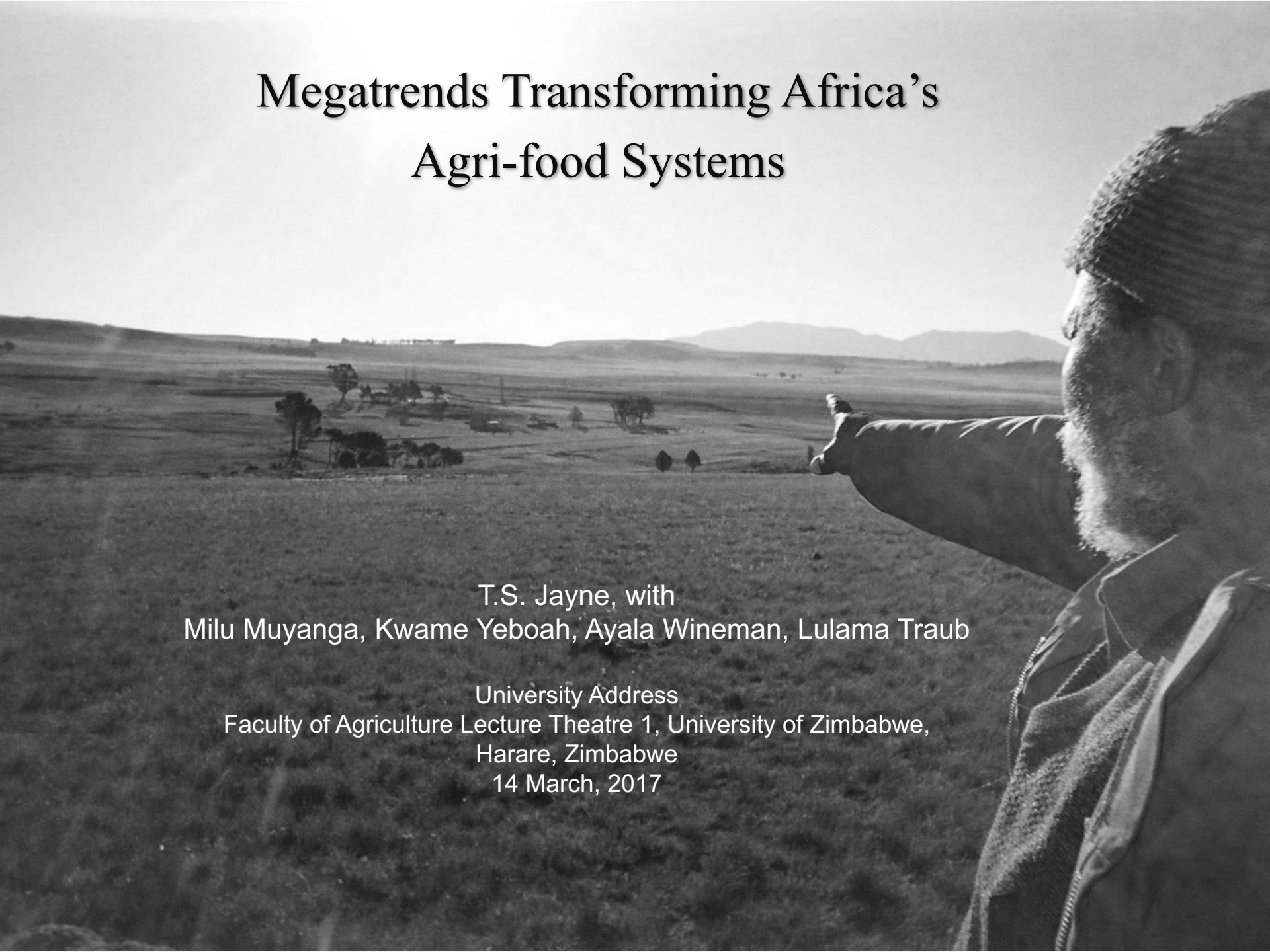
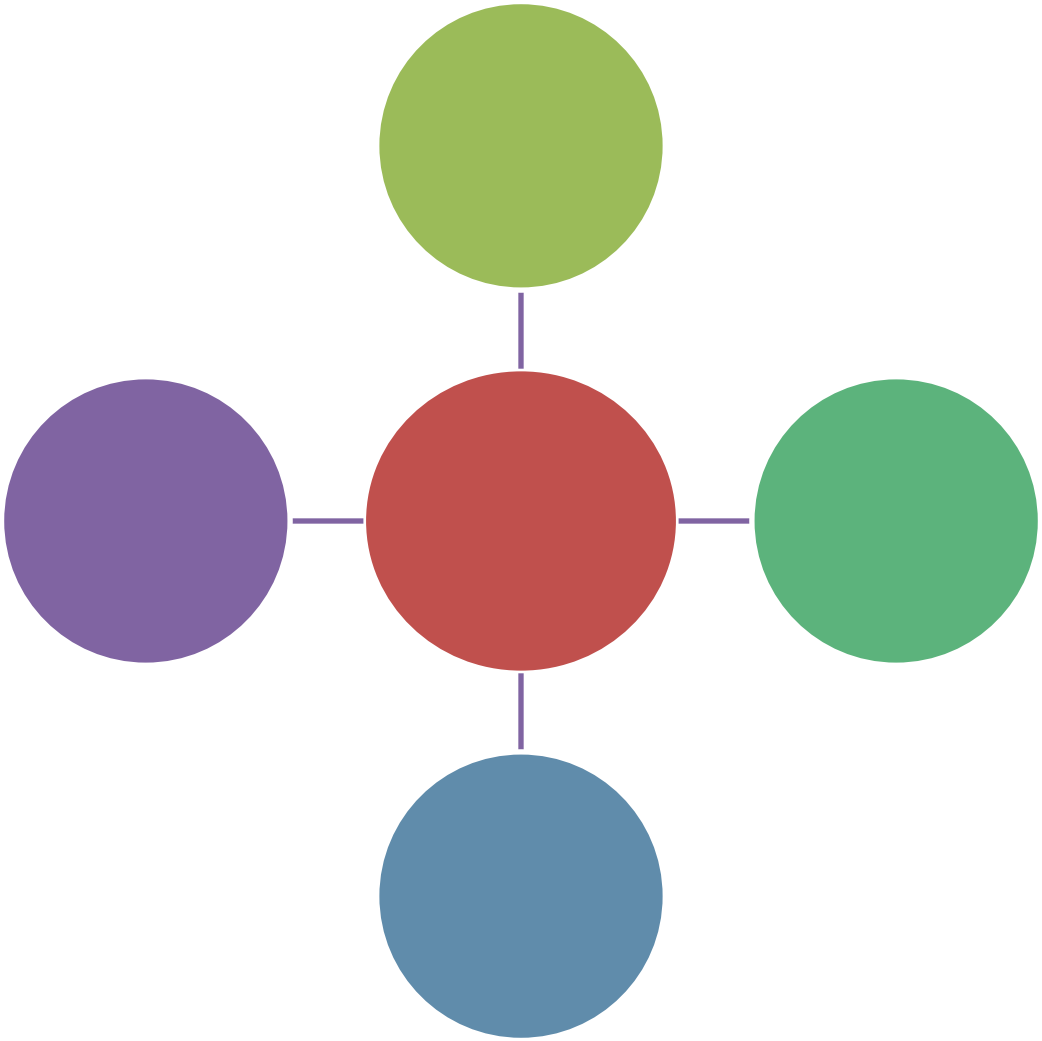
Megatrends Transforming Africa's Agri-food Systems



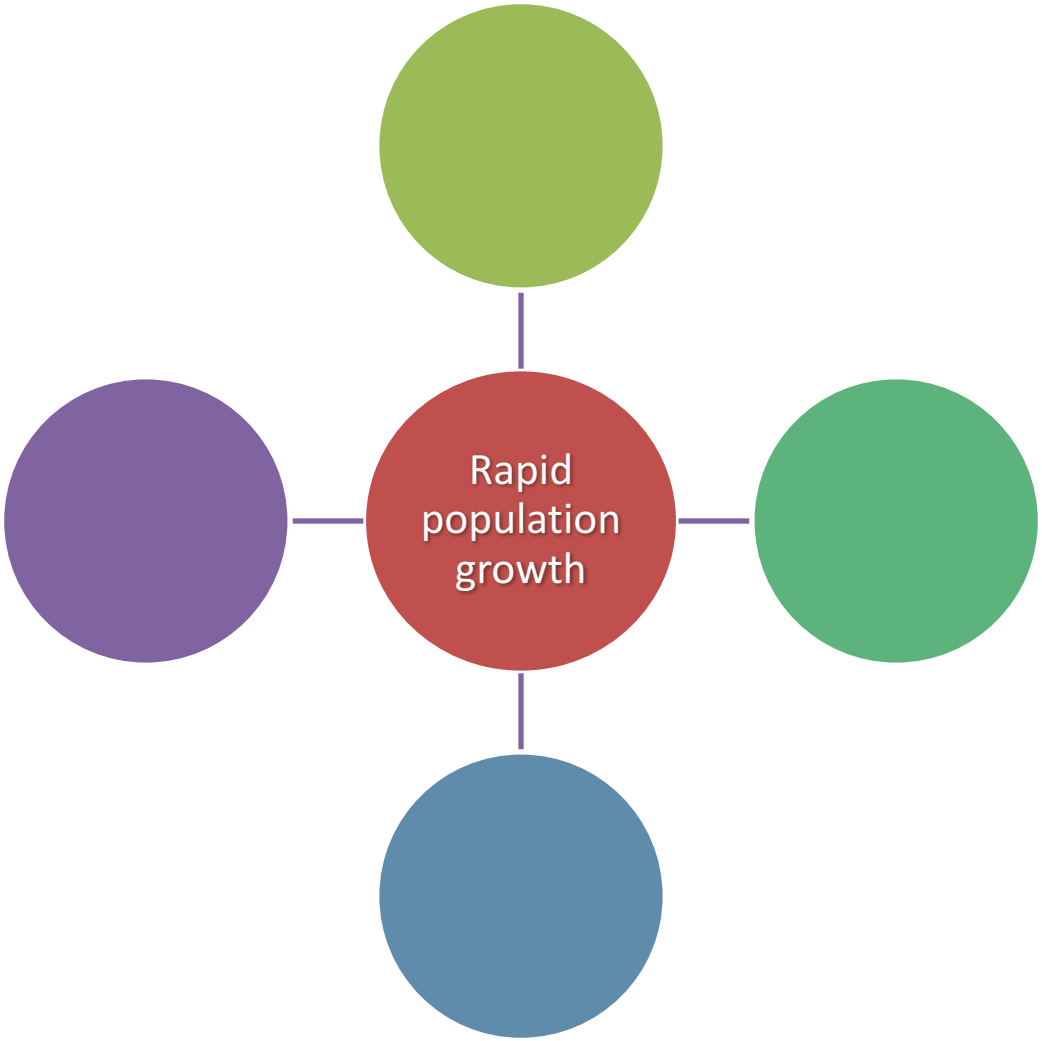
T.S. Jayne, with
Milu Muyanga, Kwame Yeboah, Ayala Wineman, Lulama Traub

University Address
Faculty of Agriculture Lecture Theatre 1, University of Zimbabwe,
Harare, Zimbabwe
14 March, 2017

