Does Relative Deprivation Induce Migration? Evidence from Sub-Saharan Africa

Kashi Kafle, Rui Benfica, and Paul Winters
Research and Impact Assessment Division
IFAD, Rome, Italy

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Motivation

- The traditional migration model ('pull' theory) considers wage or income differentials between origin and destination as the primary cause of migration. People migrate to maximize income or utility – *welfare function approach* (Harris and Todaro 1970; Massey et al. 1993)

- The proponents of the 'push' theory of migration argue that social inequality (relative deprivation) is one of the main causes of migration (Stark, 1984; Stark and Taylor 1989, 1991)

- People migrate to minimize their <u>feeling</u> of deprivation <u>relative</u> to the community they reside in- *relative deprivation (RD) approach*

- Some evidence on positive association between RD and migration (Quinn 2006; Yitzhaki 1988; Stark and Taylor 1991)

- No conclusive evidence to support either approach (Flippen, 2013), the longstanding 'pull-push' debate of migration is still unsettled.

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Motivation

- Propensity to migrate is determined by both social inequality and absolute poverty but it is expected to be higher in communities with higher social inequality (Stark 1984, stark and Yitzhaki 1988; Mehlum 2002; Czaika and de Haas 2012)

- While social inequality is believed to increase emigration, existing evidence suggests that migration further increases inequality because migration led economic growth is not broad-based (Barham and Boucher 1998; McKenzie and Rapoport 2007; Czaika and de Haas 2012)

- Existing literature provides limited evidence on RD-Migration relationship, mostly in the case of Mexico-US migration and the analysis is primarily based on relative deprivation of income

- Examining RD-Migration in the SSA context is crucial because the region has both persistent extreme poverty and a high degree of social inequality– factors that fuel migration

Research Questions

- Does relative deprivation of consumption induce migration in sub-Saharan Africa?

- How does absolute consumption levels affect migration?

- Does relative deprivation of wealth have similar effects on migration?

- Does the RD-migration relationship persist over time and across countries?

Data

- First two waves of LSMS-ISA data from Tanzania, Ethiopia, Malawi, Nigeria, Uganda

Country	Wave 1		Wave 2		Attrition (%)	Panel Sample Size
	Year	Sample Size	Year	Sample Size		
Tanzania	2008/09	3265	2010/11	3168	2.9	**3168**
Ethiopia[‡]	2011/12	3969	2013/14	3776	4.9	**3776**
Malawi	2010/11	3246	2013	3104	4.4	**3104**
Nigeria[†]	2010/11	4916	2012/13	4716	4.1	**4437**
Uganda[†]	2009/10	2975	2010/11	2716	8.7	**2646**

[†]In case of Uganda and Nigeria, the panel sample size is smaller than the wave 2 sample size because we lose observations to measurement error. [‡]All but Ethiopian sample is nationally representative.

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Key Variables

- Outcome variable:

  ✓ Number of migrants in the household over the past 12 months

- Variables of interest:

  ✓ Monthly consumption per-adult equivalent (real dollars, local currency)
  ✓ Relative deprivation of consumption
  ✓ Wealth index (aggregated asset index)
  ✓ Relative deprivation of wealth

Key Variables

- **Migration**: Movement of individuals to any destination outside of the household location for more than one continuous month in the last 12 months for economic or other reasons, i.e., irrespective of the drivers of the movement.

- **Relative Deprivation**: Relative deprivation is an increasing function of not having something one wants, sees someone else having, or sees as feasible to have (Runciman, 1966).

- ✓ Hence a household's relative deprivation depends on wellbeing status of other households around it as well as the feeling of it's members about their position in the local wealth distribution.

