Unmistakable Signs of Agri-food Systems Transformation in Africa

T.S. Jayne and Holger Kray

Seminar at
Agricultural Working Group meeting
9 April 2018
Dar es Salaam, Tanzania

7 UNMISTAKABLE SIGNS OF AGRI-FOOD SYSTEM TRANSFORMATION IN SSA

1. Major growth in per capita incomes
2. Impressive agricultural growth rates
3. Rise of commercialized African investor farmers
4. Rapid investment in agricultural value chains by African entrepreneurs
5. Diversification of the labor force into off-farm activities
6. Greater vibrancy of agricultural factors markets
7. Improved market access conditions for African farmers

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1. Major growth in per capita incomes

RISING REAL INCOMES

- **35% growth** in inflation-adjusted real p.c. incomes in SSA, 2000-2014
  - **Doubling** in many countries

- **Poverty rates falling** for the region
  - **% of people** living on less than $1.90 a day **declined from 54% in 1990 to 41% in 2013** (Barrett et al., 2017)

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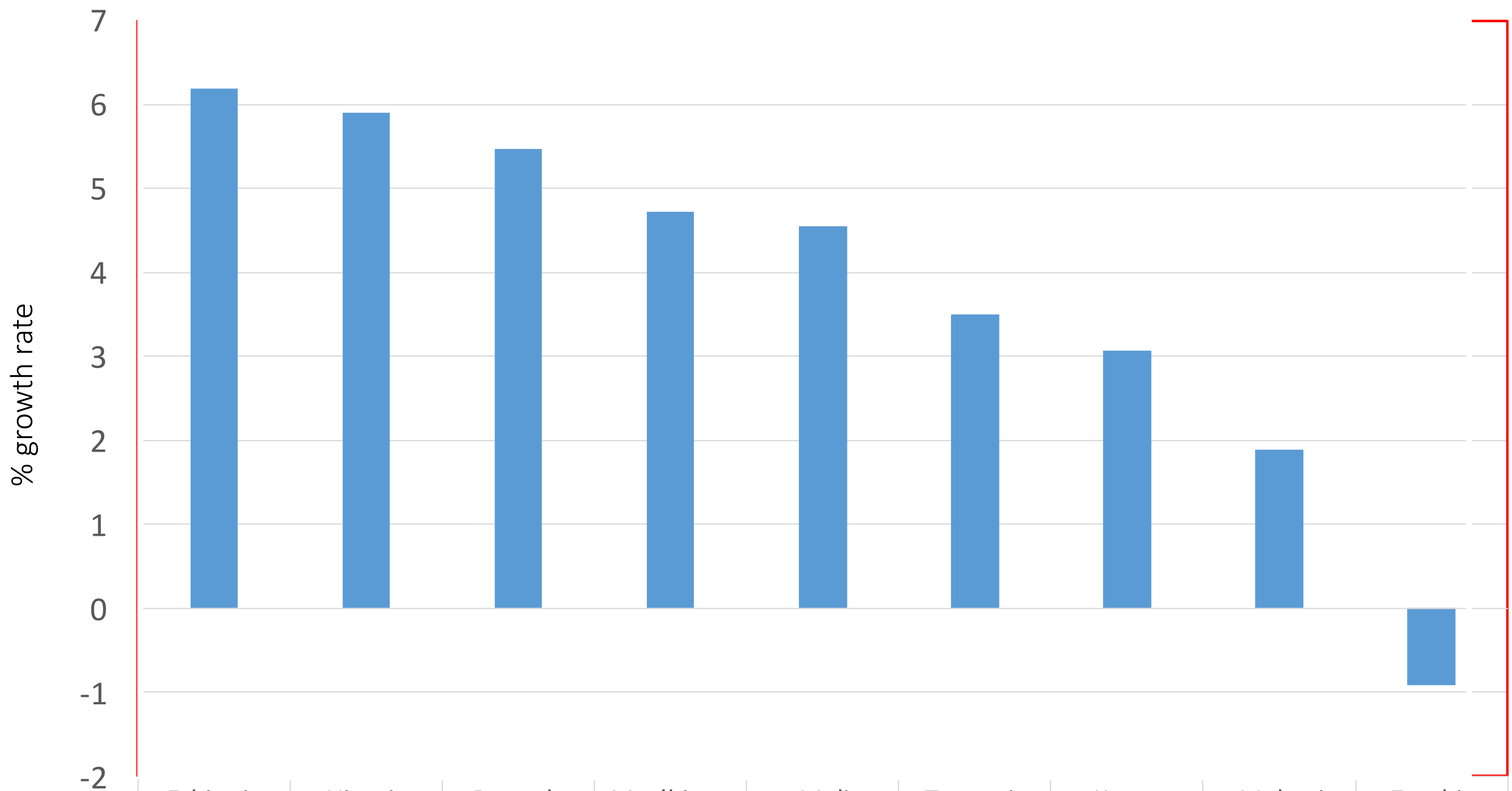
IMPRESSIVE AGRICULTURAL GROWTH

Annual inflation-adjusted agricultural growth rates, 2000-2016:

• Sub-Saharan Africa:	**+4.62 %**
– **Tanzania:**	**+3.50 %**
• East Asia:	+3.07 %
• South Asia:	+2.96 %
• Latin America:	+2.49 %
• World:	+2.75 %

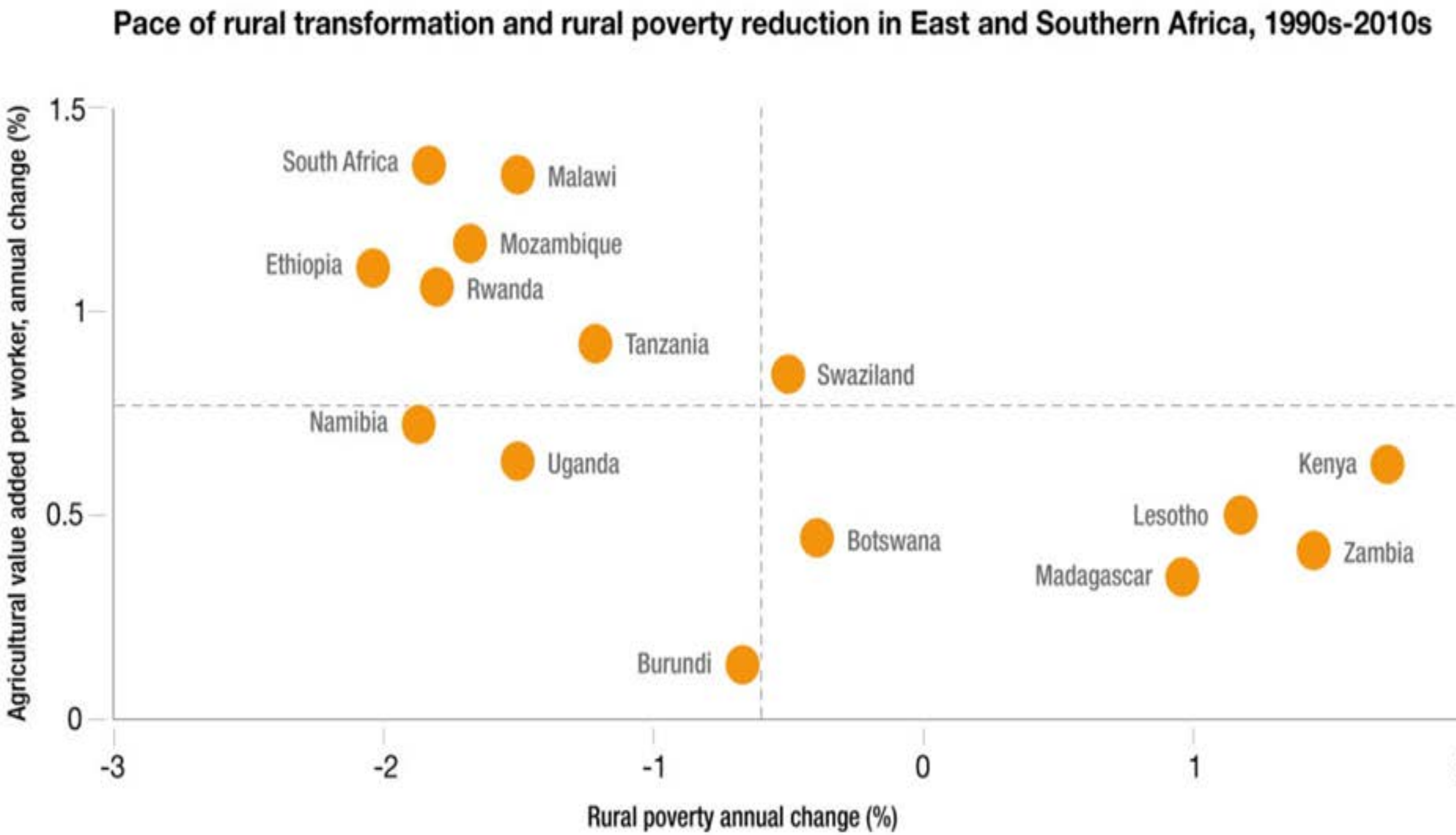
AGRICULTURAL VALUE ADDED ANNUAL GROWTH RATES 2000-2016 (constant local currency units)



	Ethiopia	Nigeria	Rwanda	Moz'bique	Mali	Tanzania	Kenya	Malawi	Zambia
% growth	6.2	5.91	5.47	4.72	4.55	3.5	3.07	1.89	-0.92

Source: World Development Indicators, 2017

RELATIONSHIP BETWEEN AGRICULTURAL GROWTH AND POVERTY REDUCTION



Source: IFAD Rural Development Report, 2016;
World Development Indicators database, 2016.