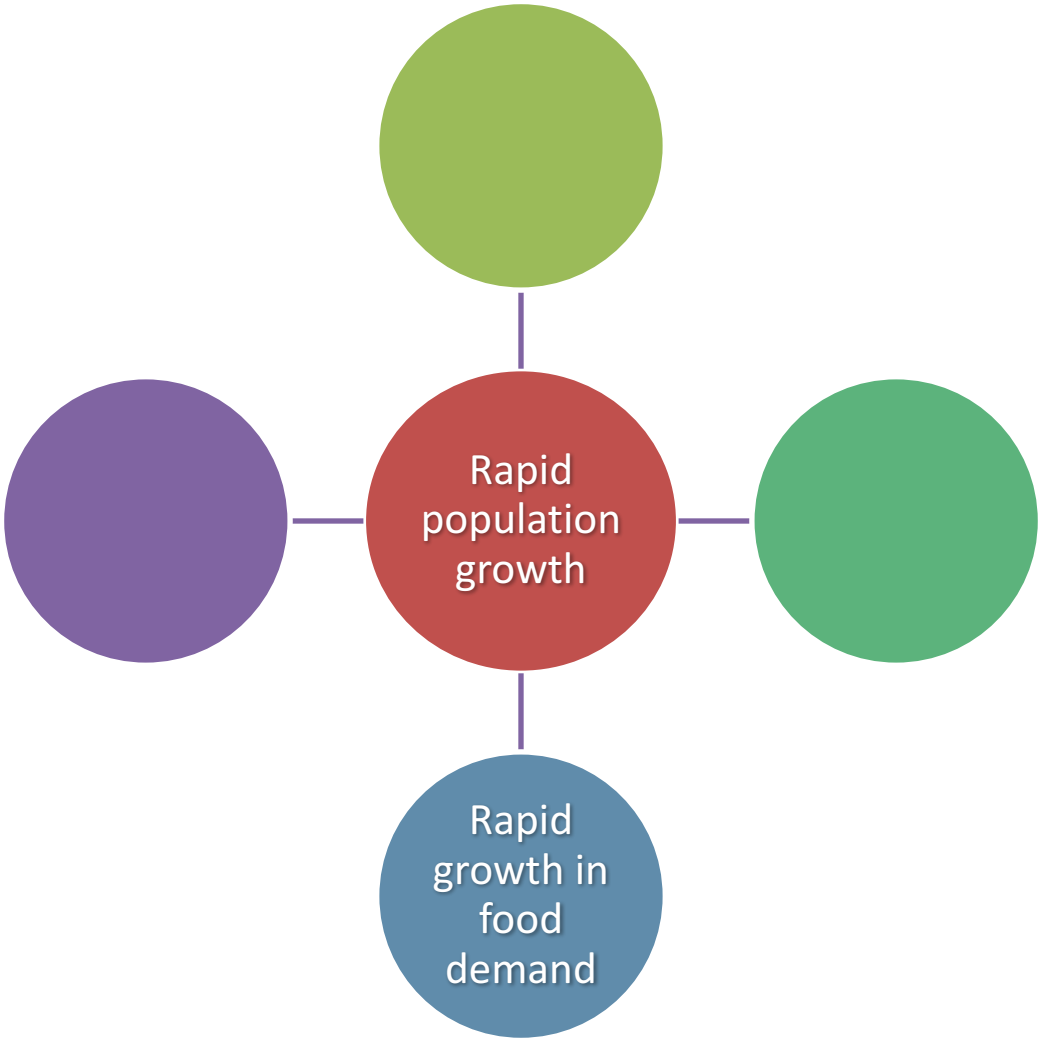
Five inter-related trends



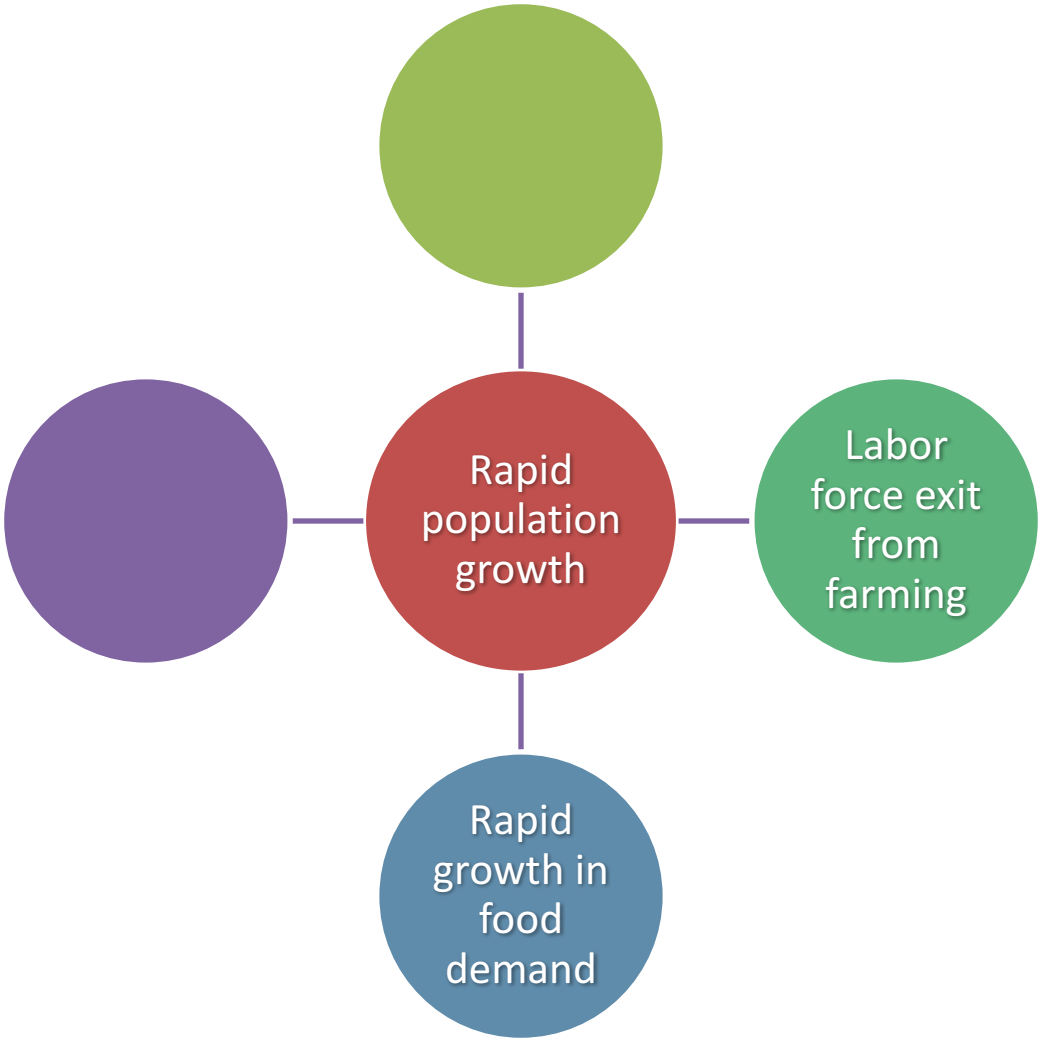
Five inter-related trends



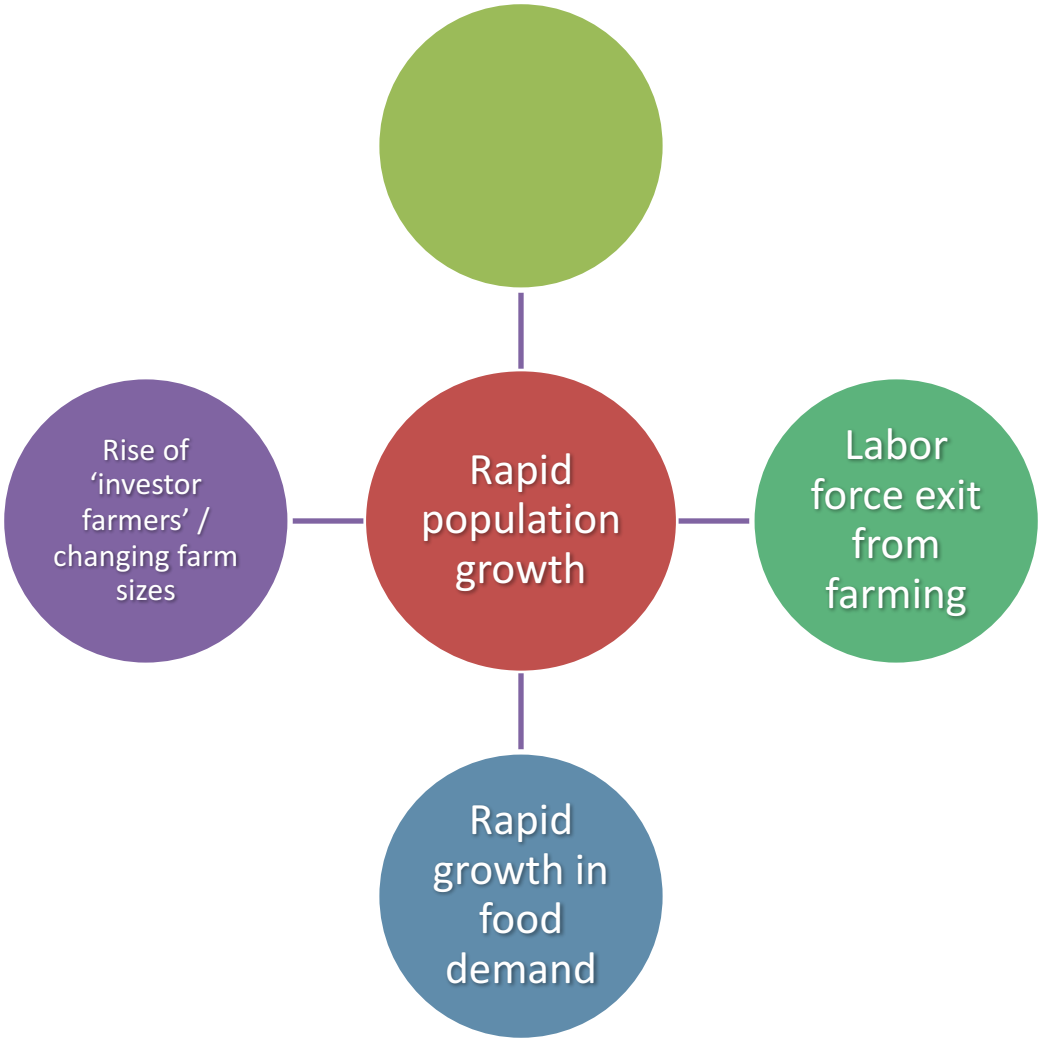
Five inter-related trends



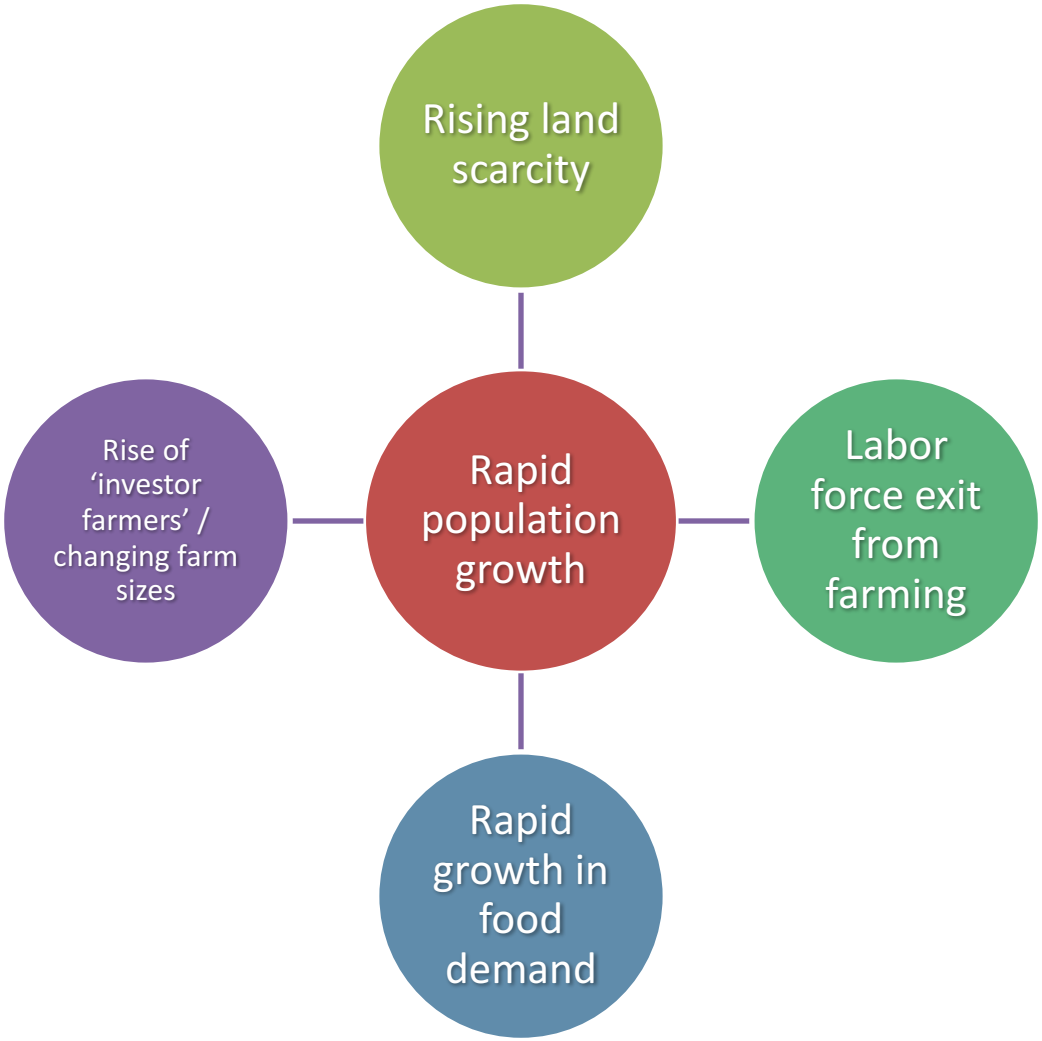
Five inter-related trends



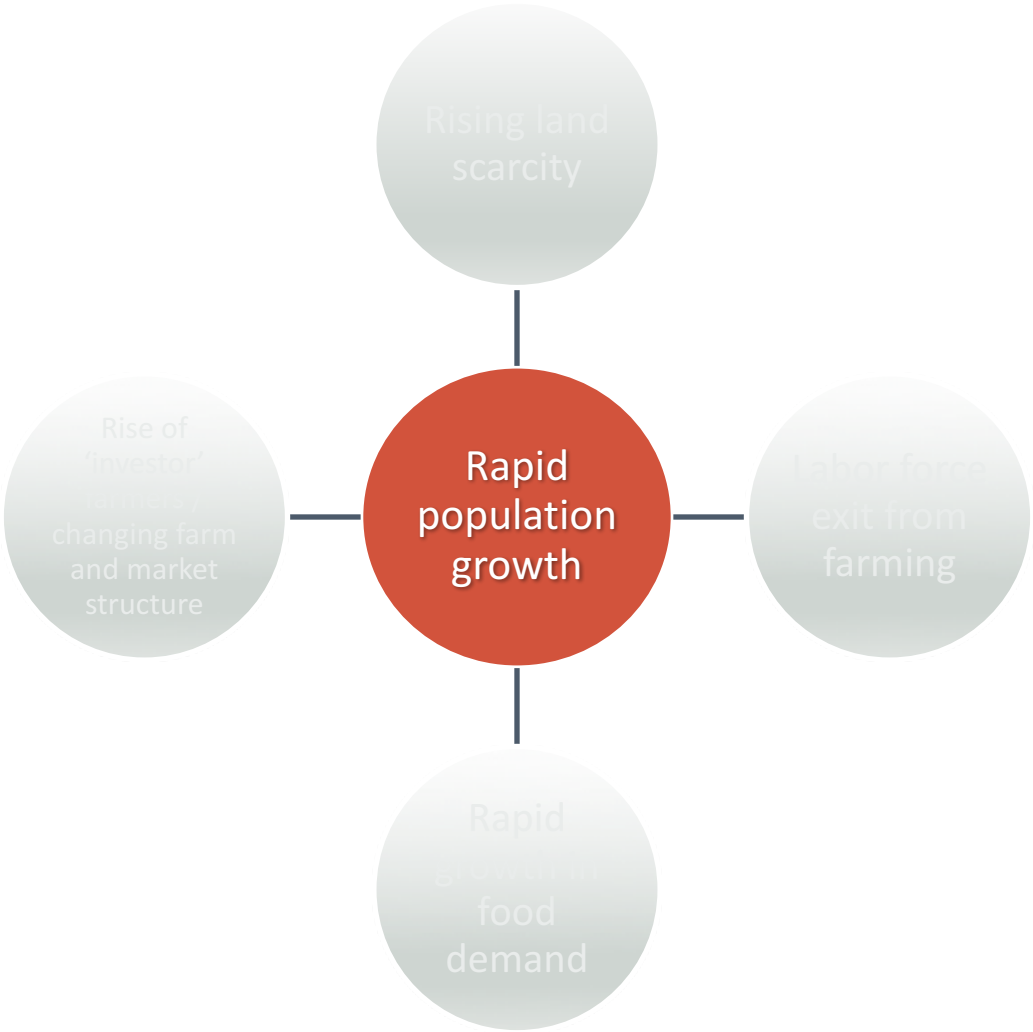