Summary Statistics

Key variables	Tanzania		Ethiopia		Malawi	
	Wave 1	Wave 2	Wave 1	Wave 2	Wave 1	Wave 2
Consumption (lcu)	56825.7	64622.7***	538.9	451.2***	14894.8	14621.8
	(930.8)	(1042.8)	(10.3)	(5.27)	(295.7)	(259.6)
Consumption (USD)	[25.38]	[28.86]	[23.05]	[19.3]	[20.54]	[20.16]
Consumption RD	0.30	0.31	0.34	0.30***	0.30	0.31
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Wealth RD	0.73	0.79***	0.65	0.61**	0.70	0.79***
	(0.013)	(0.014)	(0.01)	(0.01)	(0.012)	(0.013)
Number of migrants	0.45	0.63***	0.28	0.28	0.18	0.38***
	(0.016)	(0.018)	(0.012)	(0.013)	(0.01)	(0.016)
Observations	3164	3164	3776	3776	3104	3104

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Relative deprivation

- We follow Stark (1984) to calculate relative deprivation measure

- Relative Deprivation: $RD_{ir}(y) = \int_{y_r^i}^{y_r^h}[1 - F(x)]dx$

  i: household

  r: reference group (eg. enumeration area)

  y_r^i is the value of consumption for household *i,*

  y_r^h is the highest value of consumption in the reference group *r,*

  F(y): cumulative distribution of consumption y,

  1-F(y): percentage of households with consumption higher than *y,*

- Similar approach for Relative deprivation of wealth

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Empirical model

- Panel Fixed Effects:

$$M_{it} = \alpha_0 + \alpha_1 RD_{irt} + \beta_1 C_{it} + \theta X + \mu_i + u_{it}$$

i, r, and t indicate a household, a reference group, and time, respectively

M_{it} is number of migrants

RD_{irt} is relative deprivation

C_{it} is logarithm of consumption expenditure.

X is a vector of control covariates,

μ_i is fixed effects, and u_{it} is idiosyncratic error.

- But, migration (M_{it}) may be **non-linear** on consumption (C_{it}), and **endogenous**

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Is migration non-linear on consumption?

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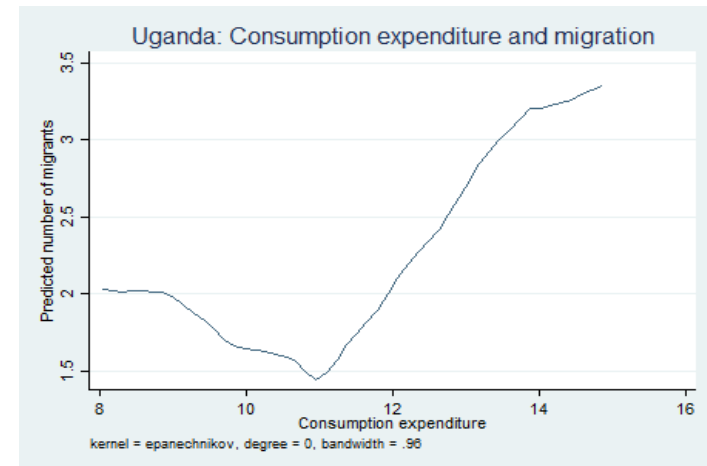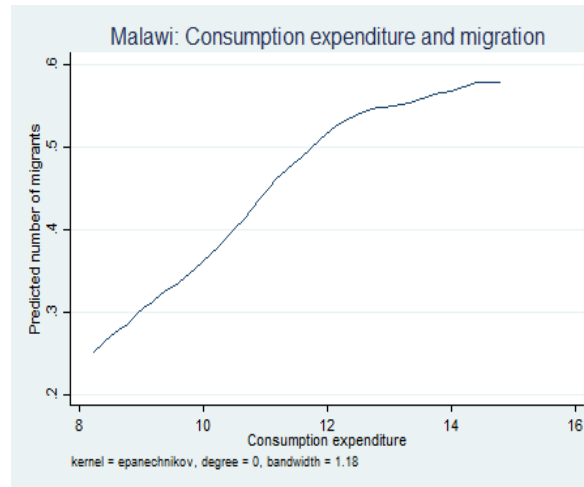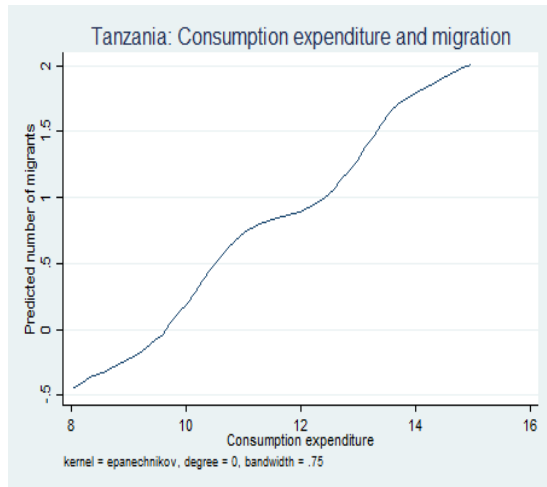
Methods: Empirical model