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CHANGES IN FARM STRUCTURE IN TANZANIA (2008-2012) LSMS / 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	- 6.1%
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	+ 6.1%
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	

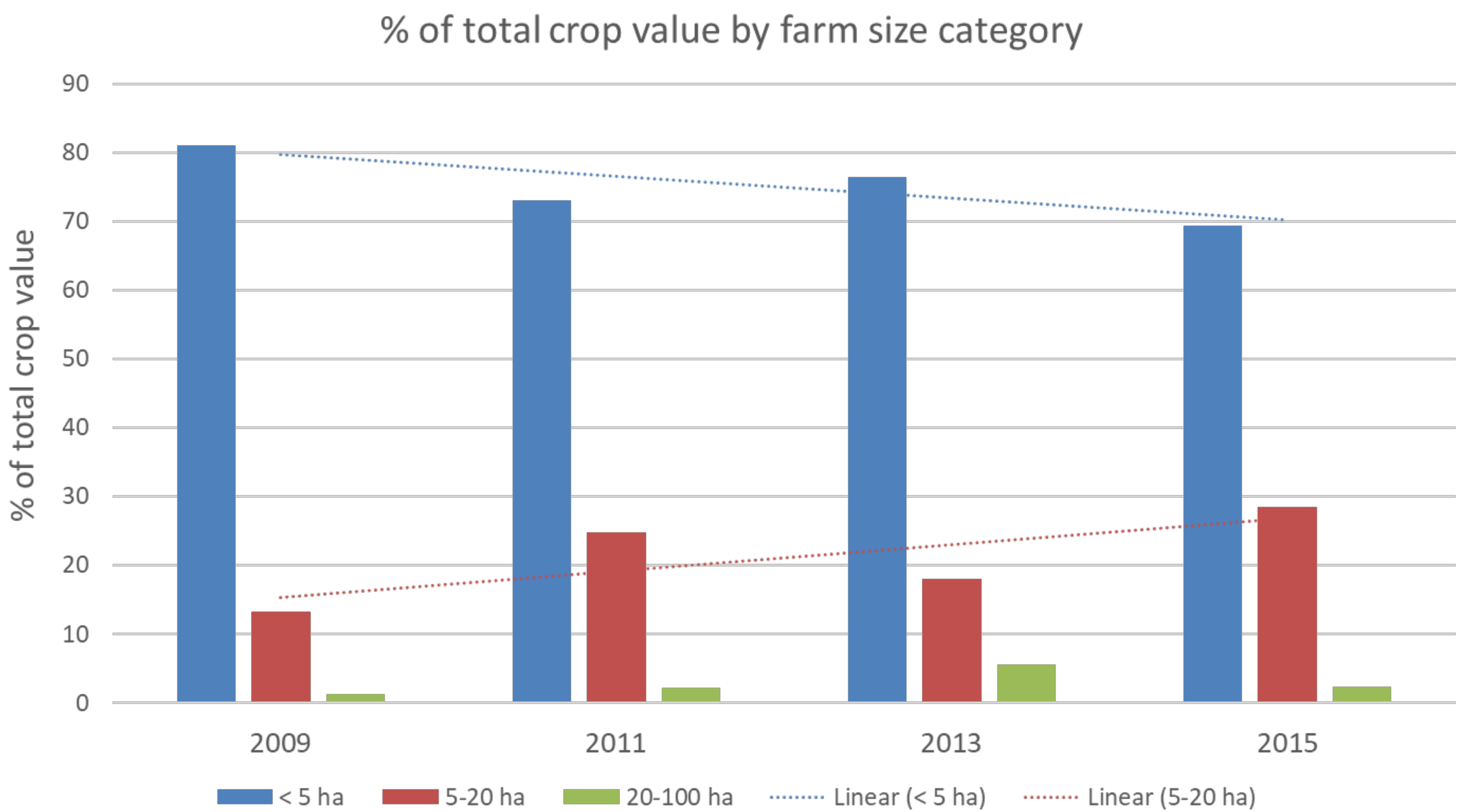
CHANGES IN FARM STRUCTURE IN GHANA (1992-2013)

Ghana	Number of farms		% growth in number of farms	% of total cultivated area	
	1992	2013		1992	2013
0-2 ha	1,458,540	1,582,034	8.5	25.1	14.2
2-5 ha	578,890	998,651	72.5	35.6	31.3
5-10 ha	116,800	320,411	174.3	17.2	22.8
10-20 ha	38,690	117,722	204.3	11.0	16.1
20-100 ha	18,980	37,421	97.2	11.1	12.2
>100 ha	--	1,740	-	--	3.5
Total	2,211,900	3,057,978	38.3	100	100

51% of total farm-land

Source: Ghana GLSS Surveys, 1992, 2013

MEDIUM SCALE FARMS' SHARE OF TOTAL CROP VALUE IN TANZANIA – 14% TO 30% IN 6 YEARS



Source: NPS 2009, 2011, 2013, 2015

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4. Rapid investment in agricultural value chains by African entrepreneurs

RAPID INVESTMENT IN AGRICULTURAL VALUE CHAINS BY AFRICAN ENTREPRENEURS

- **8-fold increase** in the **volumes and value of food marketed** through rural-to-urban value chains **since 2000** (Tschirley et al, 2017)

- Underlying drivers:
  - rapidly rising urban demand
  - high global food prices
  - agricultural sectoral reforms of 1990s

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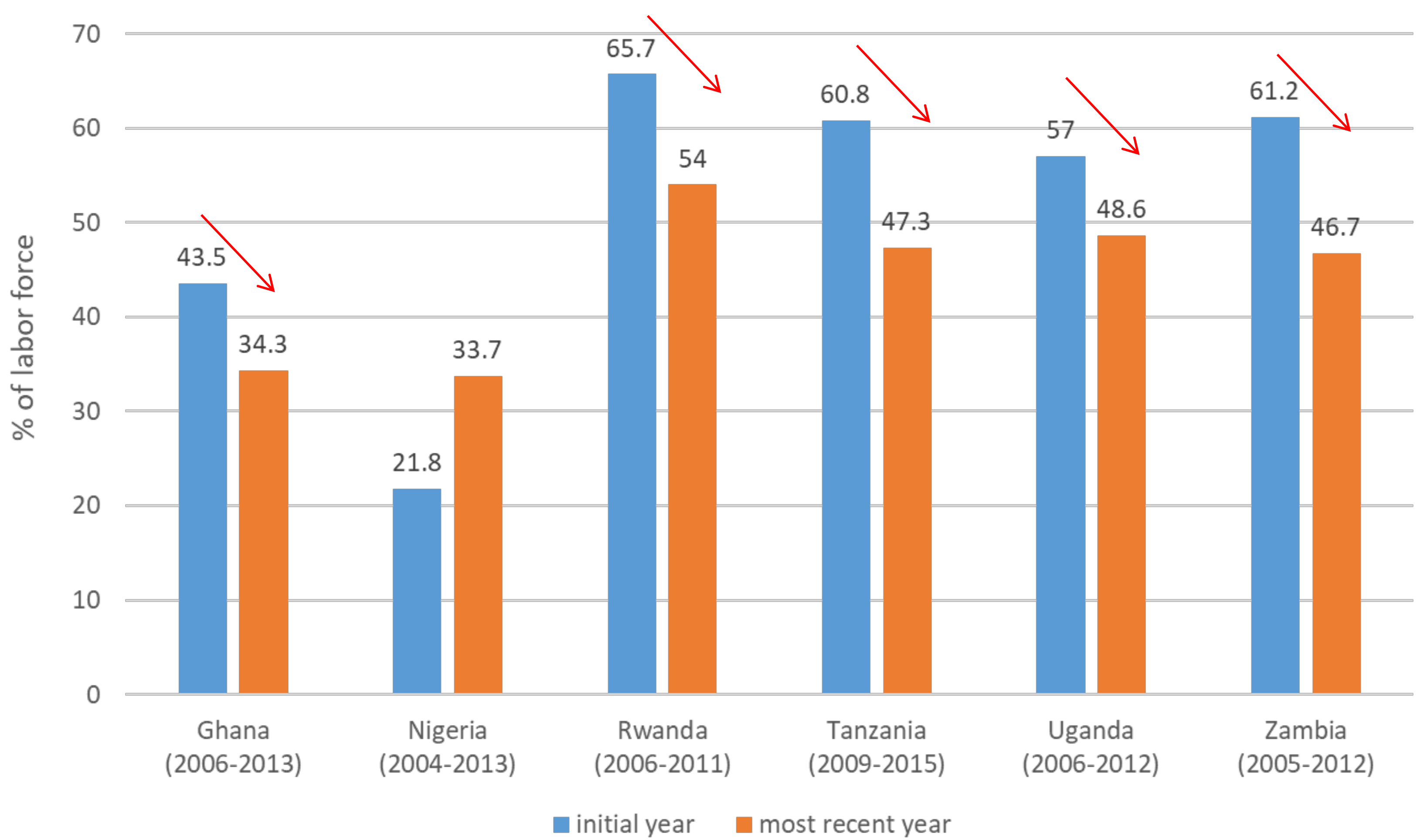
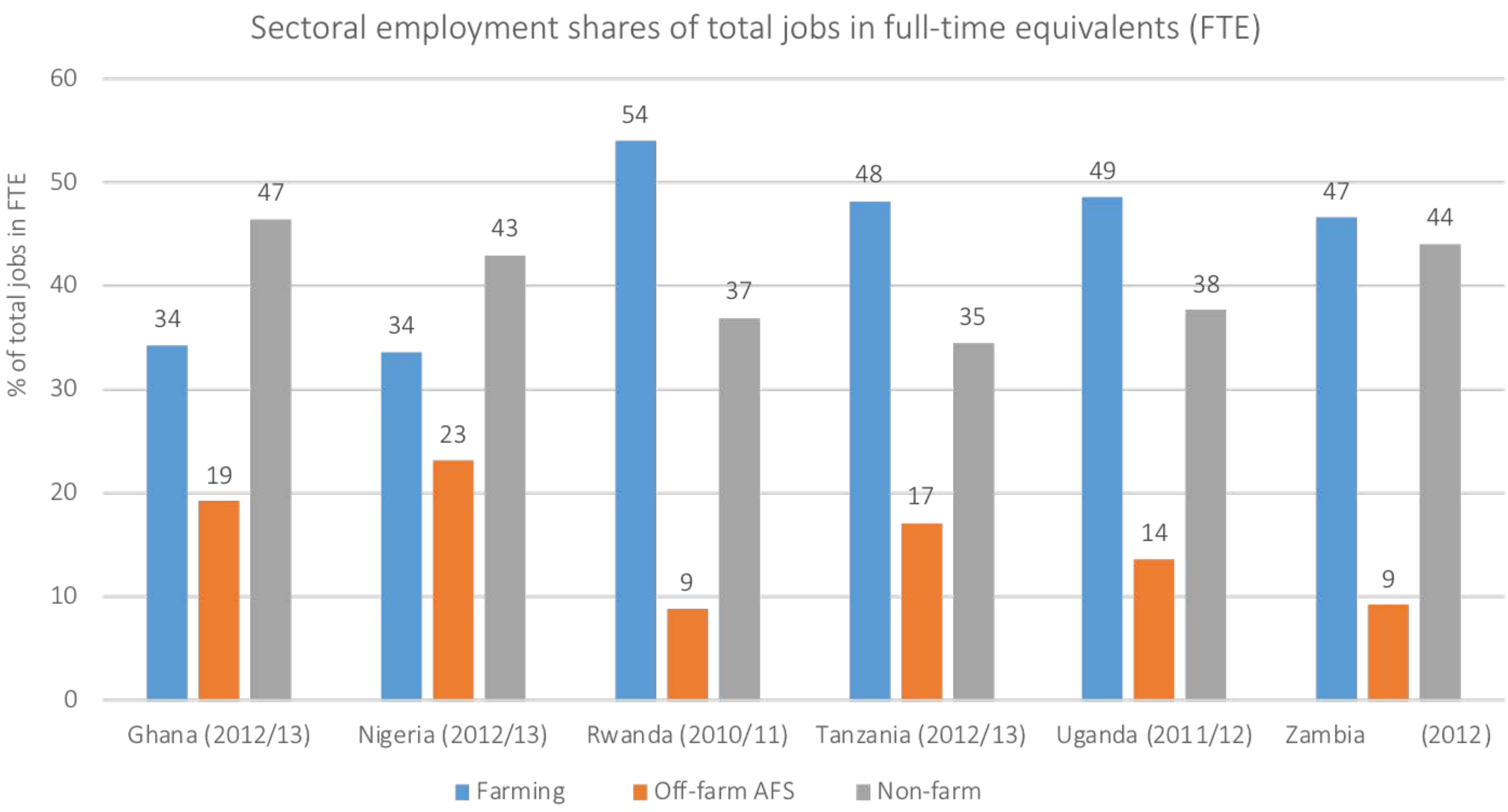
RAPID DECLINE IN SHARE OF LABOR FORCE IN FARMING
(IN FULL-TIME EQUVALENTS)