Five inter-related trends



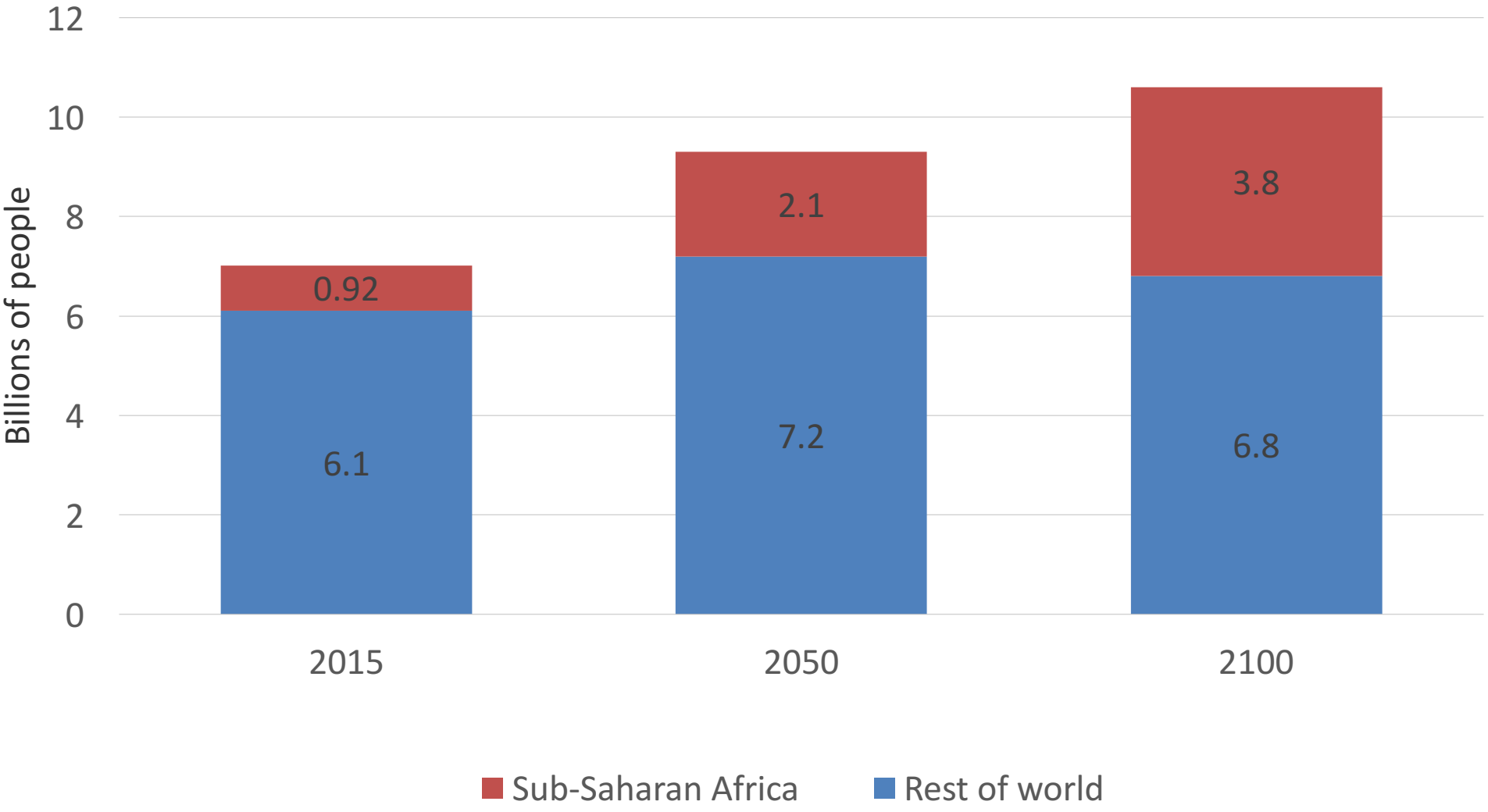
Five inter-related trends



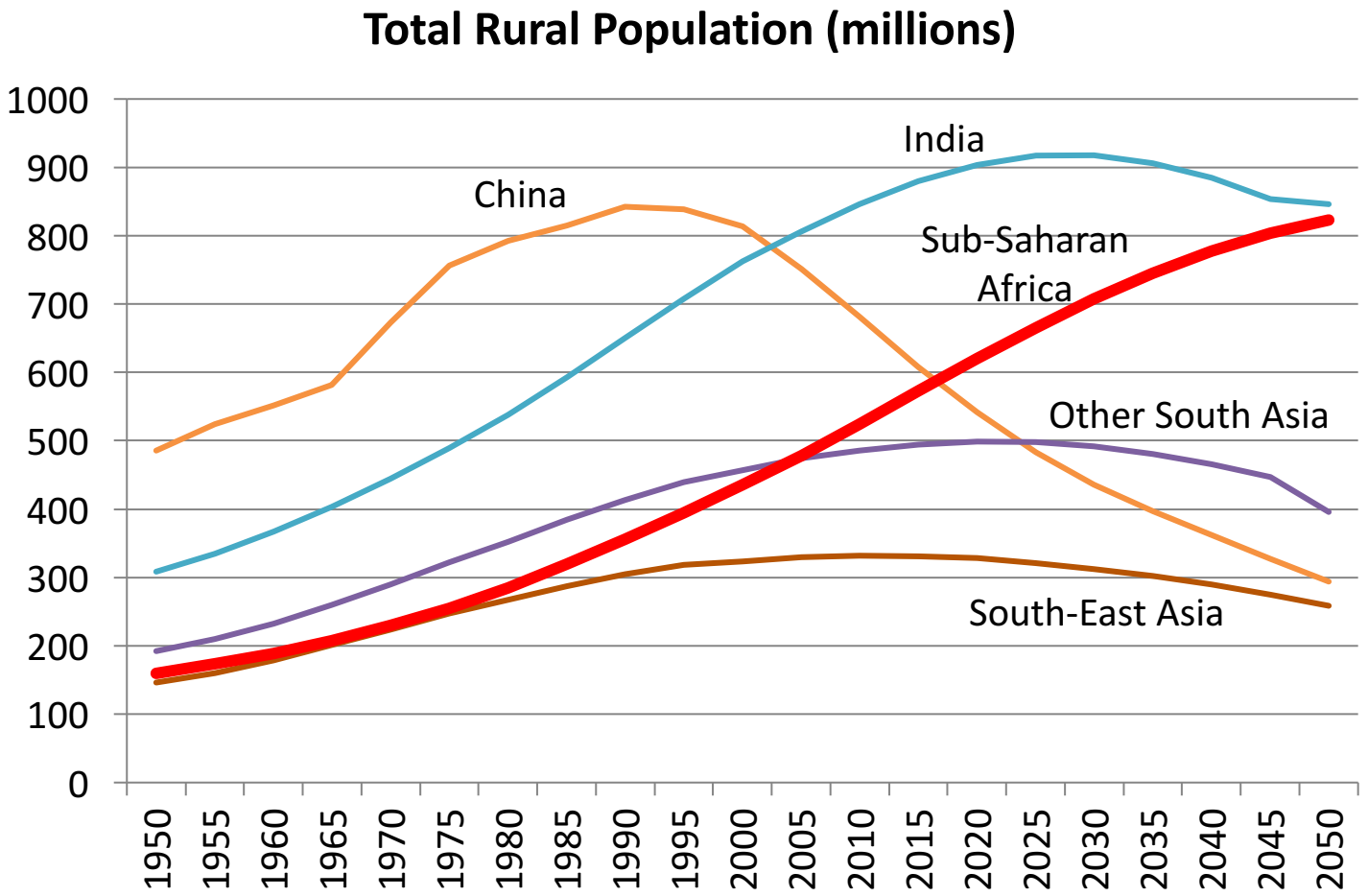
Five inter-related trends



Africa's rapid population growth

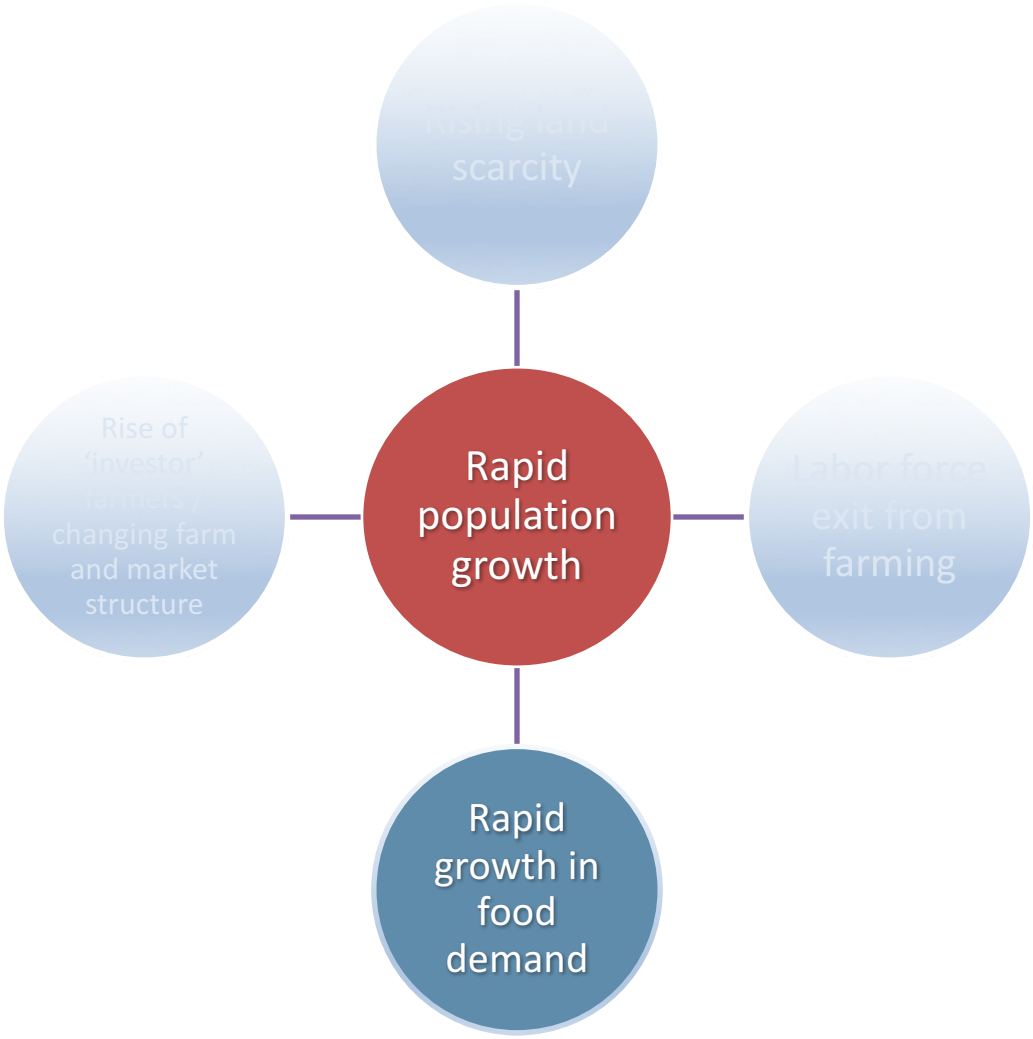


Sub-Saharan Africa: only region of world where rural population continues to rise past 2050