- Panel Fixed Effects: Quadratic (preferred model)

$$M_{it} = \alpha_0 + \alpha_1 RD_{irt} + \beta_1 C_{it} + \beta_2 C_{it}^2 + \theta X + \mu_i + u_{it}$$
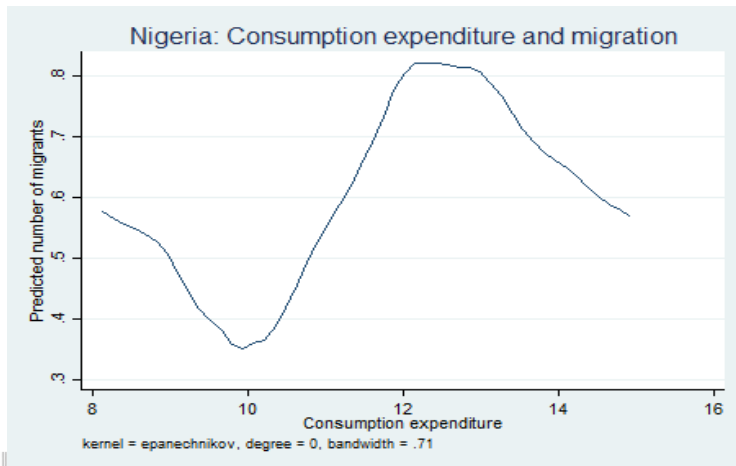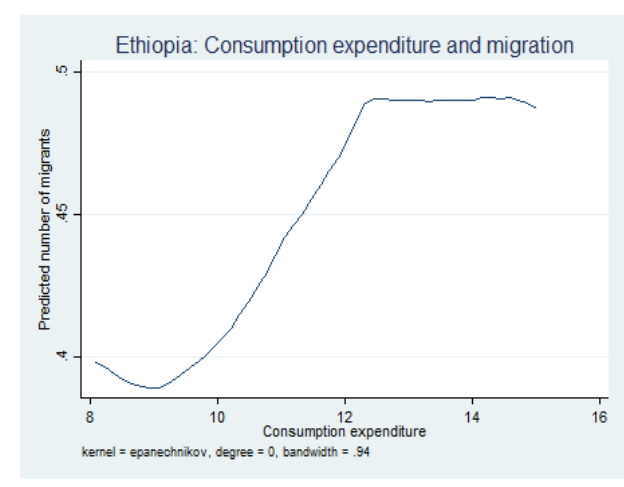
- Marginal effects of absolute consumption $\frac{\delta M_{it}}{\delta C_{it}} = \widehat{\beta_1} + 2.C_{it}\,\widehat{\beta_2}$

> However, β_1 and β_2 may be inconsistent because consumption is endogenous

  i.e. $E(u|C) \neq 0$

- **We deal with endogeneity in two ways**:

