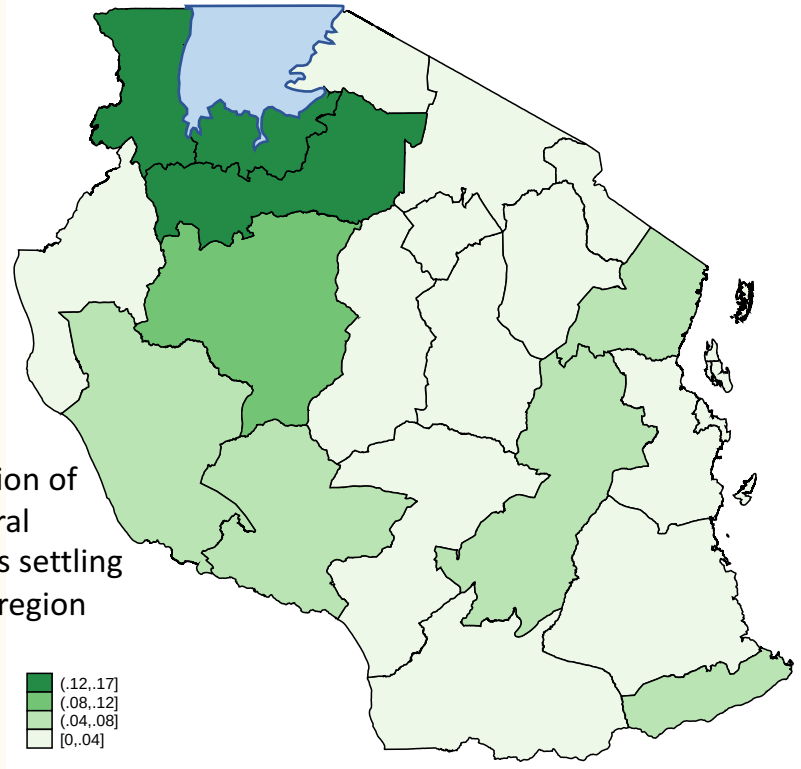
Note: Statistics are “informal”. Data set is not representative at region-level.

Destinations of migrants from rural households

Proportion of migrants ***from*** rural households settling in each region



Proportion of intra-rural migrants settling in each region



Descriptive statistics

Working-age rural individuals, 2008/09

Individual characteristics	Mean	SD
1= Has been self-employed (past year)	0.14	(0.35)
1= Has done non-agricultural wage work	0.07	(0.26)
1= Has done agricultural wage work	0.10	(0.31)
Observations	4,724	

Characteristics of individual's household (HH)	Mean	SD
Consumption per AE per day (ln of TSh/ AE/ day)	7.55	(0.55)
Land accessed per capita (acres)	1.11	(1.90)
Land accessed per working-age HH member (acres)	2.15	(3.30)
Net value crop harvest per acre (IHST of TSh/ acre)[a]	11.54	(4.45)
1= Soil not severely nutrient-constrained	0.83	(0.38)
Share HH income from off-farm sources	0.32	(0.34)
Share HH income from non-farm sources	0.20	(0.30)
1= HH specializes in agriculture (≥ 75% of income)	0.55	(0.50)
1= HH specializes in self-employment	0.04	(0.21)
1= HH specializes in non-agricultural wage work	0.03	(0.16)
1= HH specializes in agricultural wage work	0.01	(0.08)
Observations	4,724	

Results

	(1) DID-IHHFE Δ consumption (ln)
Migrated to…	
1= **urban** location	0.63***
1= **more densely populated rural** location	**0.31*** **
1= **less densely populated rural** location	**0.16** **
1= Head or spouse	
1= Son of HH head	
Age rank in HH	
Individual characteristics (2008/09)	Y
Household characteristics (2008/09)	
Initial household fixed effects (IHHFE)	Y
λ(Migrated to **urban** location)	
λ(… **more densely populated rural** location)	
λ(… **less densely populated rural** location)	
Observations	4,742
Adjusted R-squared	0.79

Standard errors clustered at HH level; *** p<0.01, ** p<0.05, * p<0.1, ⁺ p<0.12
Multinomial treatment effects model estimated with 2,000 simulation draws.