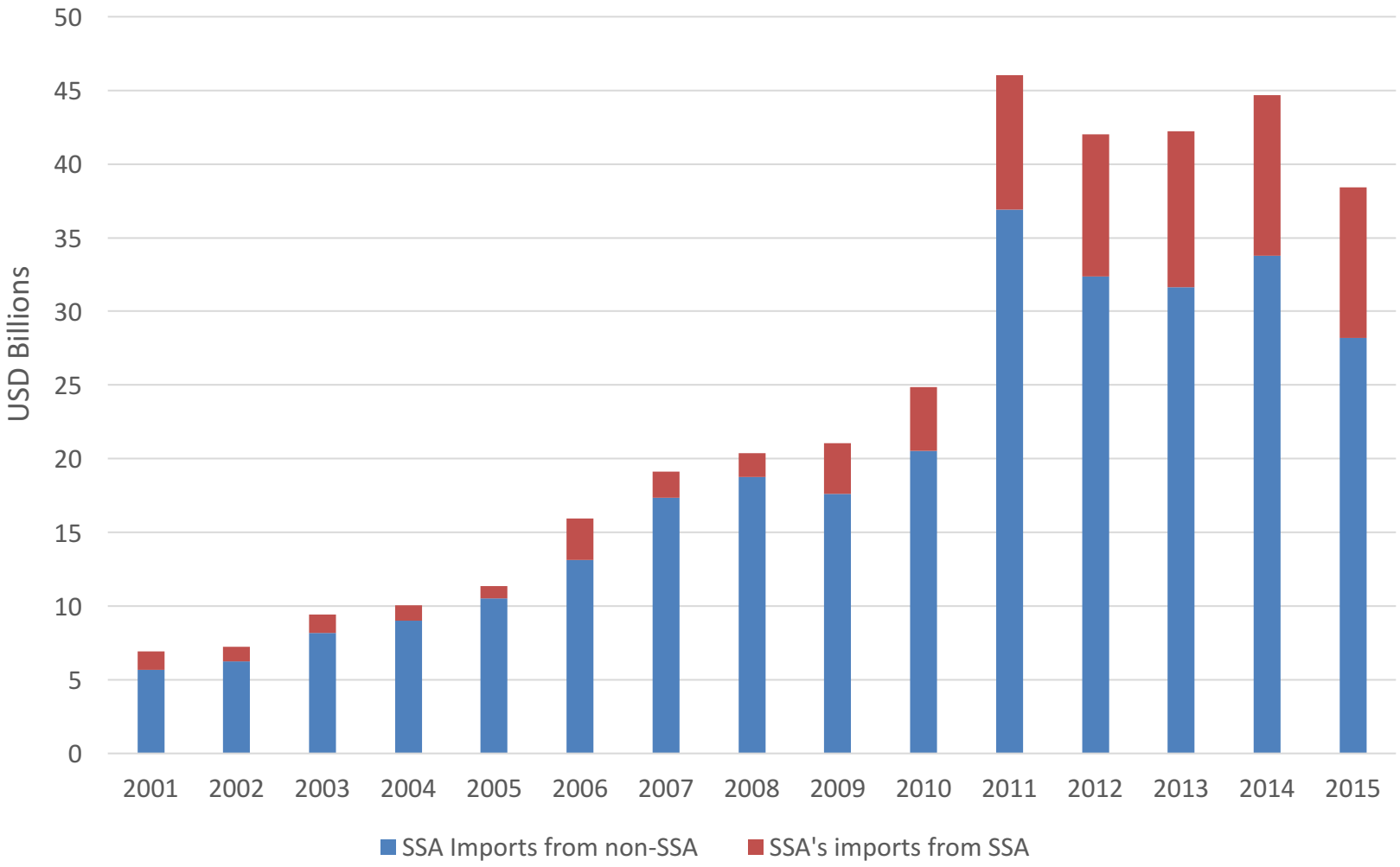
Source: UN 2013

Five inter-related trends

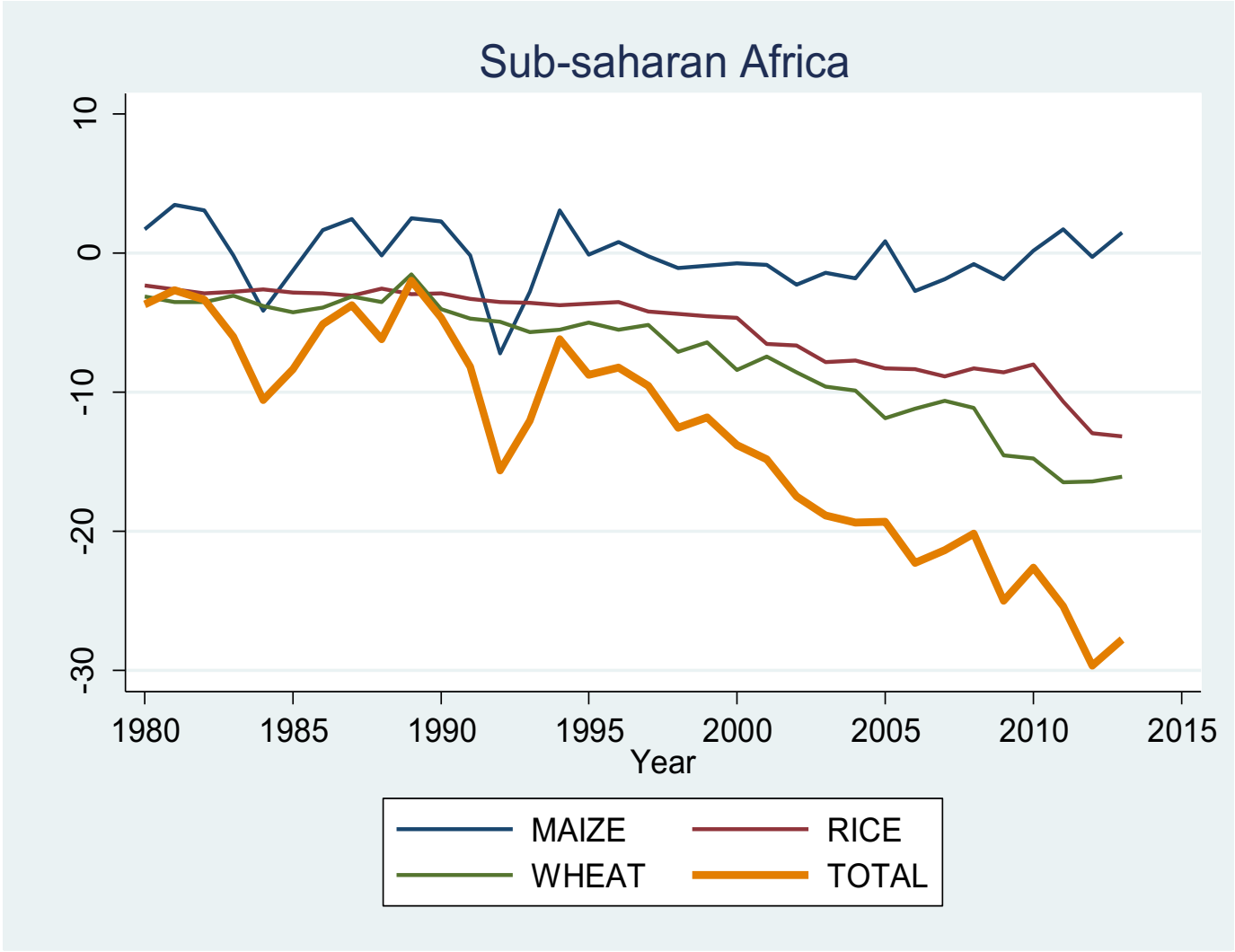


SSA Total Food Imports from 7 to 40 billion USD (2001-2015)

(intra SSA trade from 1 to 10 billion USD)

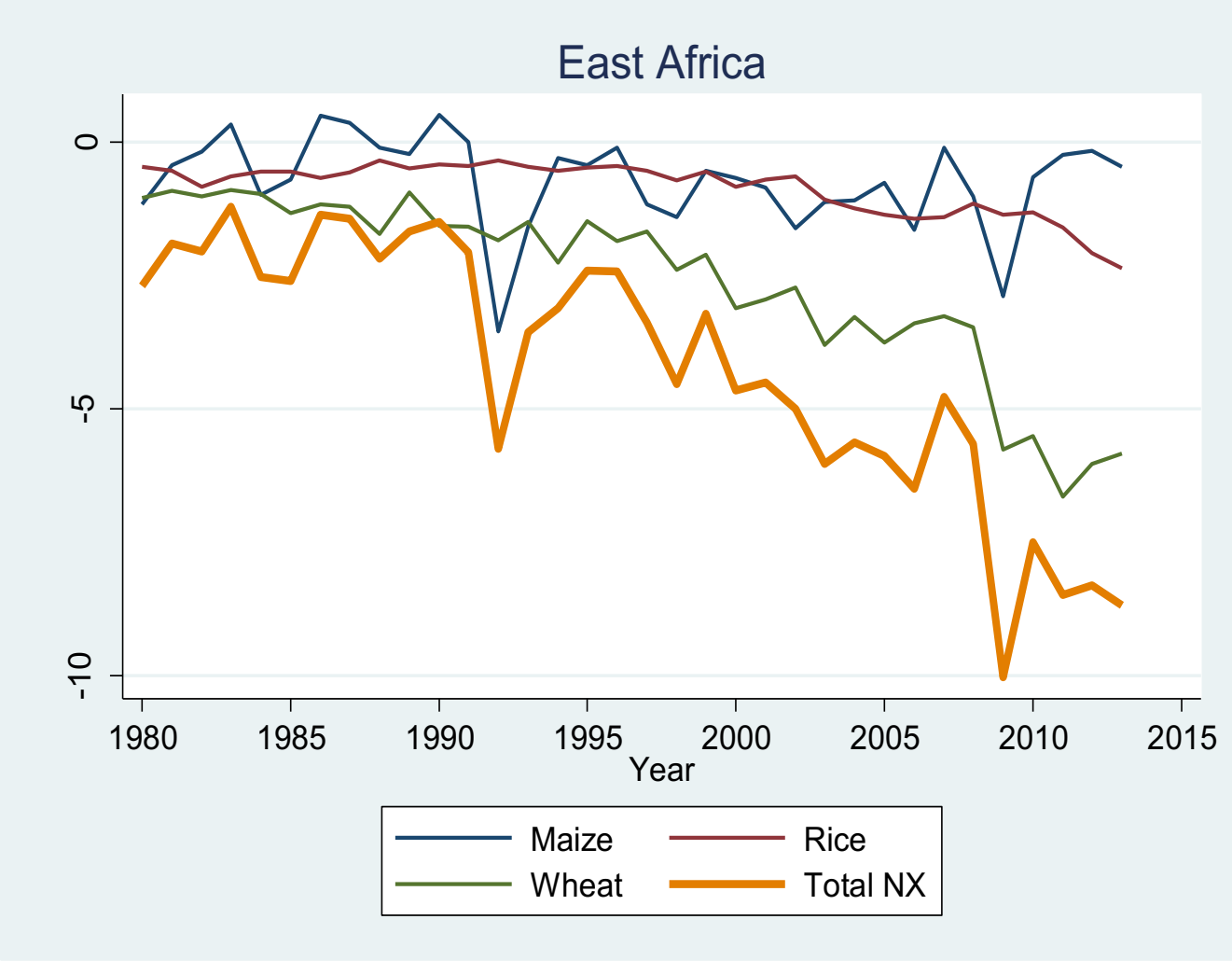


Net cereal exports, Sub-Saharan Africa



Source: FAOSTAT, 2016

Net cereal exports, East Africa Region



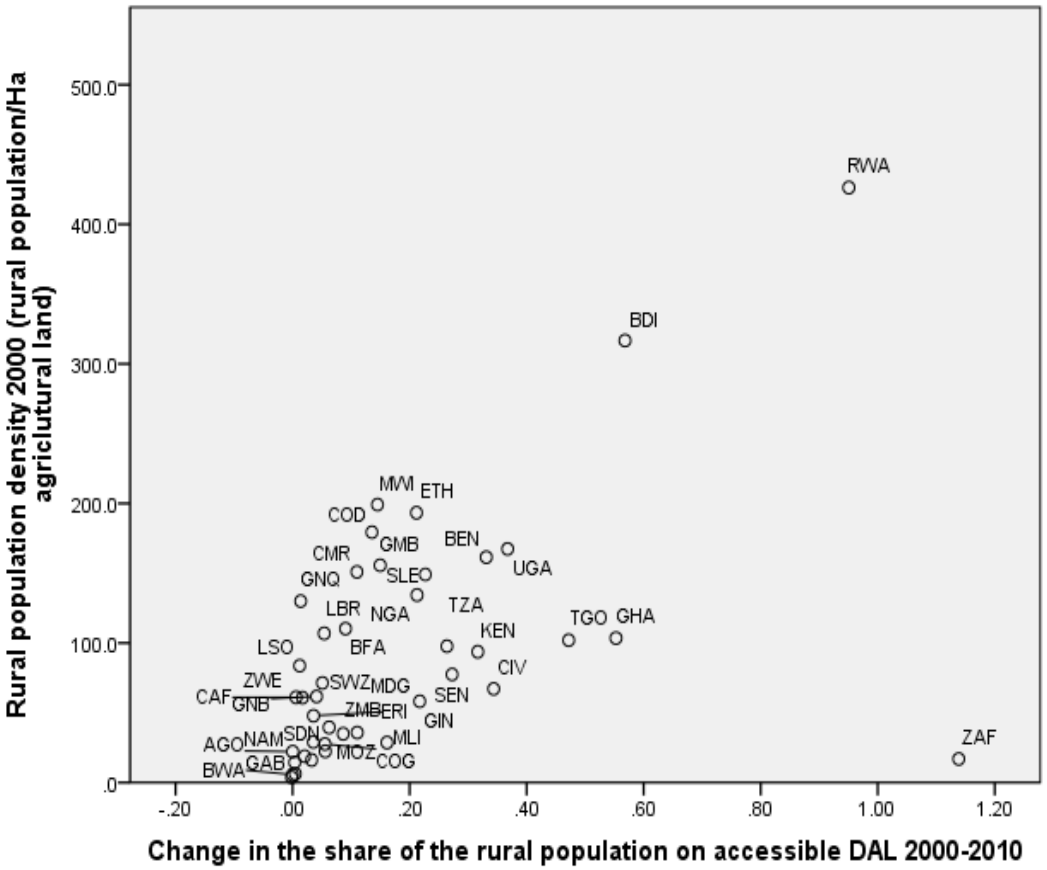
Source: FAOSTAT, 2016

Significance:

"Currently, sub-Saharan Africa (SSA) is amongst the (sub)continents with the largest gap between cereal consumption and production, whereas its projected tripling demand between 2010 and 2050 is much greater than in other continents. We show that nearly complete closure of the gap between current farm yields and yield potential is needed to maintain the current level of cereal self-sufficiency (approximately 80%) by 2050. For all countries, such yield gap closure requires a large, abrupt acceleration in rate of yield increase. If this acceleration is not achieved, massive cropland expansion with attendant biodiversity loss and greenhouse gas emissions or vast import dependency are to be expected."

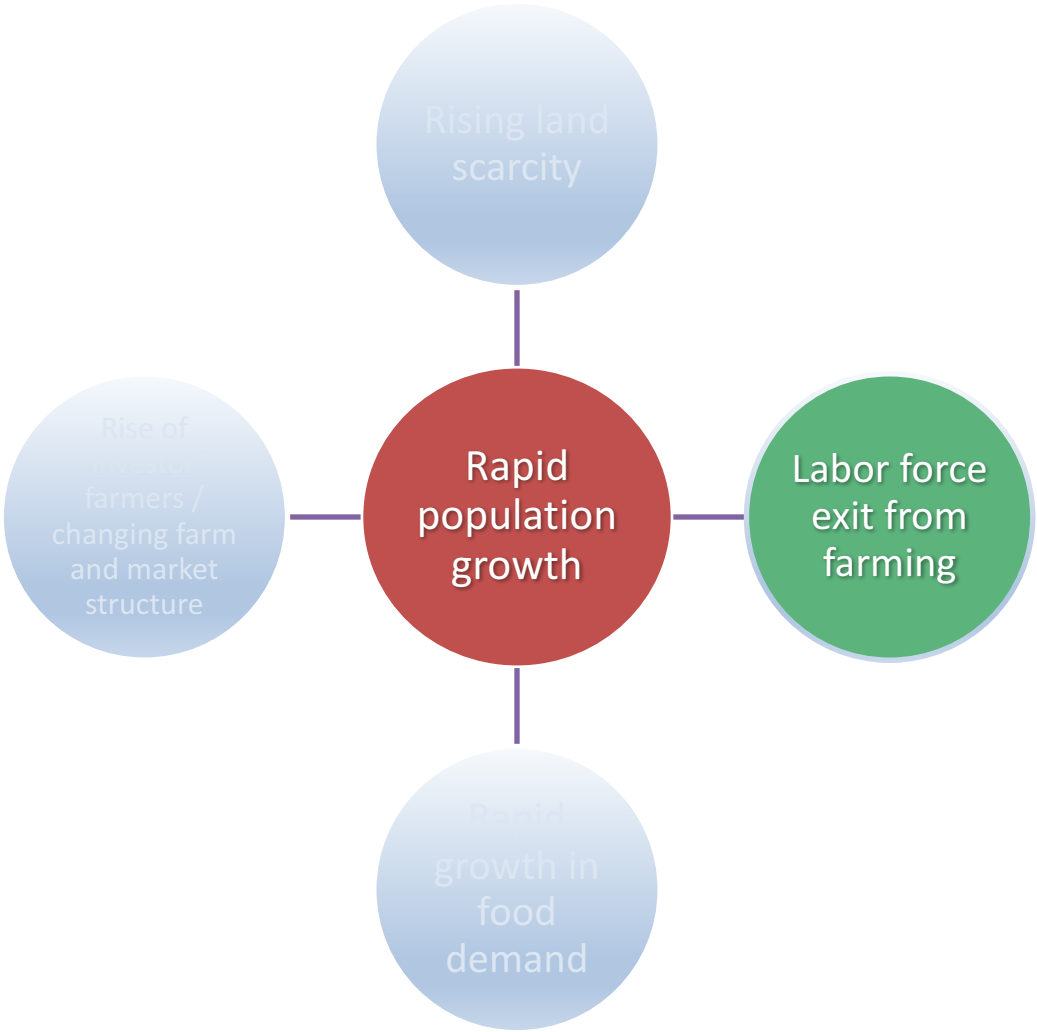
Van Ittersum *et al*, Proceedings of National Academy of Sciences, 2016

Relationship between % of rural population on degrading agricultural land and pop density



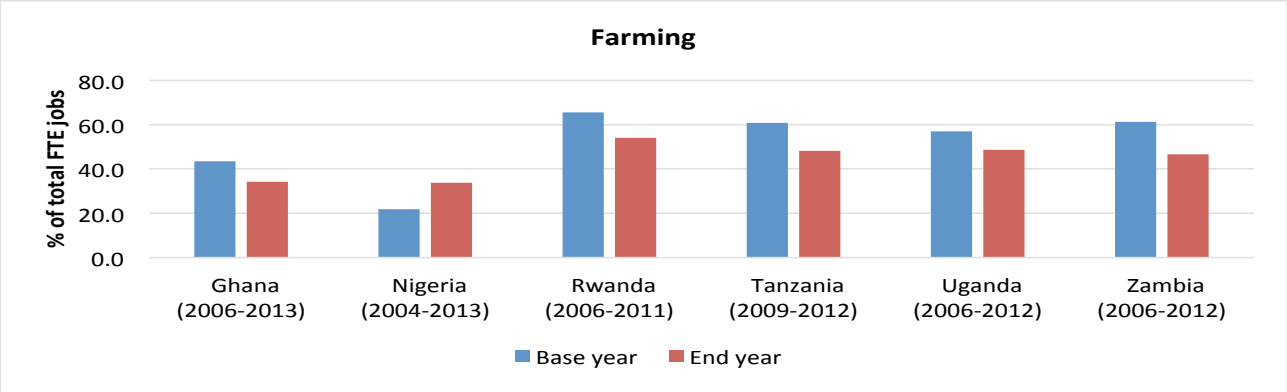
- Roughly 28% of rural population in SSA live on degrading agricultural land.
- 43 million additional people living on DAL between 2000-2010