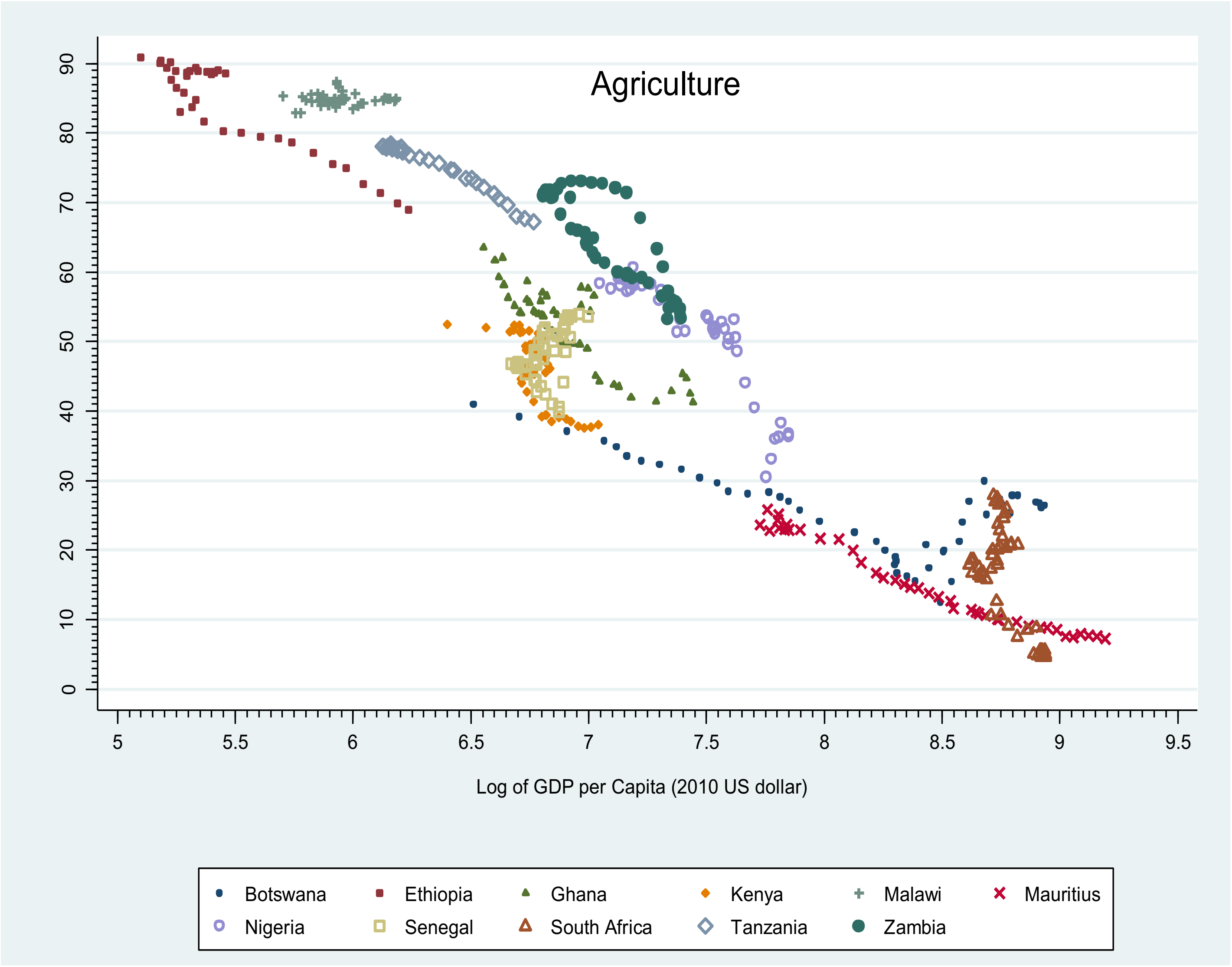


Source: Yeboah and Jayne (2018)

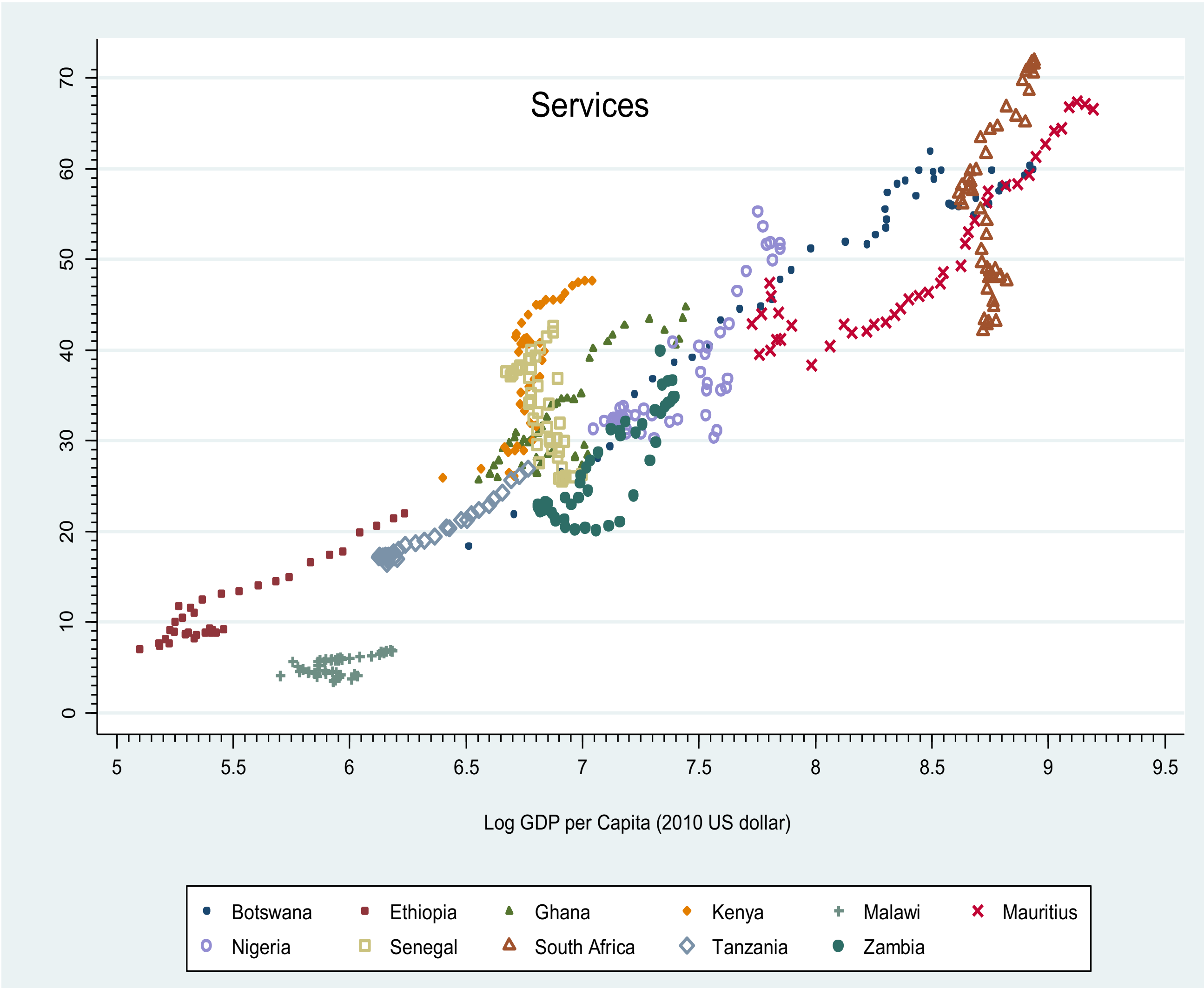
FARMING IS THE SINGLE LARGEST EMPLOYER IN MOST COUNTRIES DESPITE DECLINING JOB SHARE