  ✓ IV: use multidimensional poverty index as IV for consumption

  ✓ Lagged regression: Regress M_{it} in endline with baseline variables. Check for consistency of results with main results

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Results: Consumption space
Linear

	Dependent Variable: Number of migrants				
	Tanzania	Ethiopia	Malawi	Nigeria	Uganda
Consumption RD	**0.26***	**0.24*****	**0.11**	**0.26*****	**0.45****
	(0.14)	**(0.09)**	**(0.10)**	**(0.095)**	**(0.18)**
Log(Consumption)	**0.35*****	**0.030**	**0.068**	**0.06***	**0.51*****
	(0.072)	**(0.043)**	**(0.052)**	**(0.034)**	**(0.098)**
Household size	0.15***	0.054***	0.11***	0.16***	0.77***
	(0.018)	(0.018)	(0.014)	(0.027)	(0.034)
Dependency Ratio	-0.013	-0.013**	-0.015**	0.024***	-0.073***
	(0.009)	(0.005)	(0.006)	(0.007)	(0.018)
Observations	6323	7288	6208	8780	5139

Other controls: *Age, sex, and marital status of head, Rural and Ag. Household indicators*

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Results: Consumption space Quadratic

Variables	Dependent Variable: Number of migrants,				
	Tanzania	Ethiopia	Malawi	Nigeria	Uganda
Consumption RD	0.46**	0.56***	0.27**	0.36***	-0.20
	(0.19)	(0.11)	(0.13)	(0.10)	(0.23)
Log(Consumption)	1.88*	1.49***	1.35***	0.97***	-3.51***
	(1.05)	(0.43)	(0.51)	(0.33)	(0.93)
Log(Consumption) squared	-0.067	-0.11***	-0.064**	-0.049**	0.17***
	(0.046)	(0.032)	(0.025)	(0.018)	(0.040)
$Log(Cons.) + Log(Cons)^2 = 0$					
P-values	0.09	0.0005	0.008	0.003	0.0002
Marginal effects					
25th percentile	0.495	0.286	0.187	0.136	0.017
50th percentile	0.443	0.199	0.132	0.088	0.187
75th percentile	0.381	0.107	0.072	0.038	0.368
95th percentile	0.273	-0.043	-0.039	-0.035	0.699
Observations	6323	7288	6208	8780	5139

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Results: Demographic groups
Consumption space

Variables	Rural	Urban	Female headed	Male headed	Fewer youth	More youth	Agricult ural	Non-agricultural
Tanzania:								
Consumption RD	0.50*	0.31	0.31	0.72**	0.042	0.78**	0.68***	0.031
	(0.29)	(0.36)	(0.25)	(0.34)	(0.23)	(0.33)	(0.25)	(0.37)
Log (Consumption)	1.98	2.81	0.96	4.42**	0.13	3.72**	2.50	1.83
	(1.88)	(1.80)	(1.32)	(1.89)	(1.18)	(1.68)	(1.69)	(1.69)
Ethiopia:								
Consumption RD	0.59***	0.82	0.35	0.68***	-0.21	0.93***	0.59***	-0.088
	(0.12)	(0.87)	(0.23)	(0.13)	(0.25)	(0.16)	(0.14)	(0.36)
Log (Consumption)	1.68***	1.44	1.10	1.61***	0.17	2.15***	1.48***	-0.10
	(0.46)	(2.51)	(0.69)	(0.52)	(0.77)	(0.64)	(0.51)	(1.18)
Malawi:								
Consumption RD	0.50***	-0.32	0.39	0.22	0.17	0.10	0.27*	0.13
	(0.14)	(0.31)	(0.26)	(0.15)	(0.18)	(0.19)	(0.15)	(0.35)
Log (Consumption)	2.41***	-1.51	3.49***	0.76	0.34	0.91	0.98	0.096
	(0.70)	(1.08)	(1.15)	(0.59)	(0.70)	(0.88)	(0.66)	(1.16)