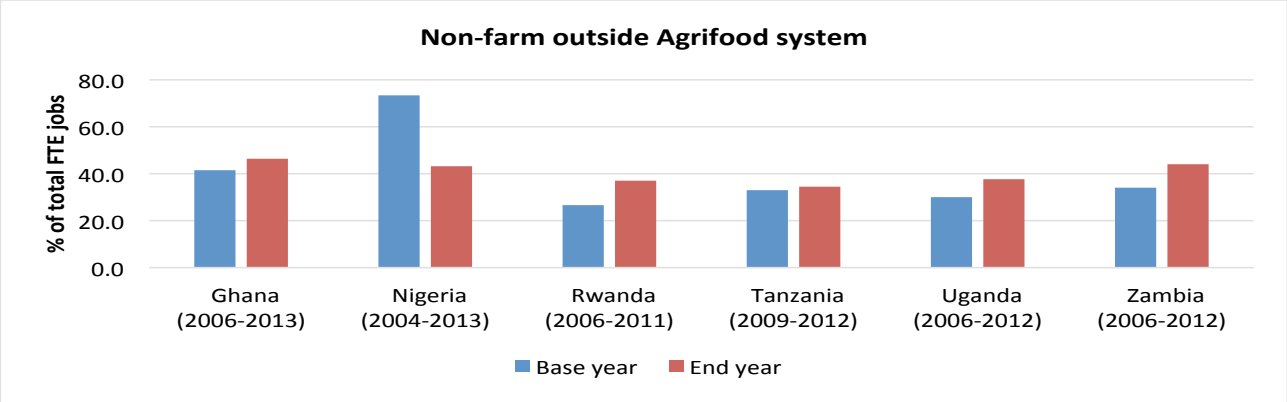
Five inter-related trends

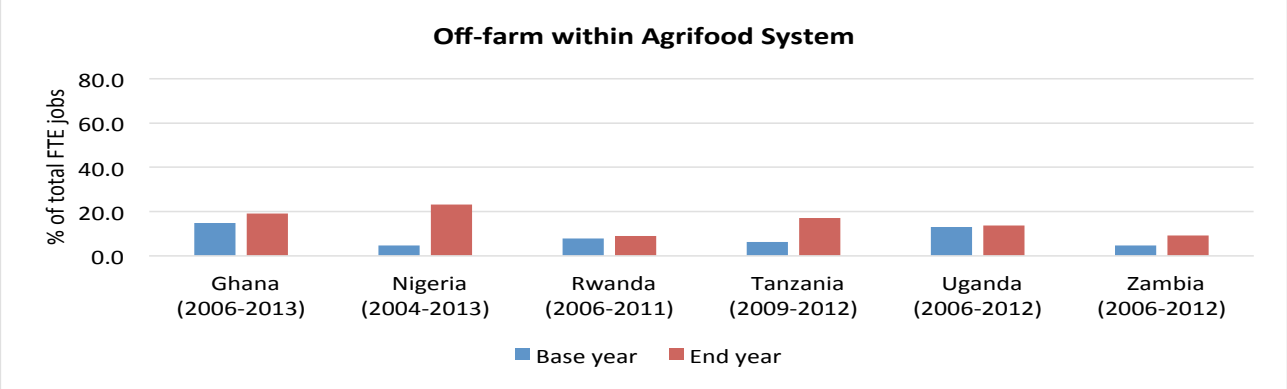



OR HIGH &
RAMMES
EDIAT
G/HOSTEL
UNCTION
Employment trends

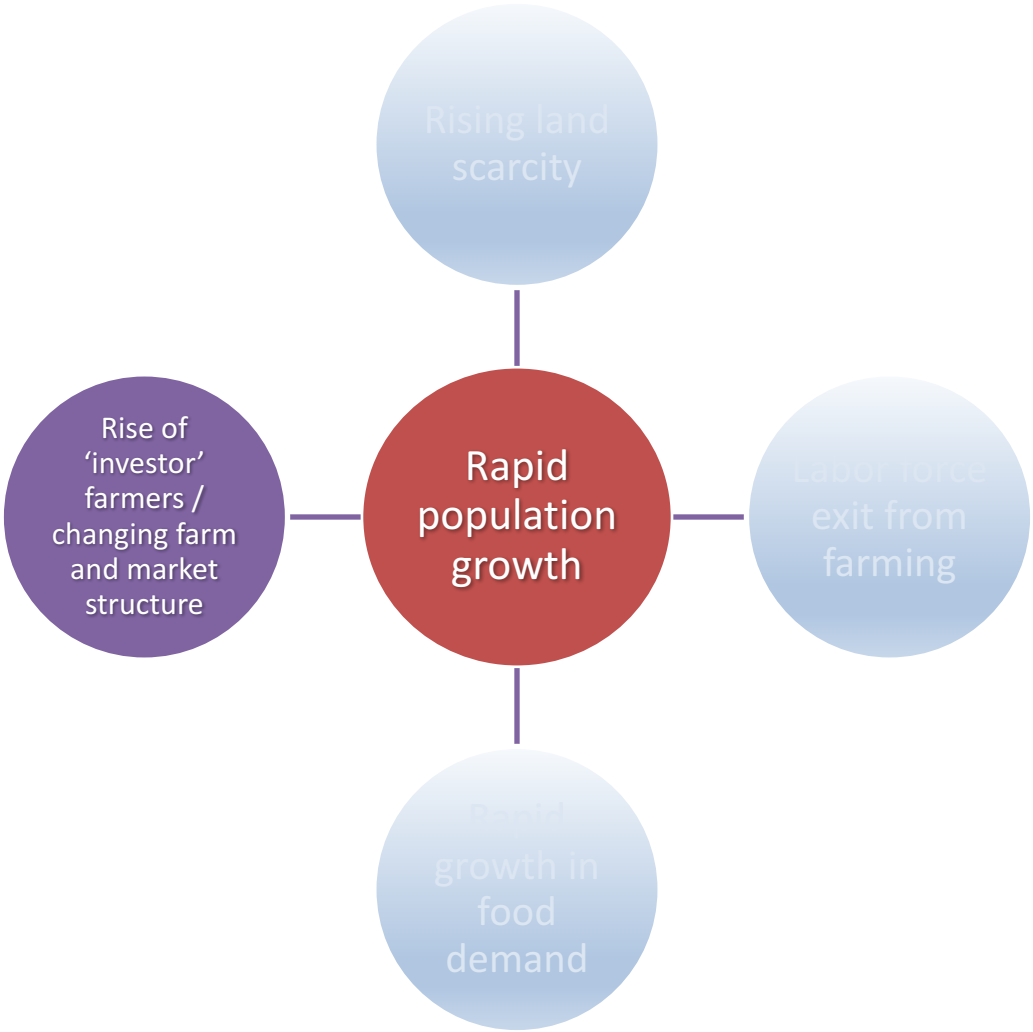
Changes in the share of total jobs in farming, non-farm and off-farm agri-food systems, among the working age population (15–64 years)







Five inter-related trends



Changes in farm structure in Tanzania (2008-2012), National Panel Surveys

Farm size	Number of farms (% of total)		% growth in number of farms between initial and latest year	% of total operated land on farms between 0-100 ha	
	2008	2012		2008	2012
0 – 5 ha	5,454,961 (92.8)	6,151,035 (91.4)	12.8	62.4	56.3
5 – 10 ha	300,511 (5.1)	406,947 (6.0)	35.4	15.9	18.0
10 – 20 ha	77,668 (1.3)	109,960 (1.6)	41.6	7.9	9.7
20 – 100 ha	45,700 (0.7)	64,588 (0.9)	41.3	13.8	16.0
Total	5,878,840 (100%)	6,732,530 (100%)	14.5	100.0	100.0

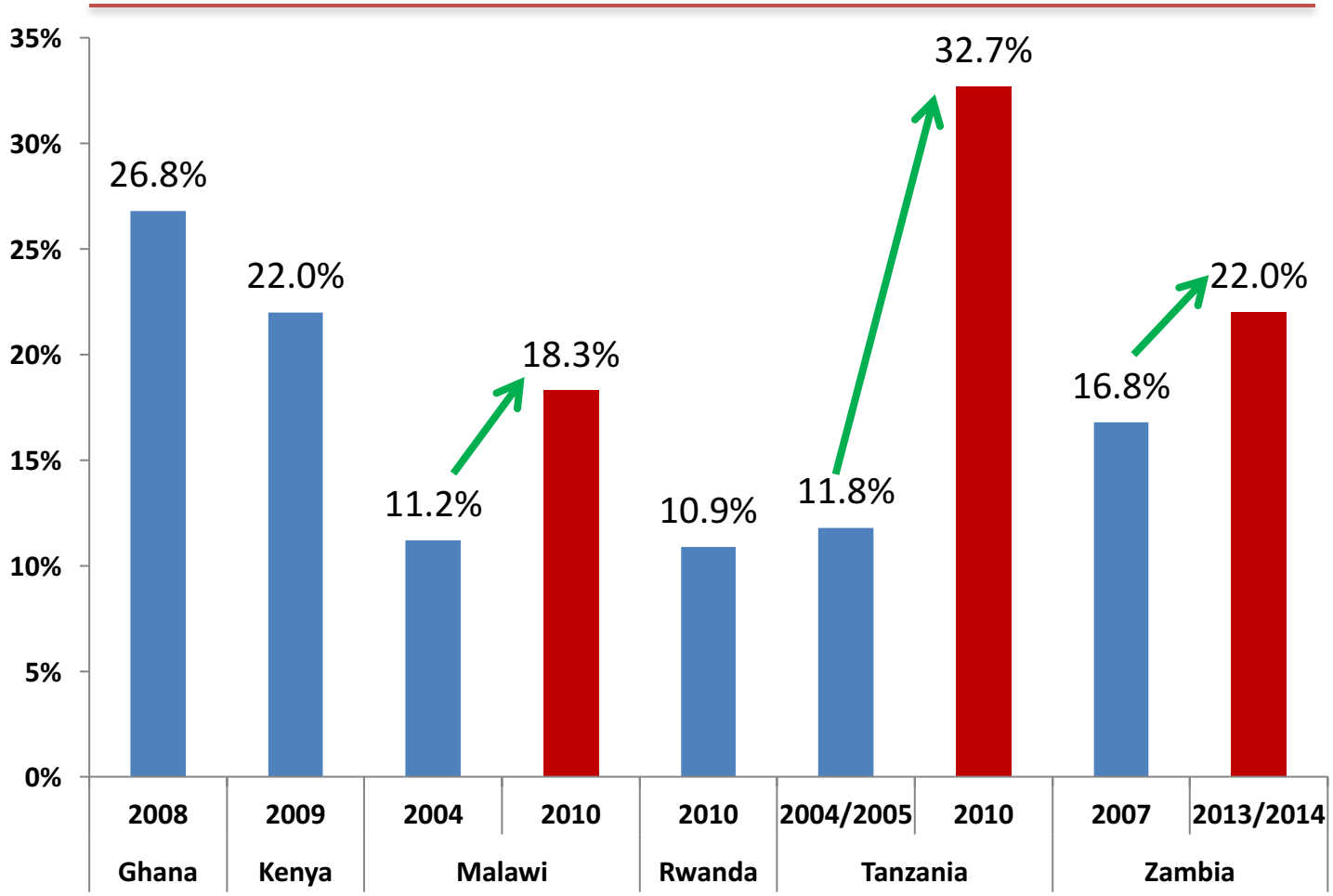
Changes in farm structure in Zambia (2001-2012)

Farm size category	Number of farms		% growth in number of farms	% of total cultivated area	
	2001	2012		2001	2012
0 – 2 ha	638,118	748,771	17.3	34.1	16.2
2 – 5 ha	159,039	418,544	163.2	45	31.7
5 – 10 ha	20,832	165,129	692.6	14.3	25.0
10 – 20 ha	2,352	53,454	2272.7	6.6	15.0
20 – 100 ha	--	13,839	53.3**	--	12.1
Total	**820,341**	**1,399,737**		**100**	**100**

52.1 %

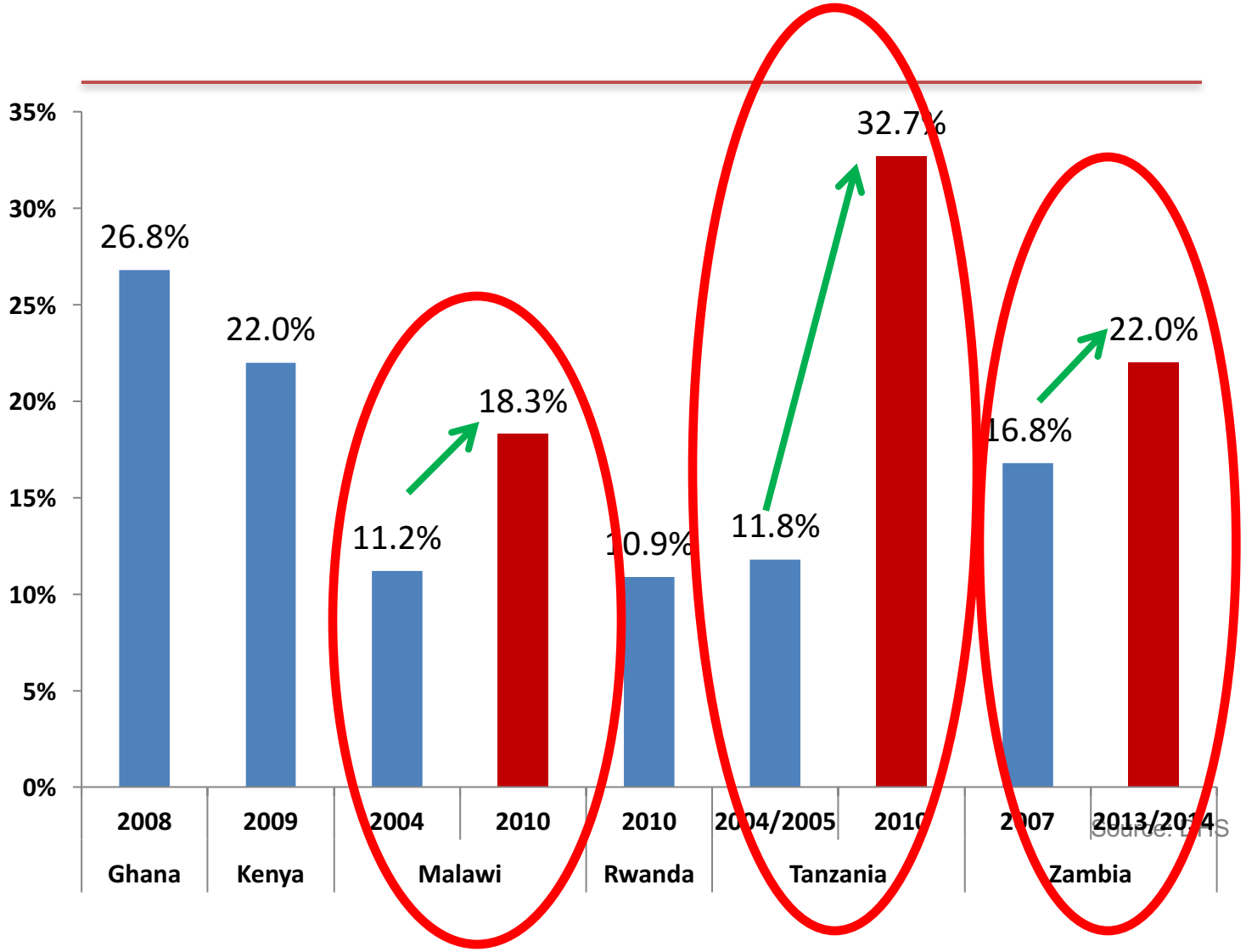
Source: Zambia MAL Crop Forecast Surveys, 2001 and 2012