Source: Yeboah and Jayne (2018)



Agriculture
0
10
20
30
40
50
60
70
80
90
5
5.5
6
6.5
7
7.5
8
8.5
9
9.5
Log of GDP per Capita (2010 US dollar)
Botswana
Ethiopia
Ghana
Kenya
Malawi
Mauritius
Nigeria
Senegal
South Africa
Tanzania
Zambia


Services
0
10
20
30
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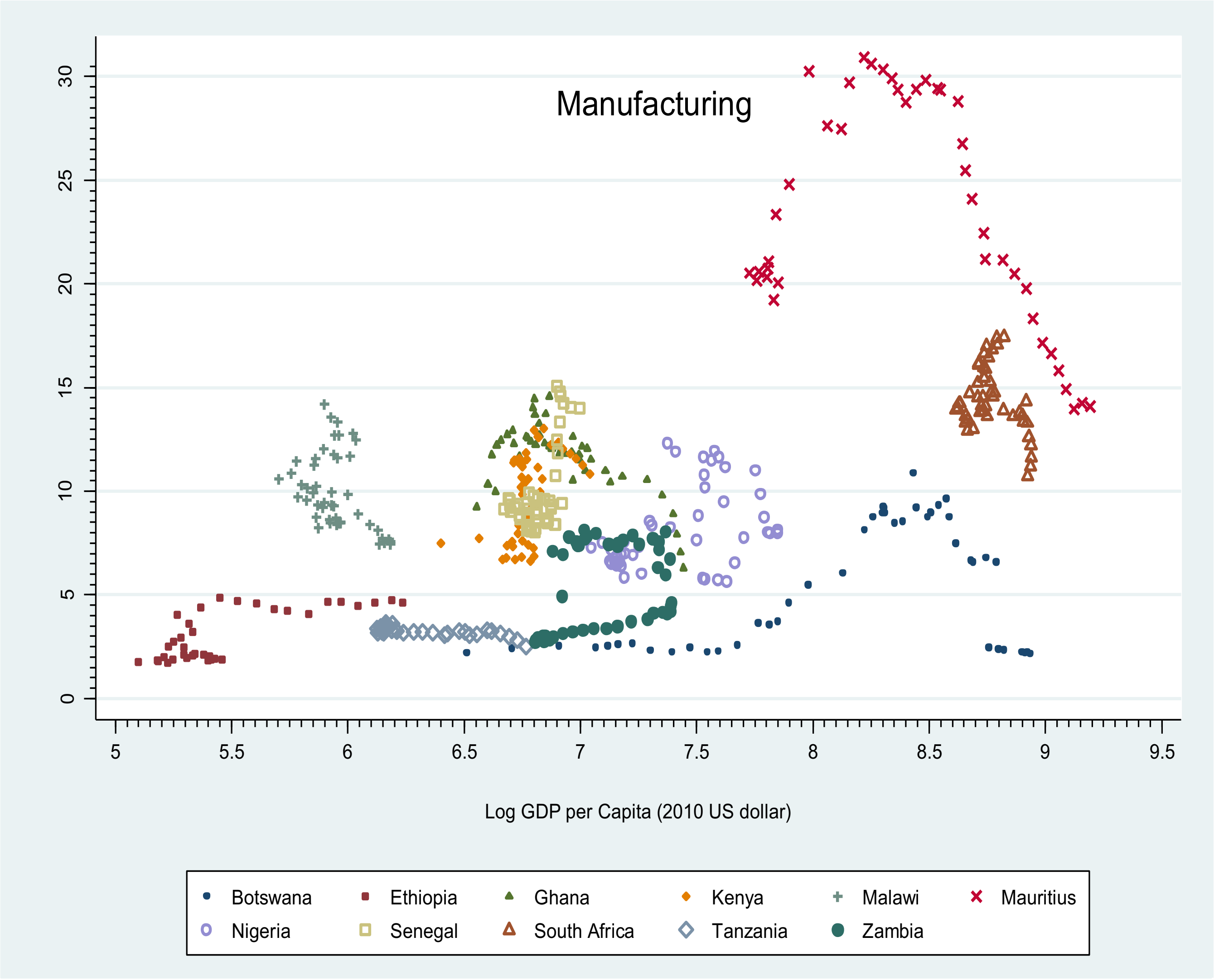
50
60
70
5
5.5
6
6.5
7
7.5
8
8.5
9
9.5
Log GDP per Capita (2010 US dollar)
Botswana
Ethiopia
Ghana
Kenya
Malawi
Mauritius
Nigeria
Senegal
South Africa
Tanzania
Zambia



Manufacturing
0
5
10
15
20
25
30
5
5.5
6
6.5
7
7.5
8
8.5
9
9.5
Log GDP per Capita (2010 US dollar)
Botswana
Ethiopia
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Senegal
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Tanzania
Zambia

MAJORITY OF OFF-FARM AGRI-FOOD SYSTEM JOBS IN COMMERCE, MUCH LESS IN AGRO-PROCESSING

Country	Survey years	Farming	**Agro-processing**	**Downstream commerce and distribution**	Non-farm
		% of FTE jobs	**% of FTE jobs**	**% of FTE jobs**	% of FTE jobs
Ghana	2005/06	43.5	**6.3**	**8.6**	41.6
	2012/13	34.3	**3.7**	**15.5**	46.5
Nigeria	2010/11	30.6	**2.3**	**18.7**	48.2
	2012/13	33.7	**4.6**	**18.6**	43.1
Rwanda	2005/06	65.7	**0.4**	**7.4**	26.6
	2010/11	54.0	**1.2**	**7.7**	37.0
Tanzania	2010/11	47.3	**2.5**	**15.0**	35.2
	2012/13	48.3	**1.6**	**15.6**	34.5
Uganda	2005/06	57.0	**2.8**	**10.2**	30.0
	2011/12	48.6	**1.7**	**12.0**	37.7
Zambia	2005	61.2	**1.6**	**3.1**	34.1
	2012	46.7	**2.1**	**7.1**	44.1

Source: Yeboah and Jayne (2018)

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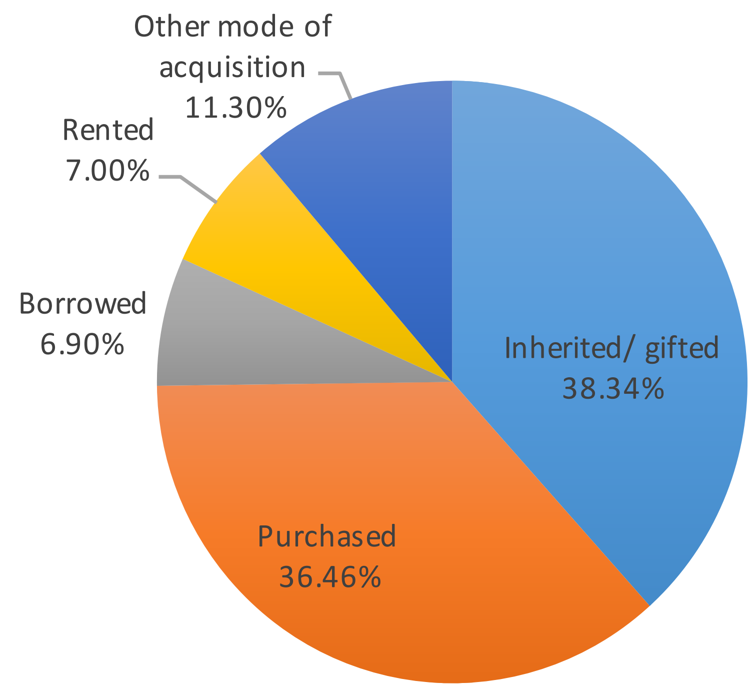
MODE OF ACQUISITION OF ALL FARM PLOTS IN TANZANIA