RD increases migration mostly in:
- ❑ Rural HHs
- ❑ Male headed HHs
- ❑ HHs with more youth
- ❑ Agricultural HHs

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Results: Demographic groups
Consumption space

Variables	Rural	Urban	Female headed	Male headed	Fewer youth	More youth	Agricultural	Non-agricultural
Nigeria:								
Consumption RD	0.33***	0.55***	1.13***	0.23**	-0.022	0.37**	0.49***	0.073
	(0.12)	(0.21)	(0.25)	(0.11)	(0.18)	(0.15)	(0.12)	(0.24)
Log (Consumption)	0.85**	1.89***	3.49***	0.57	0.98**	0.62	1.32***	0.98
	(0.40)	(0.73)	(0.85)	(0.37)	(0.49)	(0.50)	(0.43)	(0.60)
Uganda:								
Consumption RD	0.094	1.18***	0.074	0.48**	0.27	0.46	0.21	0.62***
	(0.20)	(0.45)	(0.34)	(0.21)	(0.25)	(0.28)	(0.36)	(0.23)
Log (Consumption)	0.27**	1.15***	0.36**	0.51***	0.27**	0.53***	0.36*	0.57***
	(0.11)	(0.22)	(0.18)	(0.12)	(0.13)	(0.15)	(0.20)	(0.13)

RD increases migration mostly in:
- ❑ Rural HHs
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- ❑ HHs with more youth
- ❑ Agricultural HHs

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Results: Summary

- Results indicate that relative deprivation of consumption induces (increases) migration, consistently so in multiple countries

- Absolute income (consumption) also increases migration but at a decreasing rate.

- People from households in the upper quartiles of consumption distribution are less likely to migrate

- Relative deprivation of wealth also has positive association with migration

- The RD-Migration relationship does persist over time and across countries, in the context of SSA.

- The positive effects of relative deprivation of consumption (and wealth) is mostly concentrated in Rural, male headed, and agricultural households as well as households with more youth

Conclusion

- Our results confirm previous findings of positive association between *relative deprivation of income and migration* in the case of US-Mexico migration (Stark and Taylor 1991, and Quinn 2008) and highlight a need for renewed discussion on effects of social inequality on migration

- Our finding that absolute consumption increases migration but at a decreasing rate is also consistent with existing literature

- We contribute to the literature by providing a critical mass of evidence on 'relative deprivation – migration relationship' in the context of sub-Saharan Africa.

- We also add to the literature as we examine RD-migration relationship in both consumption and wealth spaces and find consistent results

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Implications

- Results imply that policies that contribute to aggregate income growth may need to use caution because such policies may increase migration through increased inequality at the local level

- If migration reduction is an objective, poverty reduction policies should emphasize broad-based economic growth rather than an aggregate economic growth

- Interventions that aim to halt/slow rural-urban migration need to focus on reducing social inequality in rural areas

- Pro-poor policies that are informed by aggregate poverty with little attention to regional differences may increase migration

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THANK YOU!

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Methods: Asset index

➤ Asset index is composed of household durables, housing characteristics, livestock holdings, and land holding size

➤ We use Principal Component Analysis (PCA) and use the first Principal Component to calculate the index

➤ To make the asset index equivalent to the Real consumption, we used pooled means and SDs to calculate asset index

   o Pool assets data across waves

   o Use pooled mean and SDs to calculate weighting factors

   o Generate asset index using pooled weight

Results: Wealth space

| | Dep. Variable: Number of migrants | | | | |
| | Model: Panel fixed effects | | | | |
	Tanzania	Ethiopia	Malawi	Nigeria	Uganda
Wealth relative deprivation	0.21^{**}	0.052	0.23^{***}	0.091^{**}	0.21^{***}
	(0.081)	(0.034)	(0.045)	(0.035)	(0.051)
Wealth index	0.11^{***}	0.014^{*}	0.079^{***}	0.003	0.21^{***}
	(0.042)	(0.008)	(0.018)	(0.013)	(0.022)
Constant	-0.92^{***}	-0.077	-0.47^{***}	-0.75^{***}	-1.29^{***}
	(0.27)	(0.14)	(0.17)	(0.27)	(0.15)
Observations	6322	7497	6208	8774	5094