% of National Landholdings held by Urban Households



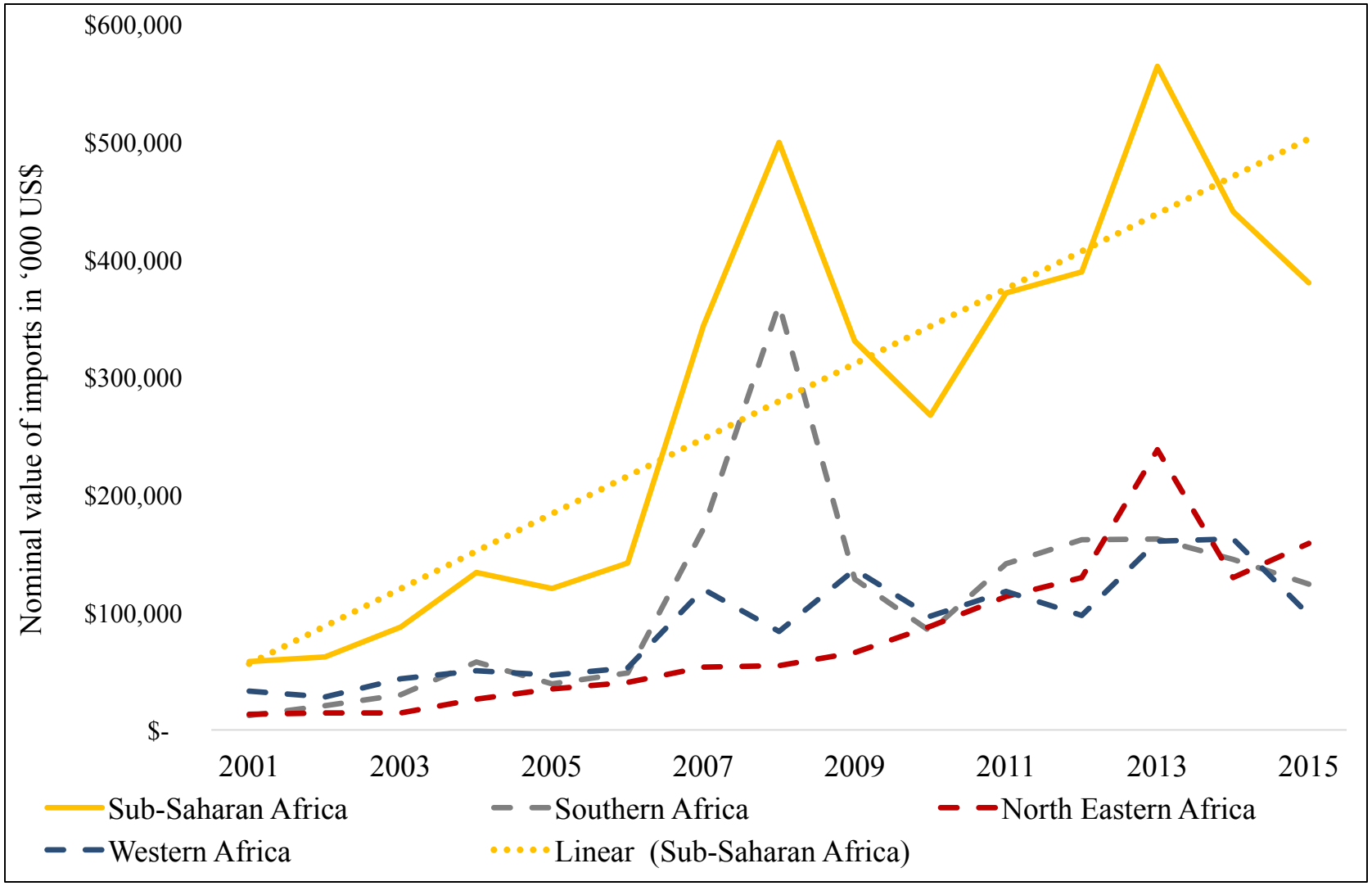
Source: Demographic and Health Surveys, various years between 2004-2014.

% of National Landholdings held by Urban Households



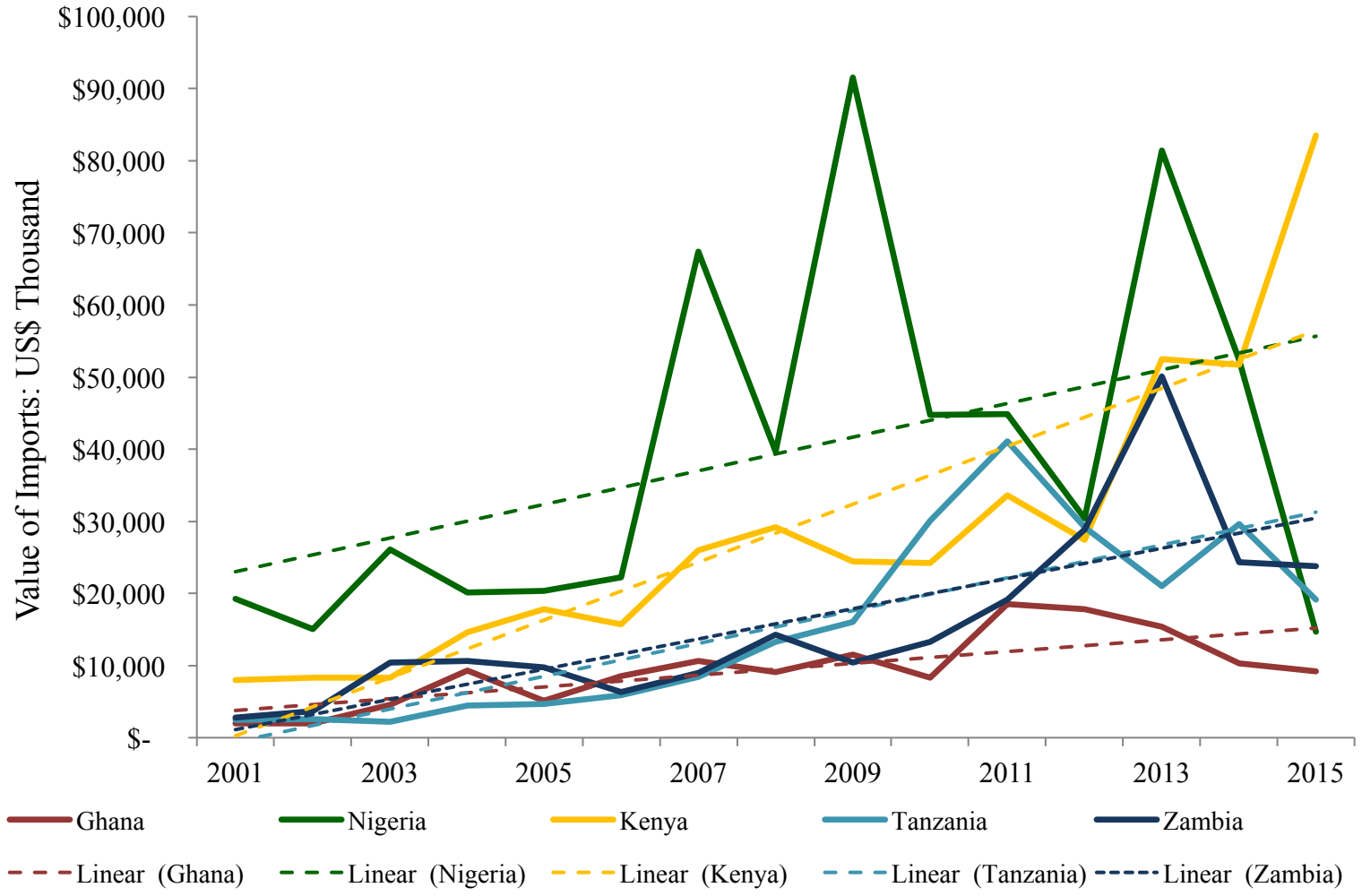
Source: LHS

Nominal value of tractor imports to Sub-Saharan Africa (excluding South Africa), 2001-2015



Source: vanderWesthuisen, forthcoming

Nominal value of tractor imports in selective Sub-Saharan African countries (2001-2015)



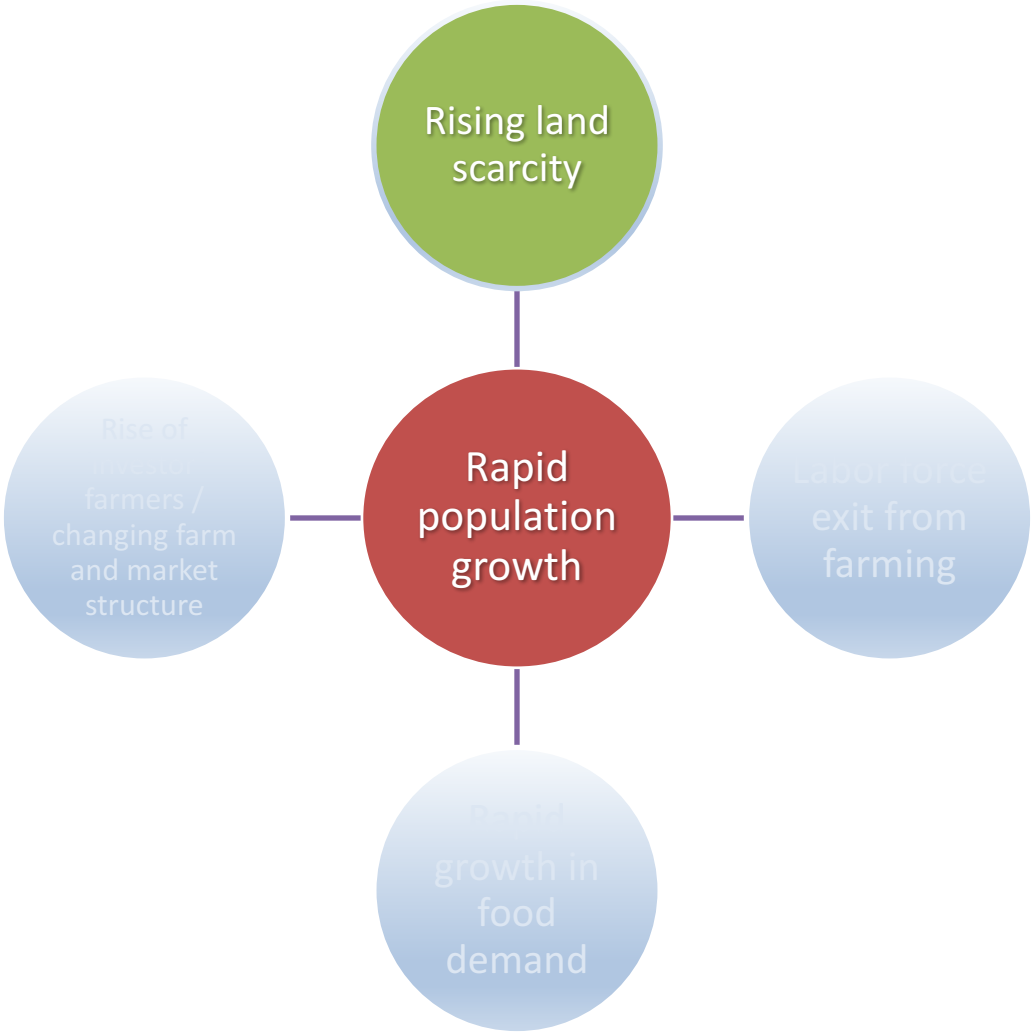
Source: vanderWesthuisen, forthcoming

GINI coefficients in farm landholding

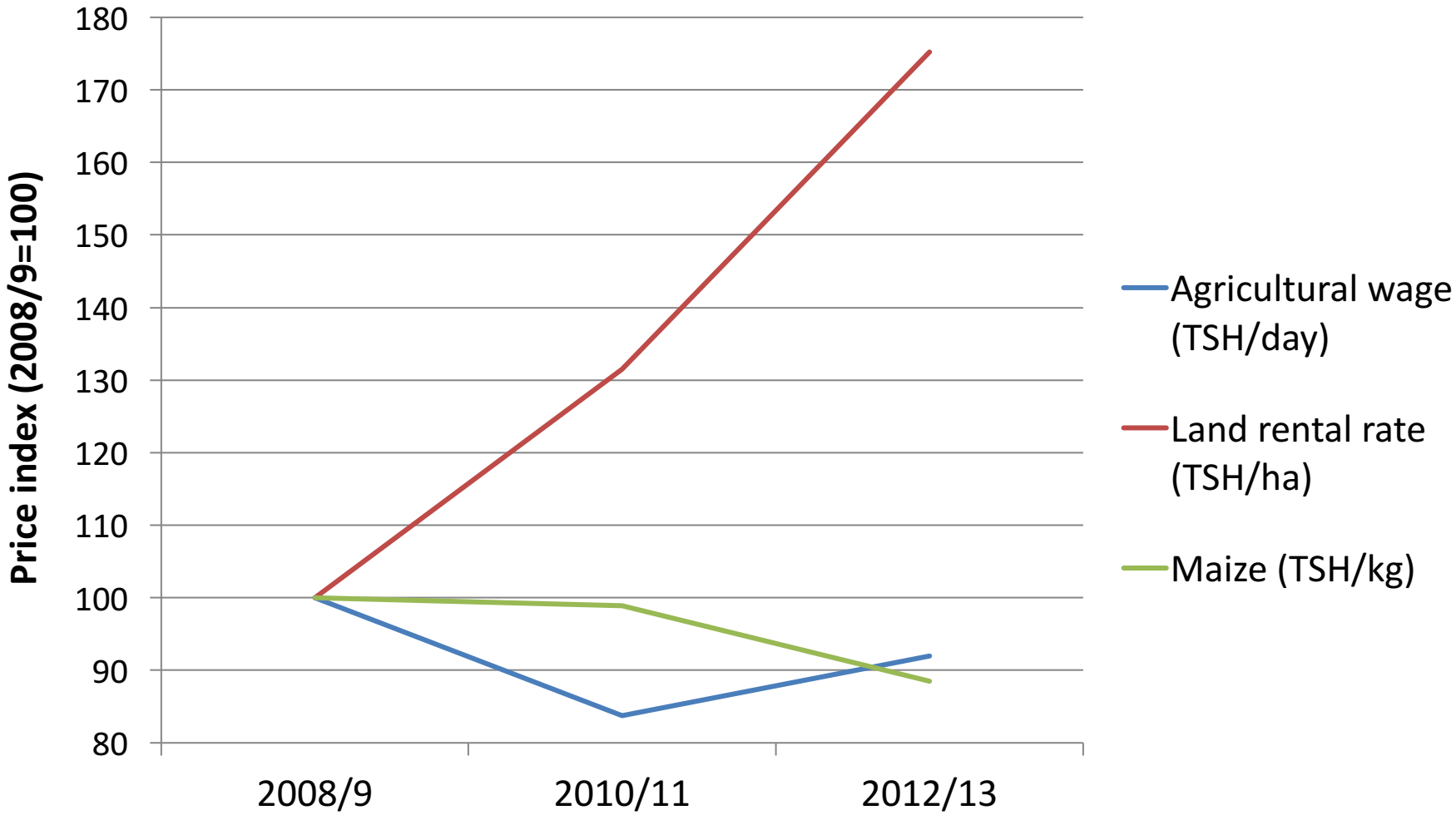
	Period	Movement in Gini coefficient:
Ghana (cult. area)	1992 → 2013	0.54 → 0.70
Kenya (cult. area)	1994 → 2006	0.51 → 0.55
Tanzania (landholdings)	2008 → 2012	0.63 → 0.69
Zambia (landholding)	2001 → 2012	0.42 → 0.49