PERCENT OF PLOTS

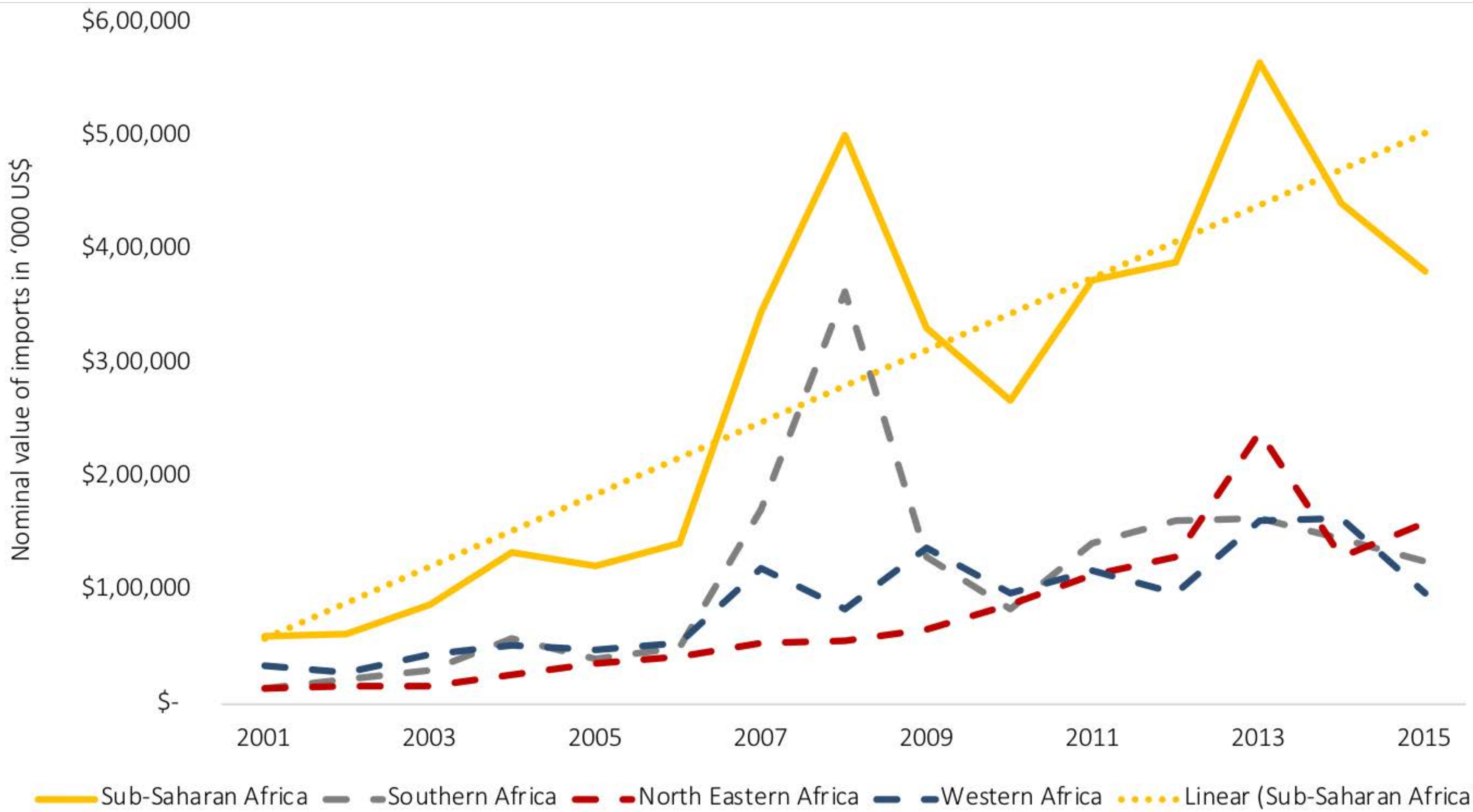
Inherited	33.17%
Gifted	10.33%
Purchased	29.63%
Borrowed	11.09%
Rented	9.63%
Other (squatting / cleared land/ allocated)	6.16%
Observations	4,291

PERCENT OF TOTAL FARMLAND AREA



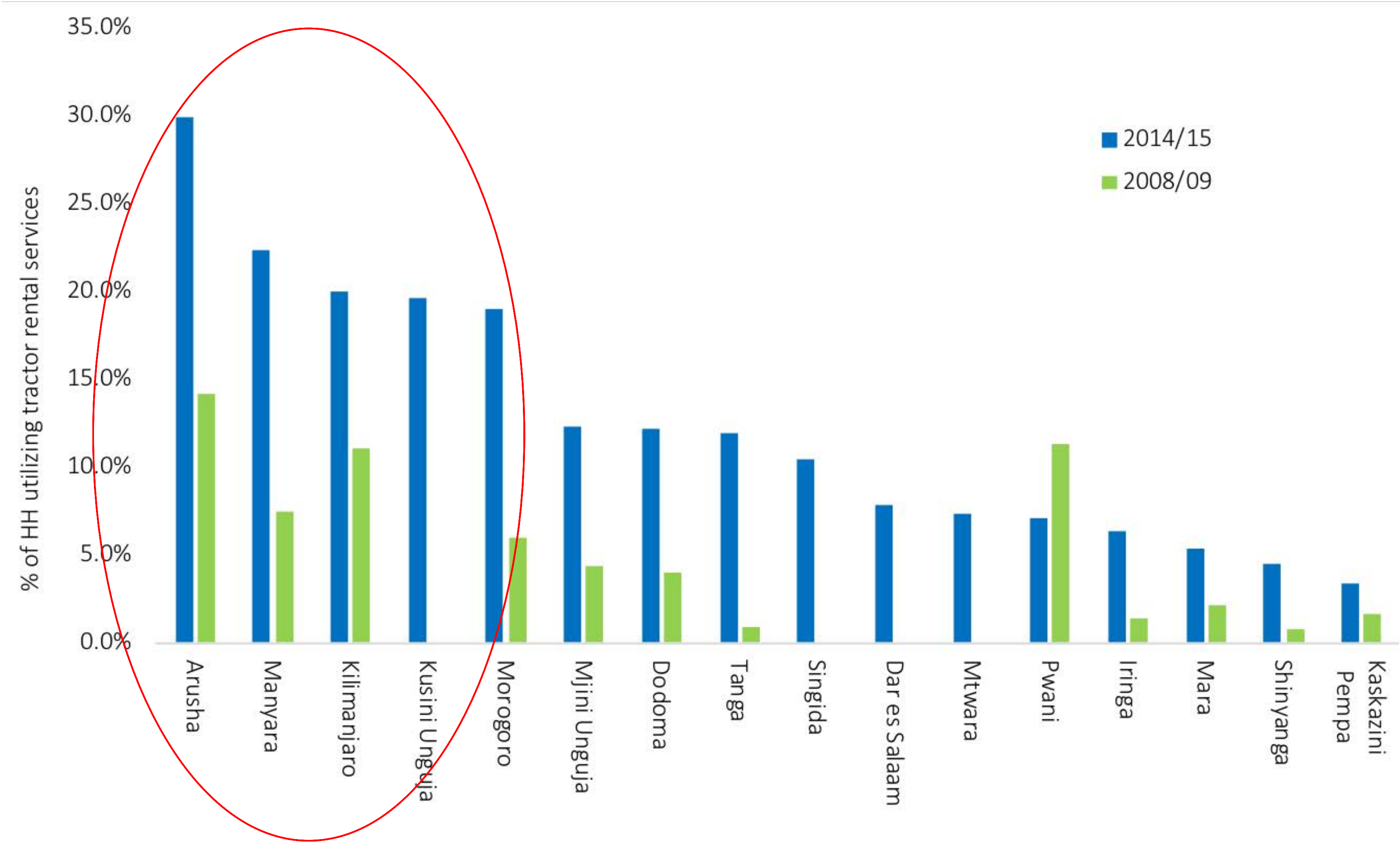
Source: LSMS/National Panel Survey 2014/15

NOMINAL VALUE OF TRACTOR IMPORTS TO SUB-SAHARAN AFRICA (EXCL. SOUTH AFRICA), 2001-2015



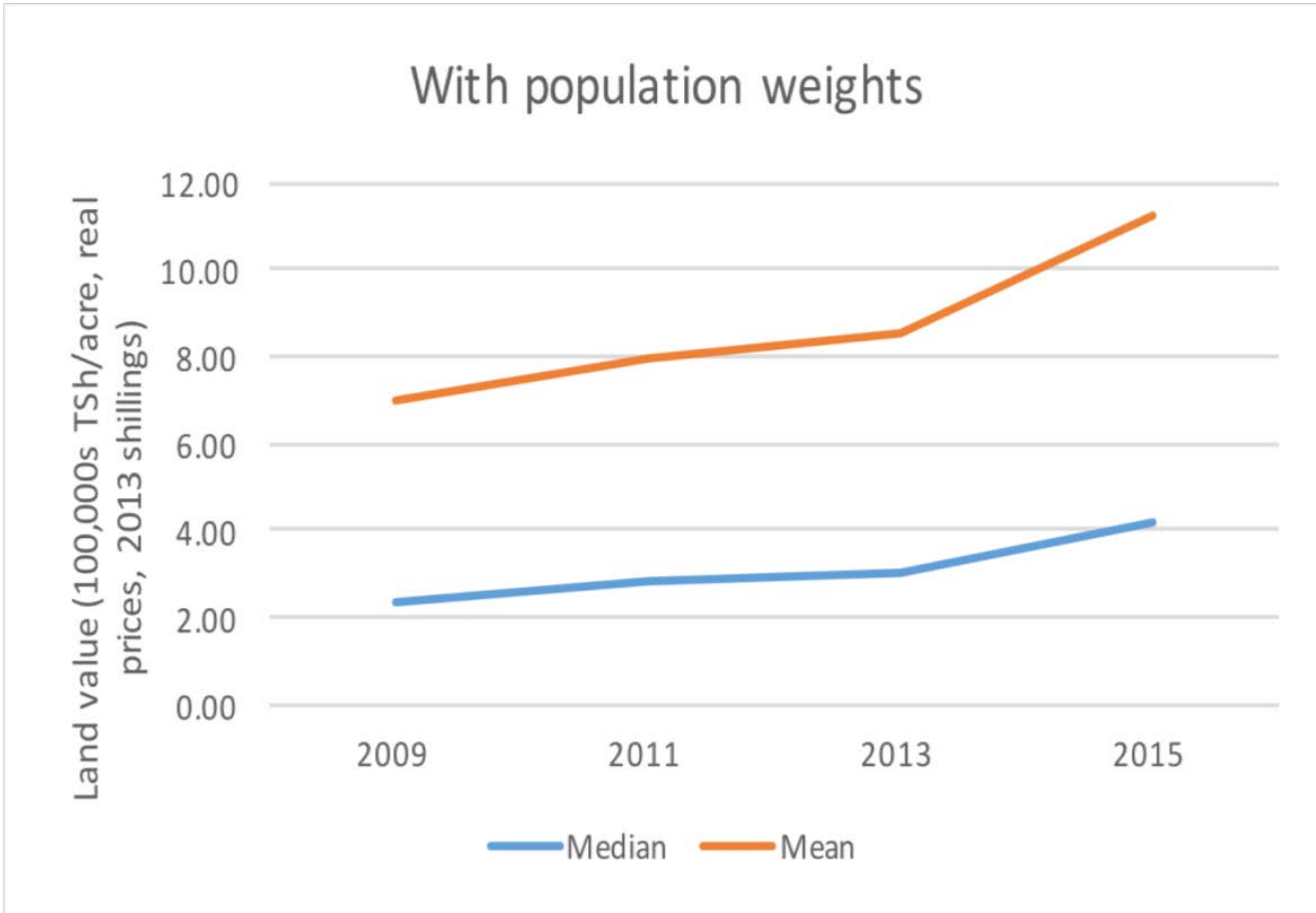
Source: Van der Westhuisen et al, 2018, based on Trade Map database