Results: Demographic groups
Wealth space

Variables	Rural	Urban	Female headed	Male headed	Fewer youth	More youth	Agricultural	Non-agricultural
Tanzania:								
Wealth RD	0.11	0.27*	0.020	0.24**	0.040	0.36***	0.11	0.27*
	(0.12)	(0.15)	(0.13)	(0.099)	(0.088)	(0.13)	(0.092)	(0.16)
Wealth Index	0.058	0.18**	0.046	0.14***	0.059	0.14**	0.065	0.13
	(0.043)	(0.089)	(0.056)	(0.054)	(0.045)	(0.066)	(0.042)	(0.087)
Ethiopia:								
Wealth RD	0.084**	-0.45**	-0.002	0.072*	-0.037	0.061	0.092**	-0.12
	(0.033)	(0.20)	(0.055)	(0.041)	(0.048)	(0.048)	(0.038)	(0.12)
Wealth Index	0.018**	-0.075	0.018	0.016	0.004	0.012	0.017*	0.002
	(0.008)	(0.048)	(0.013)	(0.011)	(0.011)	(0.017)	(0.009)	(0.023)
Malawi:								
Wealth RD	0.30***	0.15***	0.31***	0.20***	0.15**	0.21***	0.24***	0.22***
	(0.074)	(0.057)	(0.100)	(0.053)	(0.065)	(0.077)	(0.067)	(0.078)
Wealth Index	0.085***	0.038	0.15***	0.058***	0.13***	0.047**	0.082***	0.059*
	(0.029)	(0.026)	(0.033)	(0.020)	(0.040)	(0.024)	(0.026)	(0.033)
Nigeria:								
Wealth RD	0.12***	0.028	-0.006	0.11***	-0.022	0.19***	0.13***	-0.02
	(0.042)	(0.07)	(0.10)	(0.038)	(0.045)	(0.054)	(0.045)	(0.066)
Wealth Index	0.005	-0.005	-0.050	0.008	-0.022	0.02	0.024	-0.037
	(0.013)	(0.032)	(0.054)	(0.012)	(0.027)	(0.015)	(0.017)	(0.028)
Uganda:								
Wealth RD	0.12	0.35	0.15	0.072	0.011	-0.15	0.046	0.20
	(0.19)	(0.28)	(0.29)	(0.19)	(0.20)	(0.22)	(0.33)	(0.19)
Wealth Index	0.16*	0.095	0.043	0.082	-0.064	0.068	0.073	0.071
	(0.090)	(0.10)	(0.13)	(0.077)	(0.094)	(0.087)	(0.17)	(0.081)