Source: Jayne et al. 2014 (JIA)

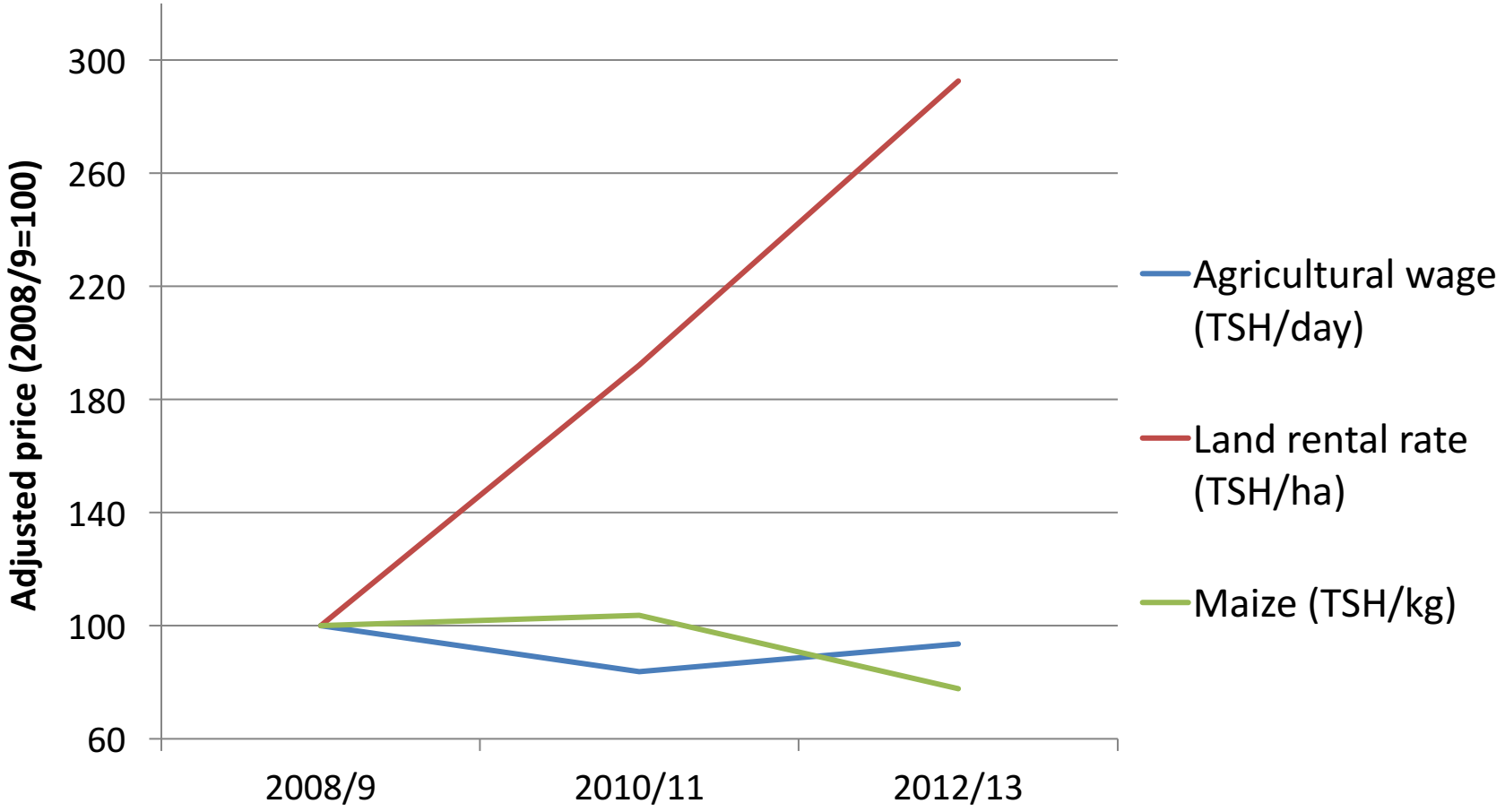
Five inter-related trends



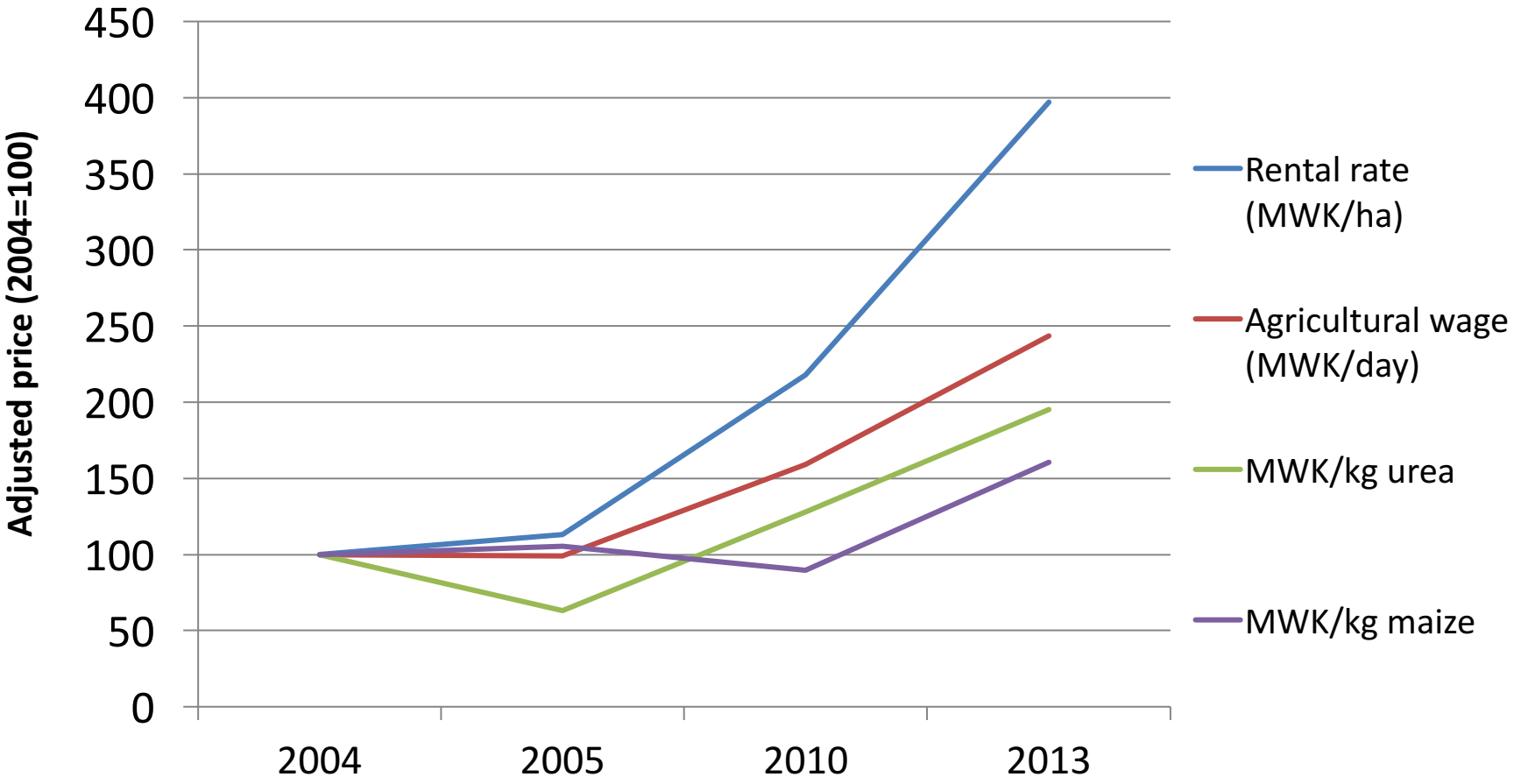
Output and factor price indices, northern Tanzania



Output and factor price indices, western Tanzania

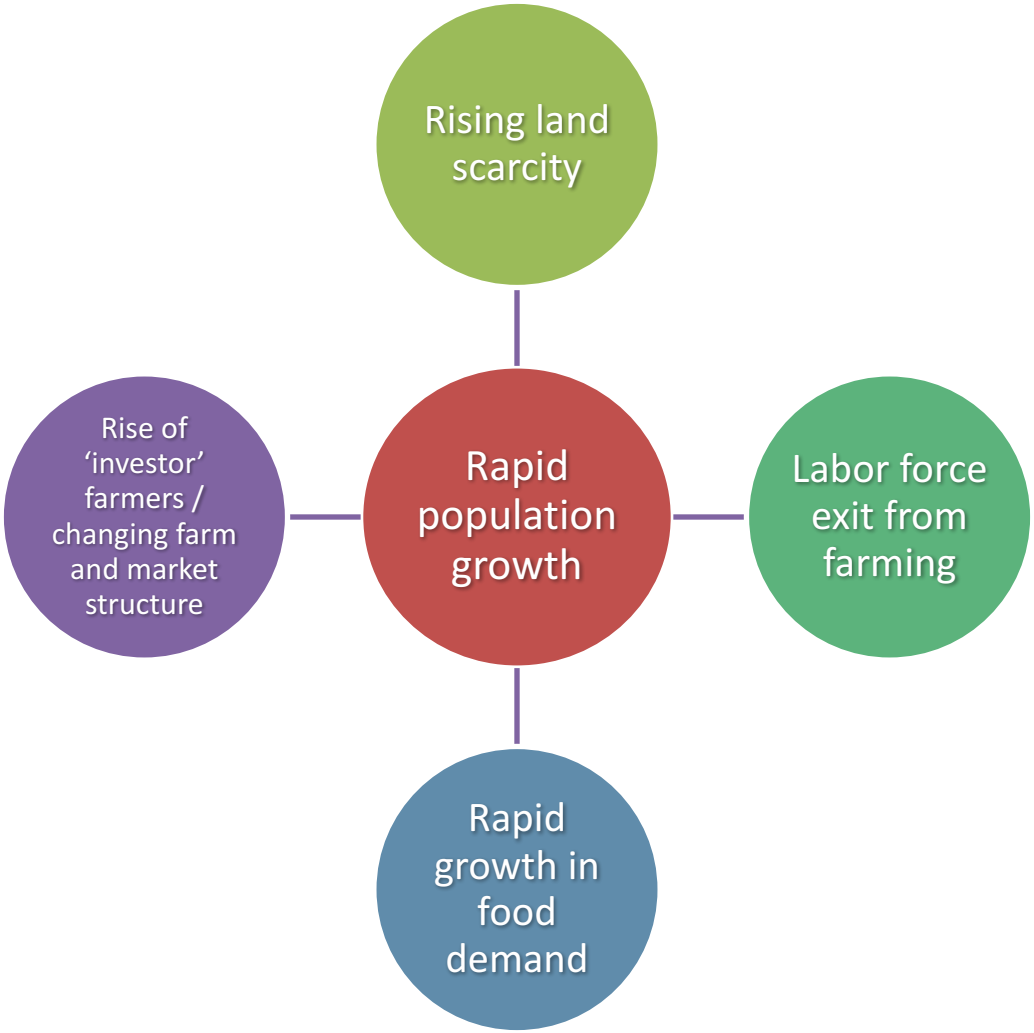


Output and factor price indices, rural Malawi, 2004-2013

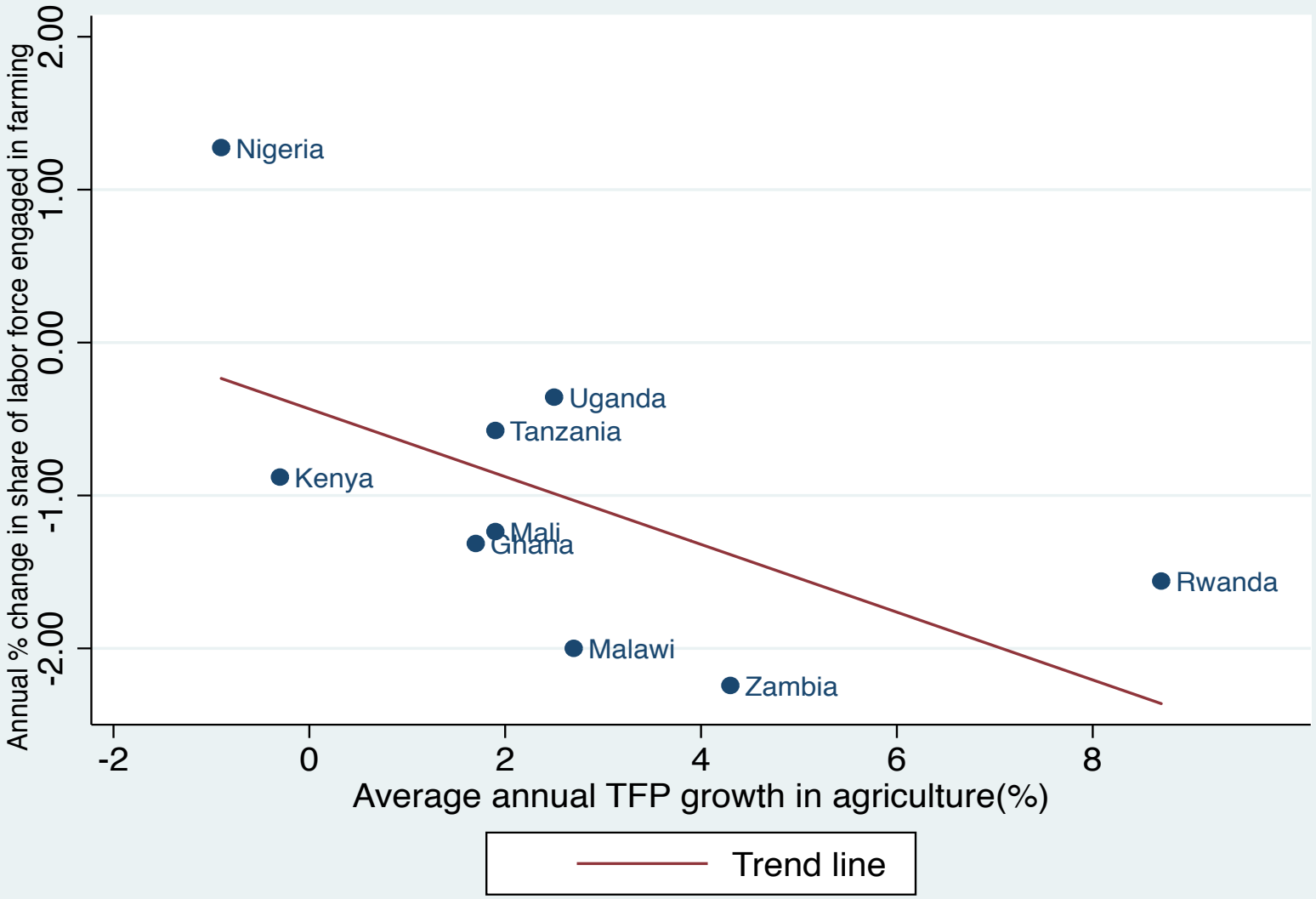


Sources: IHS for land and wages; FEWSNET for urea and maize

Five inter-related trends



Share of labor force in farming is declining most rapidly where agricultural productivity growth is highest