% OF FARM HOUSEHOLDS RENTING TRACTOR SERVICES IN TANZANIA, 2009 VS 2015



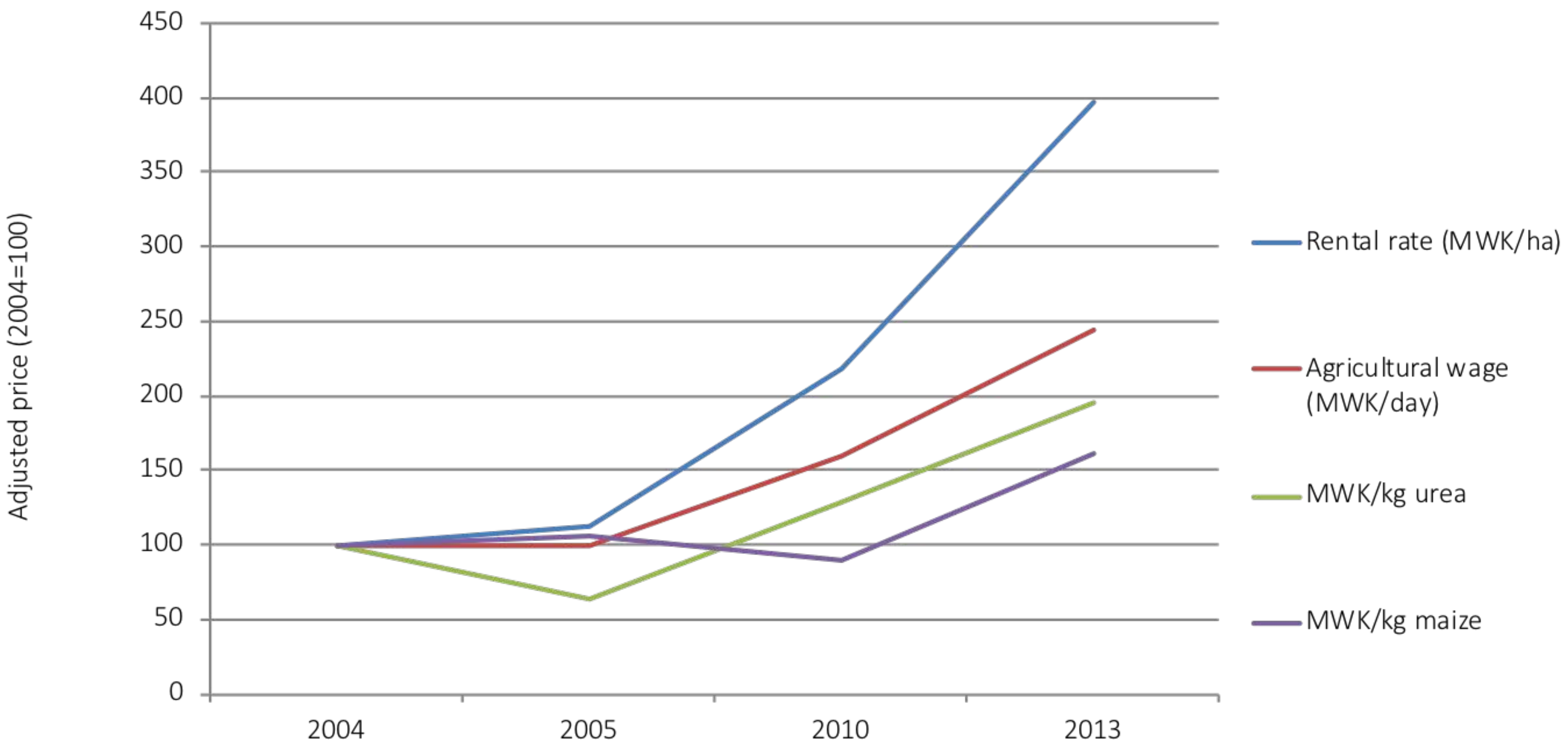
Source: Van der Westhuisen, 2018, based on LSMS/NPS surveys

MEAN LAND PRICES IN TANZANIA : +53.9% IN REAL TERMS IN 6 YEARS



Source: LSMS 2009, 2011, 2013, 2015

OUTPUT AND FACTOR PRICE INDICES, RURAL MALAWI, 2004-2013



Sources: LSMS-ISA and IHS for land and wages; FEWSNET for urea and maize

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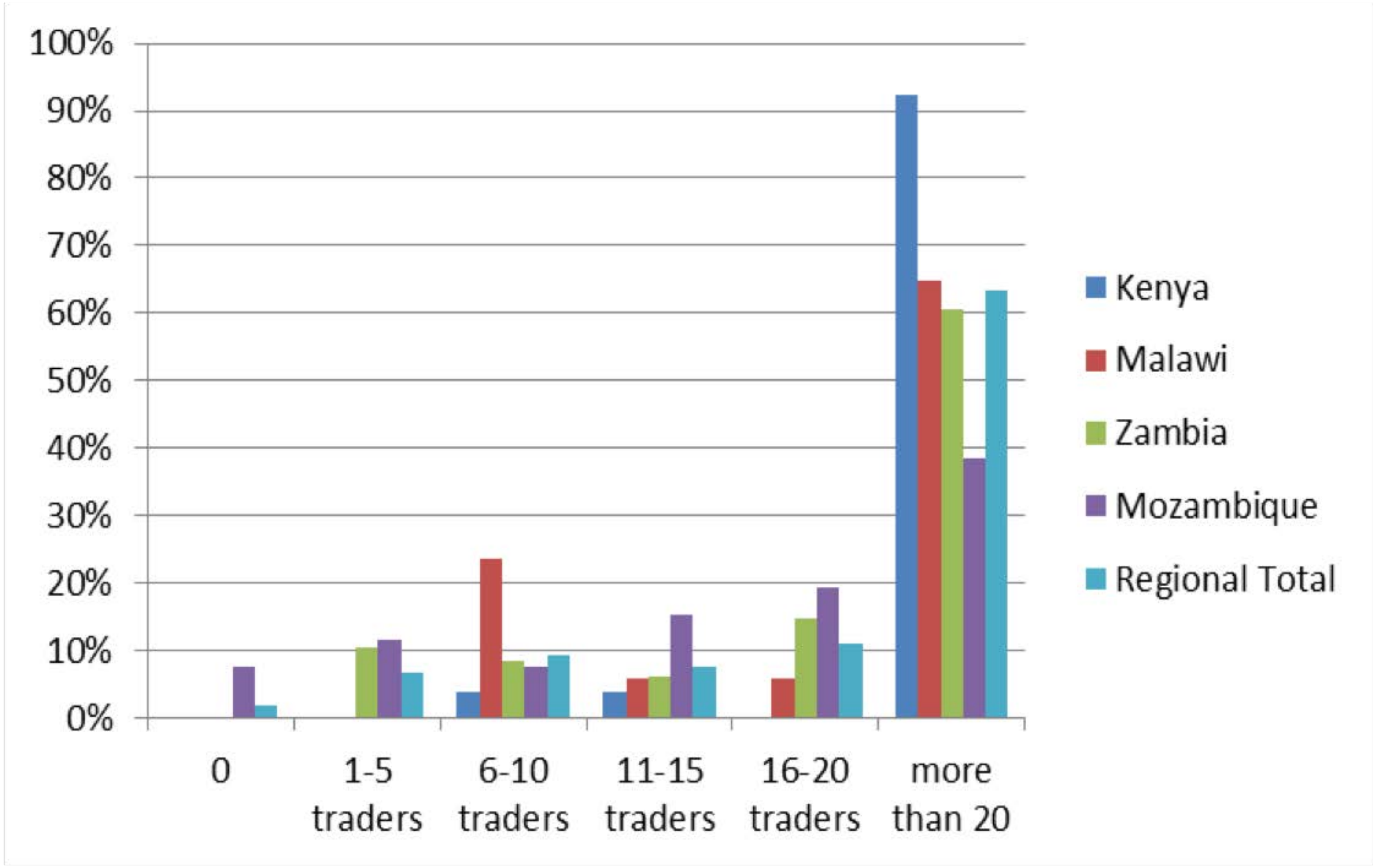
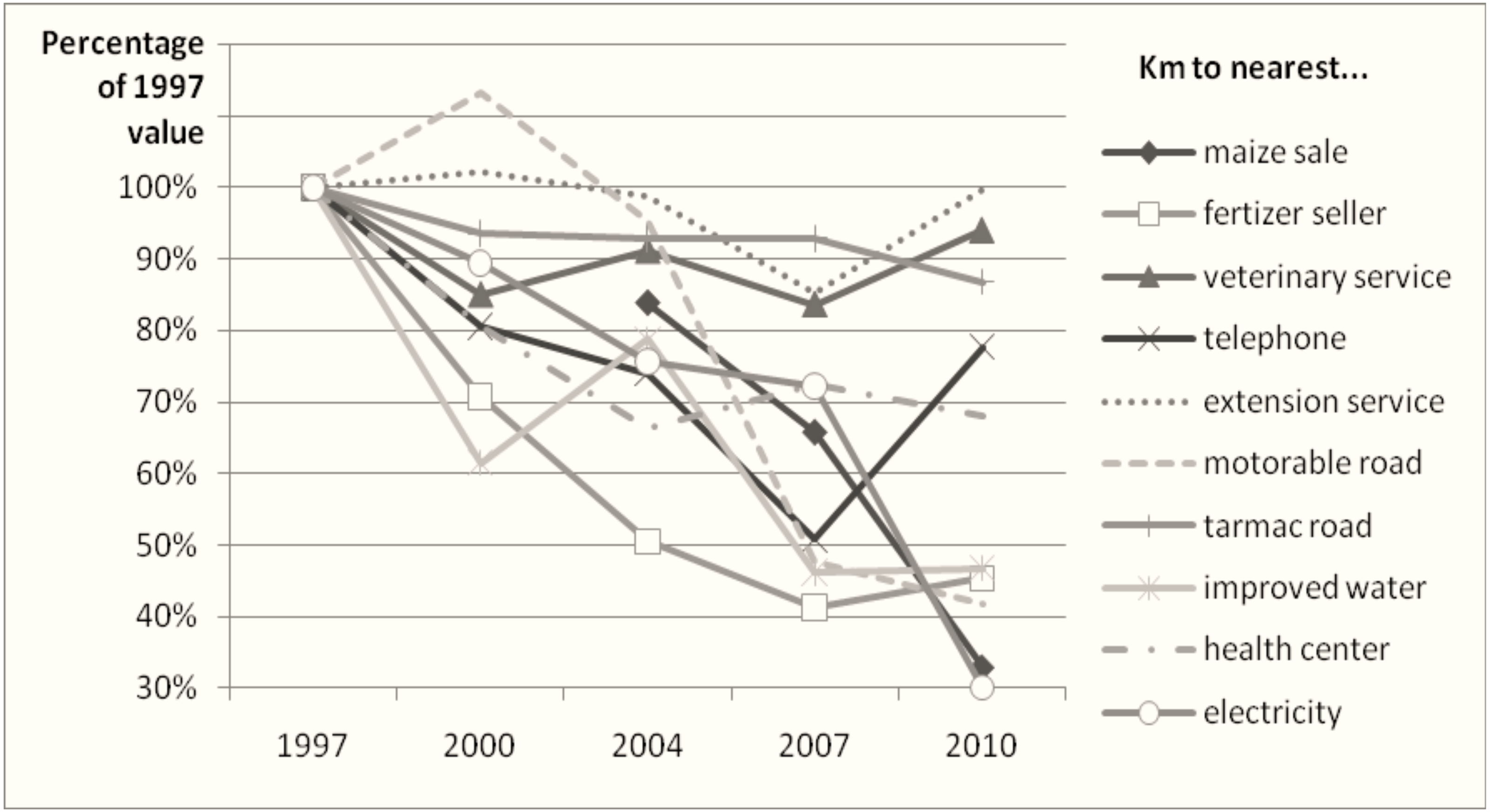
FARMER REPORTED NUMBERS OF TRADERS BUYING MAIZE IN THEIR VILLAGE, 2014