RD increases migration mostly in:
- ❑ Rural HHs
- ❑ Male headed HHs
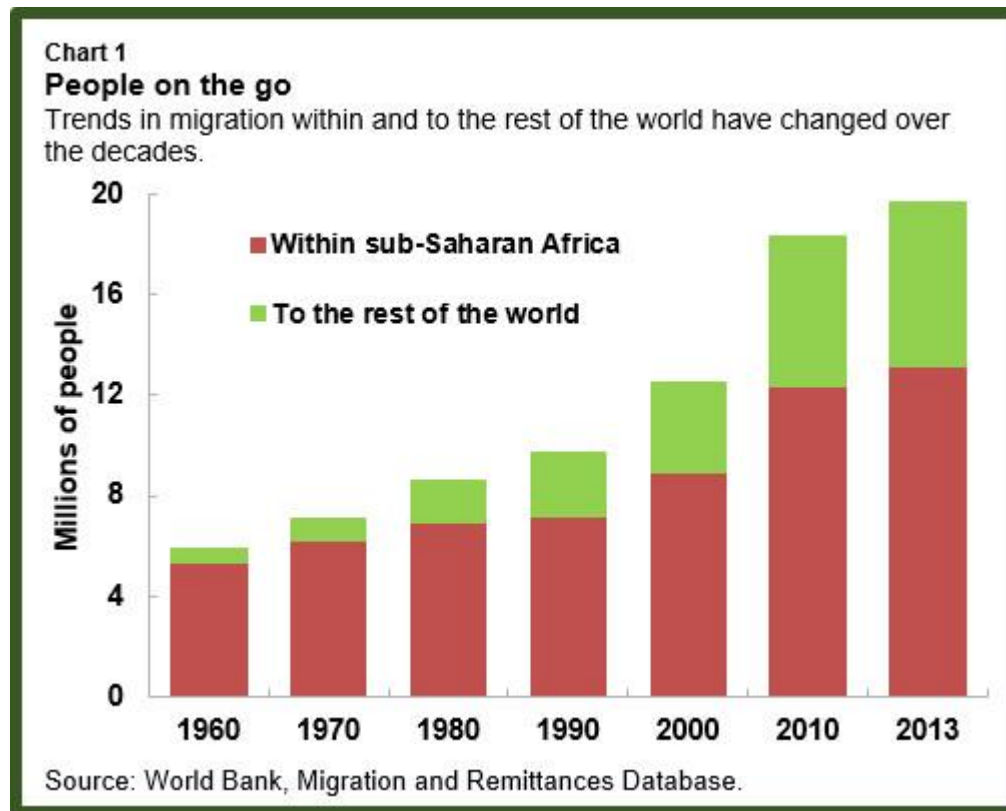- ❑ HHs with more youth
- ❑ Agricultural HHs

Summary statistics

	Tanzania		Ethiopia		Malawi	
	Wave 1	Wave 2	Wave 1	Wave 2	Wave 1	Wave 2
Household characteristics						
Household size	5.09	5.25**	5.13	5.78***	4.79	5.24***
	(0.050)	(0.051)	(0.037)	(0.039)	(0.040)	(0.041)
Number of children, 0-14	2.34	2.34	2.43	2.41	2.29	2.45***
	(0.034)	(0.034)	(0.028)	(0.028)	(0.029)	(0.030)
Number of adults, 15-64	2.64	2.70	2.50	2.51	2.33	2.57***
	(0.029)	(0.029	(0.021)	(0.021)	(0.022)	(0.024)
Dependency Ratio	1.65	1.70	1.56	1.97***	1.79	1.68
	(0.051)	(0.053)	(0.039)	(0.044)	(0.054)	(0.048)
Rural residence (1=Yes, 0=No)	0.74	0.71***	0.94	0.94	0.85	0.84
	(0.008)	(0.008)	(0.004)	(0.004)	(0.006)	(0.007)
Household head's characteristics						
Age	46.0	47.5***	44.5	46.0***	42.6	45.2***
	(0.28)	(0.27)	(0.25)	(0.25)	(0.29)	(0.28)
Sex (1=Female, 0= Male)	0.25	0.26	0.20	0.22	0.24	0.24
	(0.008)	(0.008)	(0.006)	(0.007)	(0.008)	(0.008)
Marital status (1= Married, 0=else)	0.73	0.72	0.81	0.78***	0.76	0.76
	(0.008)	(0.008)	(0.006)	(0.007)	(0.008)	(0.008)
Key variables of interest						
Consumption (local currency)	56825.7	64622.7***	538.9	451.2***	14894.8	14621.8
	(930.8)	(1042.8)	(10.3)	(5.27)	(295.7)	(259.6)
Consumption (US Dollars)	[25.38]	[28.86]	[23.05]	[19.3]	[20.54]	[20.16]
Consumption RD	0.30	0.31	0.34	0.30***	0.30	0.31
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Wealth index	-0.85	-0.81	-1.21	-1.03***	-0.55	-0.45*
	(0.049)	(0.051)	(0.030)	(0.023)	(0.037)	(0.041)
Wealth RD	0.73	0.79***	0.65	0.61**	0.70	0.79***
	(0.013)	(0.014)	(0.01)	(0.01)	(0.012)	(0.013)
Household has migrants (1=Yes)	0.28	0.40***	0.18	0.17	0.12	0.24***
	(0.008)	(0.009)	(0.006)	(0.006)	(0.006)	(0.008)
Number of migrants	0.45	0.63***	0.28	0.28	0.18	0.38***
	(0.016)	(0.018)	(0.012)	(0.013)	(0.01)	(0.016)
Observations	3164	3164	3776	3776	3104	3104