Results

	△ HH land per capita (acres)	△ Net value crop harvest per acre (IHST TSh)	△ 1= Soil not severely nutrient-constrained
Migrated to…			
1= **urban** location	-0.74***	-2.58	0.12
1= **more densely populated rural** location	-1.04*	0.44	0.14*
1= **less densely populated rural** location	-0.12	0.36	-0.00
Individual controls and IHHFE	Y	Y	Y
Obs.	4,742	4,058	4,742

Robustness checks: 'Migrant' definition

DID-IHHFE **Migrant definition:** **Self-reporters *and* movers**	△ consumption (ln)	△ HH land per capita (acres)	△ Net value crop harvest per acre (IHST)	△ 1= Individual is a non-agricultural wage worker	△ Share HH income from off-farm sources
Migrated to…					
1= **urban** location	0.62***	-0.80***	-2.33	0.26***	0.36***
1= **more densely populated rural** location	0.28***	-1.23	-0.38	0.12*	0.28***
1= **less densely populated rural** location	0.15*	-0.15	0.27	0.07+	0.09**

Migrant definition: Moved at least 5 km	△ consumption (ln)	△ HH land per capita (acres)	△ Net value crop harvest per acre (IHST)	△ 1= Individual is a non-agricultural wage worker	△ Share HH income from off-farm sources
Migrated to…					
1= **urban** location	0.62***	-0.80***	-3.93	0.23***	0.35***
1= **more densely populated rural** location	0.28**	-1.54	-1.30	0.12	0.22***
1= **less densely populated rural** location	0.13	0.05	0.06	0.08+	0.12**

Individual controls and IHHFE in all regressions; N=4,742

Robustness checks: 'Migrant' definition

Moved for reasons other than school or marriage	△ consumption (ln)	△ HH land per capita (acres)	△ Net value crop harvest per acre (IHST)	△ 1= Individual is a non-agricultural wage worker	△ Share HH income from off-farm sources
Migrated to…					
1= **urban** location	0.60***	-0.72***	-1.50	0.33***	0.30***
1= **more densely populated rural** location	0.26	-0.78**	0.89	0.19*	0.34***
1= **less densely populated rural** location	0.10	-0.06	0.49	0.13*	0.08+

Individual controls and IHHFE in all regressions; N=4,742

Robustness checks: Model specification

Multinomial treatment effects model	△ HH land per capita (acres)	△ Net value crop harvest per acre (IHST)	△ 1= Individual is a non-agricultural wage worker	△ Share HH income from off-farm sources	△ 1= HH specializes in agriculture
Migrated to…					
1= **urban** location	-0.19	-3.96**	0.26***	0.20***	-1.27**
1= **more densely populated rural** location	-0.54**	2.87***	0.37***	0.33***	-0.42
1= **less densely populated rural** location	0.003	1.48*	-0.05	0.16*	-0.18

Robustness checks:
Adjusting for household economies of scale

	(1)	(2)	(3)
	DID	DID-IHHFE	Multinomial treatment effects[a]
	Δ consumption (ln)		
Migrated to ...			
1= **more densely populated rural** location	0.27***	0.27**	0.22
	(0.00)	(0.03)	(0.10)
1= **less densely populated rural** location	0.09	0.12	0.14
	(0.13)	(0.17)	(0.28)
1= Migrated to **urban** location	0.65***	0.58***	0.36*
	(0.00)	(0.00)	(0.07)
Individual controls	Y	Y	Y
Household controls	Y		Y
Initial household fixed effects (IHHFE)		Y	
Observations	4,742	4,742	4,742
Adjusted R-squared	0.078	0.780	

P-values in parentheses; standard errors clustered at HH level; *** p<0.01, ** p<0.05, * p<0.1

[a] The multinomial treatment effects model (column 3) is estimated with 2,000 simulation draws.

An example of a densely populated rural settlement in the Kagera region

Established: ~1995
Status: Rural
Population: ~2,000 households, 12,000 people

Population density: ~200 persons/km^2 (per village boundaries)
~70% first-generation **migrants**
Ethno-linguistic fractionalism index: 0.8 (extremely diverse)

Main findings

- Rural population is quite mobile.
- 68% of rural migrants move to another rural location.
- Migration results in consumption growth, regardless of destination.
- Intra-rural migration not generally used to access more land or obtain better quality (more profitable) farms.
- Intra-rural migrants are fashioning income portfolios of reduced agricultural emphasis → Importance of rural nonfarm economy.

Further research

- Distinguish between permanent/ temporary migration
- Consider perspectives of the sending/ receiving households and communities
- Alternate pathways of welfare change

Implications for policy makers and researchers

- Facilitate labor mobility
- Development strategies should encompass growing villages/ hotspots of rural in-migration.
- Consider role of intra-rural migration in the structural transformation process

Thank you!

Extra descriptive results

Changes associated with migration (Mean Δ)

Variable (2012/13 minus 2008/09 values)	Migrated to…		
	Urban location	**More densely populated rural** location	**Less densely populated rural** location
Land accessed per capita (acres)	-0.37***	-0.30**	0.02
Net value crop/tree crop harvest per acre (100,000s TSh)[a]	-0.68*	-0.04	0.39
1= Has done non-agricultural wage work in past year	0.29***	0.16***	0.11***
Share HH income from non-farm sources	0.47***	0.19***	0.10***
Observations	183	106	250

Note: Asterisks reflect the results of a Wald test of the null hypothesis that the mean change equals zero;
[a] Applicable if individual resided in a cropping household in both 2008/09 and 2012/13.