Source: Sitko and Jayne, 2014

CHANGE IN FARM HOUSEHOLDS' DISTANCE TO SERVICES IN RURAL KENYA, 1997-2010

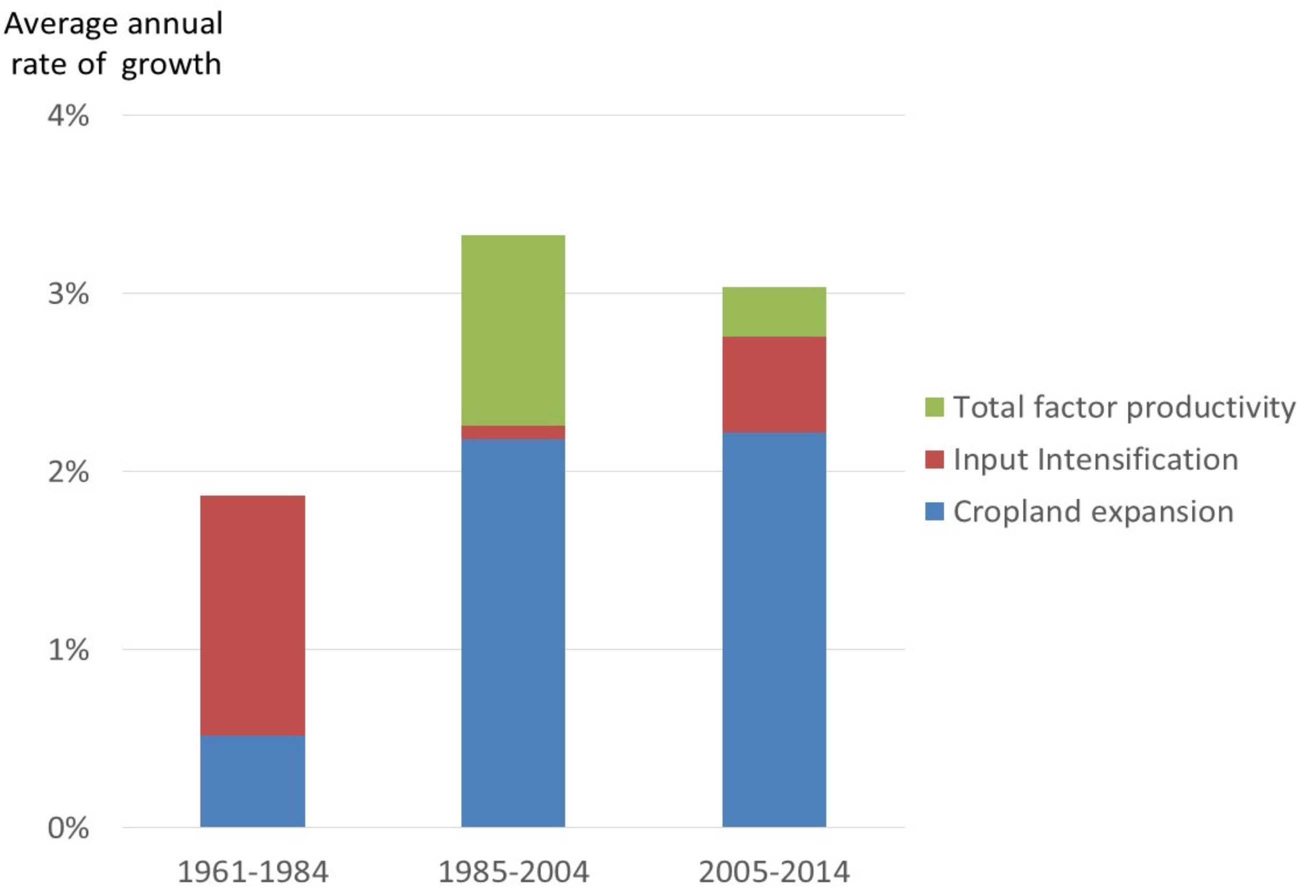


Source: Chamberlin and Jayne, 2012

MAJOR CHALLENGES TO BE TACKLED

1. Future ag growth needed from higher value per hectare and per laborer, not just area expansion

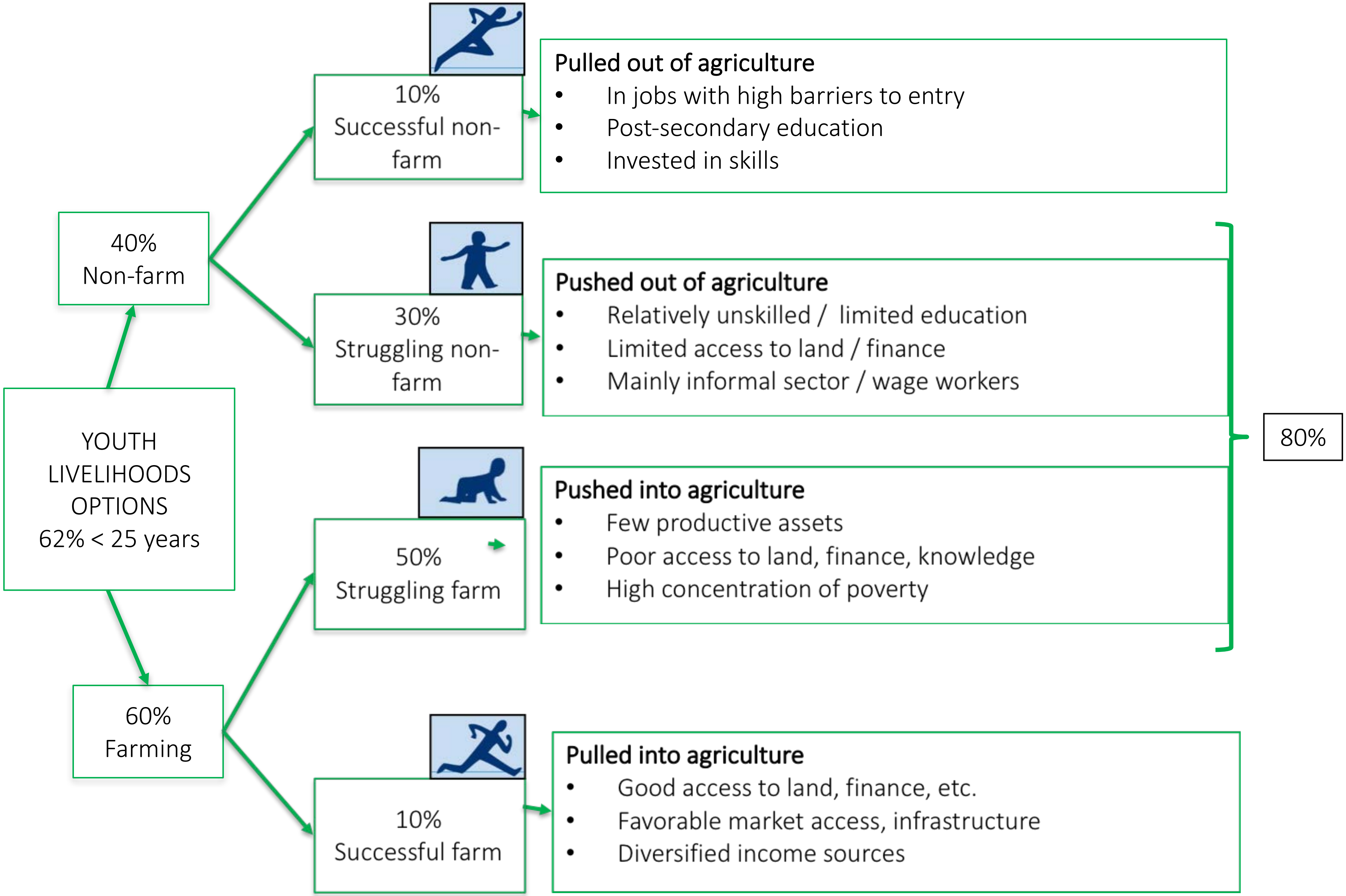
AFRICA'S AGRICULTURAL GROWTH STILL RELIES MAINLY ON CROPLAND EXPANSION, NOT ENOUGH ON PRODUCTIVITY GROWTH