Source: Yeboah and Jayne, 2016

Non-farm labor productivity growth linked to lagged agricultural productivity growth

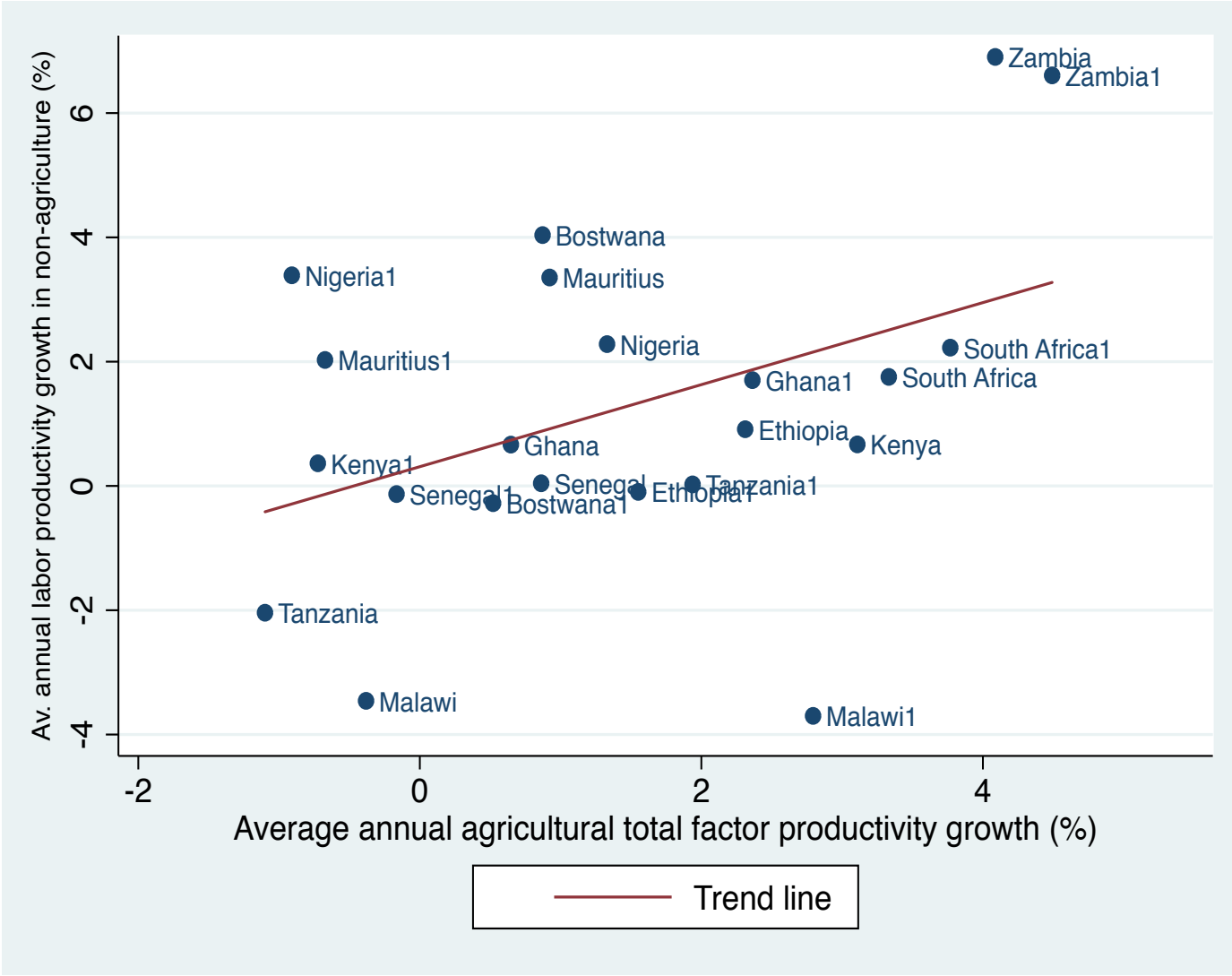


Table 1. Factors associated with changes in proportion of labor force in farming, 11-country annual pooled data, 1995-2011

	Fixed effect model	
	(i)	(ii)
Log lag labor productivity in agriculture	-0.133*	-0.284**
	(-2.15)	(-2.77)
Log lag labor productivity in non-agriculture	-0.0121	-0.176
	(-0.23)	(-1.89)
Other covariates		
Index of governance (lagged)	-0.0205	0.0698
	(-0.45)	(1.06)
Time trend	-0.00961***	-0.00458
	(-4.62)	(-0.96)
Population density	-0.00181	-0.00475
	(-1.51)	(-1.89)
Road density	-	-0.000260
	-	(-0.21)
Constant	-0.519**	0.0690
	(-3.07)	(0.20)
Number of observations	161	78
Number of Countries	11	10
Adjusted/Overall R-square	0.71	0.87
Time period	1995-2011	1995-2011

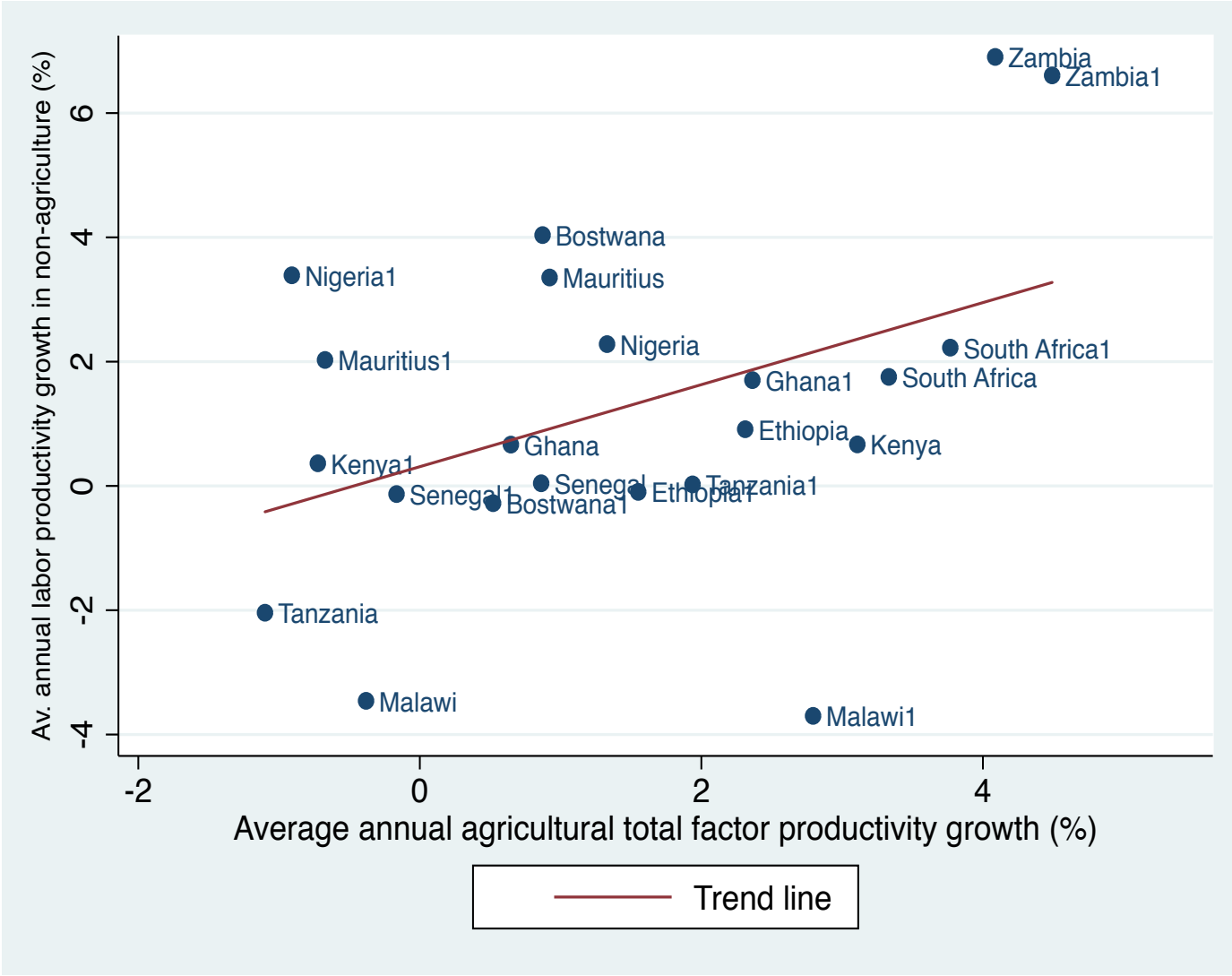
Conclusions

1. Economic transformation in SSA still requires inclusive agricultural productivity growth!
2. Performance of farm sector will continue to exert major influence on job growth in overall economy
   - Ag productivity growth influences
     - pace of labor force exit out of farming
     - Labor productivity in broader economy
3. Ag sector policies must anticipate and respond to
   - rising land prices
   - youth need to be equipped to succeed in farming or will continue to exit
   - rise of medium-scale farms

Conclusions

4. Strategies that raise productivity and profitability of farming are critical to expanding employment opportunities and improving youth livelihoods

Non-farm labor productivity growth linked to lagged agricultural productivity growth



Conclusions

4. Strategies that raise productivity and profitability of farming:
   - Agricultural R&D and extension systems
     - Improved seed + fertilizer: crucial but incomplete
     - Farm management "best practices"
   - Well resourced public agricultural-nutrition institutions
   - Access to affordable finance
   - Policy/enabling environment to attract private investment
   - Local policy institutes
5. Education: 300 million youth need access to skills, training
   - Malawi example
   - Inspiration

Conclusions

Bottom line:

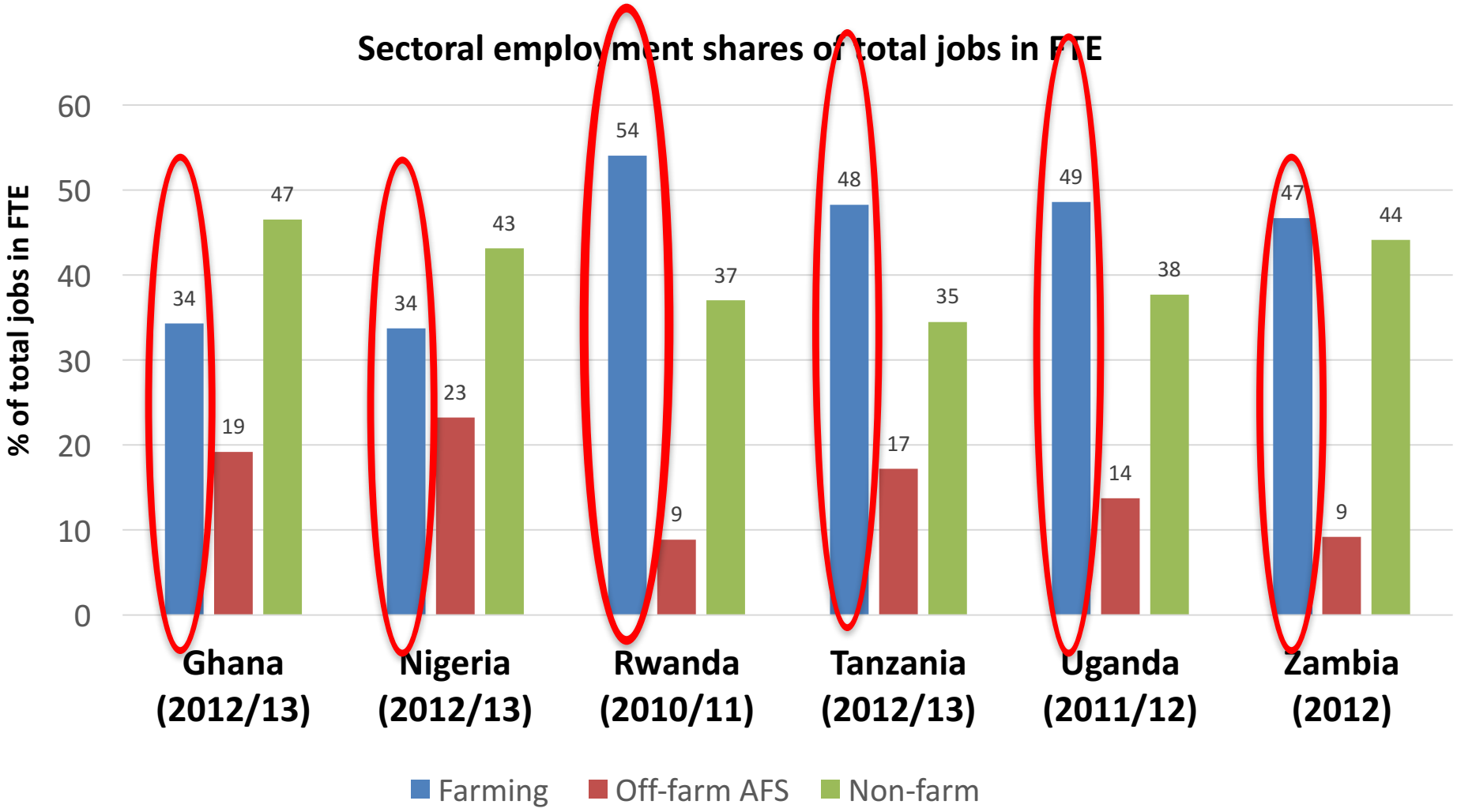
economic transformation in SSA will require

- inclusive agricultural productivity growth
- improved access to education
- Strengthening of African public institutions

Governments hold the key!


Thank You

Farming remains largest single employer of workforce



Farming remains largest single employer of workforce