Summary statistics

	Nigeria		Uganda	
	Wave 1	Wave 2	Wave 1	Wave 2
Household characteristics				
Household size	5.89	6.42***	5.90	6.42***
	(0.047)	(0.049)	(0.069)	(0.07)
Number of children, 0-14	2.47	2.58**	2.69	2.84**
	(0.033)	(0.034)	(0.043)	(0.042)
Number of adults, 15-64	2.93	3.29***	2.75	2.87*
	(0.027)	(0.030)	(0.035)	(0.036)
Dependency Ratio	1.67	1.75	1.59	1.72
	(0.042)	(0.045)	(0.051)	(0.055)
Rural residence (1=Yes, 0=No)	0.70	0.70	0.78	0.84***
	(0.007)	(0.007)	(0.008)	(0.007)
Household head's characteristics				
Age	49.8	52.2***	44.2	44.9
	(0.23)	(0.23)	(0.31)	(0.31)
Sex (1=Female, 0= Male)	0.15	0.15	0.28	0.31
	(0.005)	(0.005)	(0.009)	(0.009)
Marital status (1= Married, 0=else)	0.81	0.78***	0.70	0.71
	(0.006)	(0.006)	(0.009)	(0.009)
Key variables of interest				
Consumption (local currency)	8275.6	12262.2***	76675.0	64842.3***
	(105.7)	(291.5)	(2034.4)	(1914.6)
Consumption (US Dollars)	[22.9]	[33.9]	[21.30]	[18.01]
Consumption RD	0.30	0.31**	0.35	0.38***
	(0.005)	(0.005)	(0.006)	(0.006)
Wealth index	-0.01	-0.06	0.031	-0.047
	(0.036)	(0.035)	(0.036)	(0.036)
Wealth RD	0.68	0.68	0.70	0.69
	(0.011)	(0.011)	(0.012)	(0.011)
Household has migrants (1=Yes)	0.18	0.30***	0.51	0.59***
	(0.006)	(0.007)	(0.01)	(0.009)
Number of migrants	0.33	0.58***	1.13	1.53***
	(0.014)	(0.018)	(0.032)	(0.040)
Observations	4437	4437	2576	2576

IFAD

Investing in rural people

Motivation

➢Migration, both international and domestic, is one of the major policy concerns in the world

➢So is the case in sub-Saharan Africa:

Chart 1
People on the go
Trends in migration within and to the rest of the world have changed over the decades.

- Within sub-Saharan Africa
- To the rest of the world

Millions of people (y-axis: 0, 4, 8, 12, 16, 20)

Years: 1960, 1970, 1980, 1990, 2000, 2010, 2013

Source: World Bank, Migration and Remittances Database.

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Investing in rural people

Motivation

➤ Migration is in the centre of policy dialogues in SSA because it has widespread poverty and high inequality combined with rapidly growing population of **youth**:

Chart 2
Demographic changes
Profound changes in the working age population of countries will affect migration.

Source: United Nations World Population Prospects.