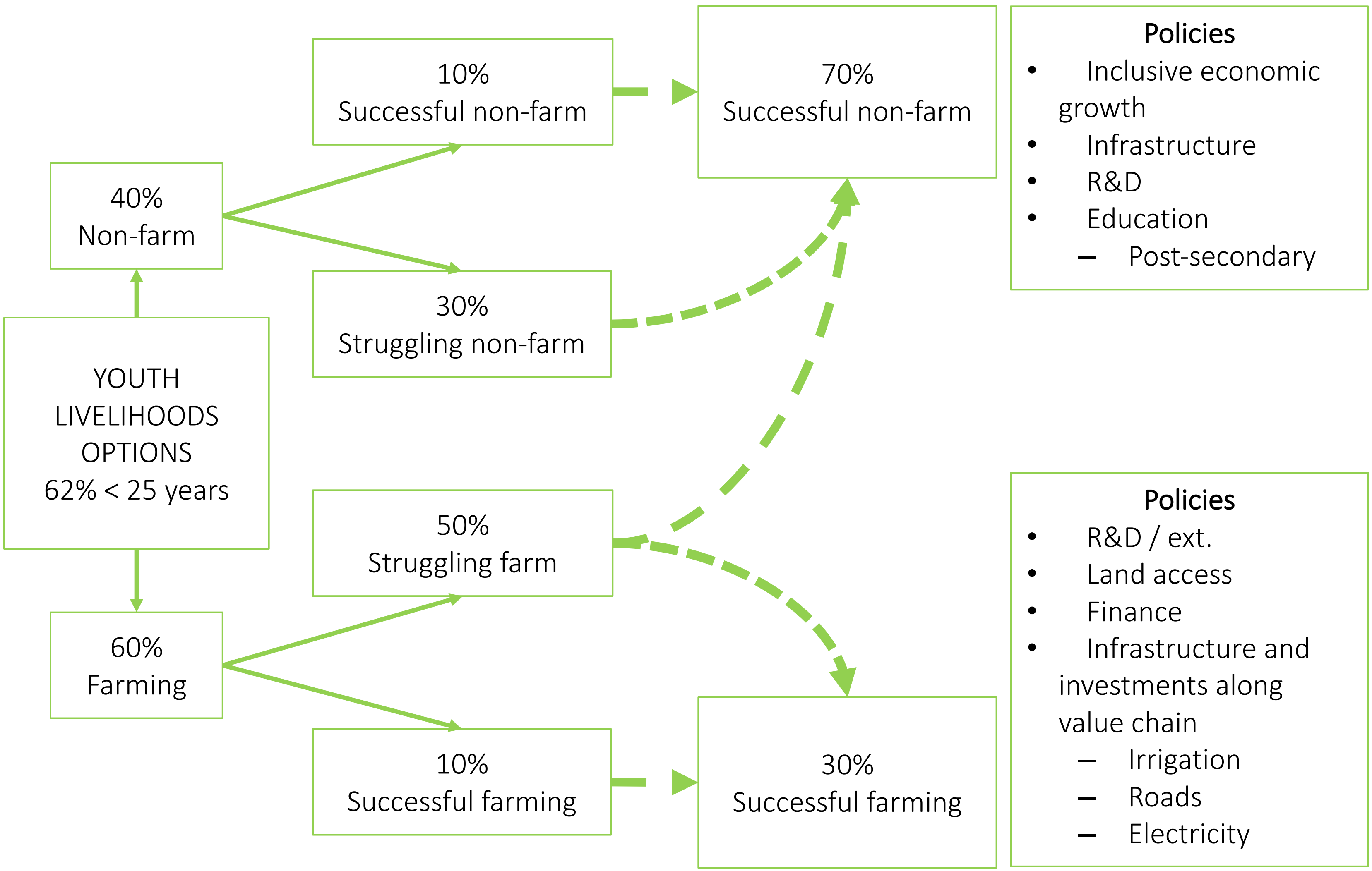
Source: Economic Research Service, https://www.ers.usda.gov/data-products/international-agricultural-productivity/

SUMMARY : UNMISTAKABLE PROGRESS IN SSA

1. Africa's labor force diversifying away from subsistence farming
2. Share of labor force in non-farm employment up sharply since 2000
3. Governance has improved, albeit unevenly. Days of hyperinflation, black market exchange rates and macro turmoil largely over.
4. Greater proportion of young Africans acquiring secondary and university educations
5. Per capita GDP increased between 2000 and 2014 by 35% in real terms. SSA has been world's second-fastest growing economy, exceeded only by Asia
6. +4.6% inflation-adjusted p.a. ag growth between 2000-2016 (WB, 2017) vs. world avg. of 2.75%
7. Women have become considerably more active in labor markets and better able to hold stocks of wealth on their own
8. Poverty rates declined significantly since 2000
9. Nutritional indicators also show gradual but clear improvement


YOUTH LIVELIHOODS OPTIONS
62% < 25 years
40% Non-farm
60% Farming
10% Successful non-farm
30% Struggling non-farm
50% Struggling farm
10% Successful farm
Pulled out of agriculture
• In jobs with high barriers to entry
• Post-secondary education
• Invested in skills
Pushed out of agriculture
• Relatively unskilled / limited education
• Limited access to land / finance
• Mainly informal sector / wage workers
Pushed into agriculture
• Few productive assets
• Poor access to land, finance, knowledge
• High concentration of poverty
Pulled into agriculture
• Good access to land, finance, etc.
• Favorable market access, infrastructure
• Diversified income sources
80%

STRUCTURAL TRANSFORMATION PATHWAY



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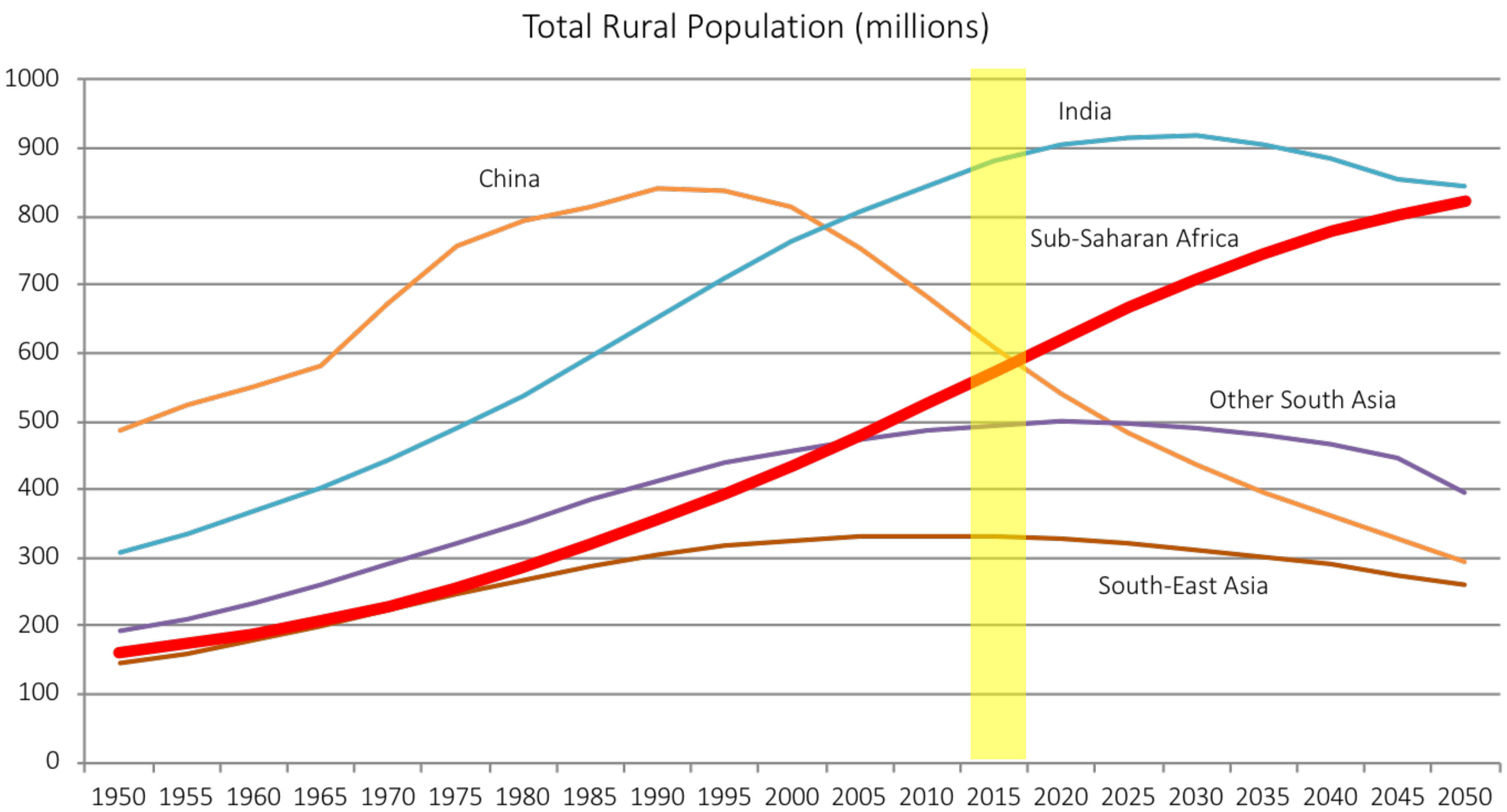
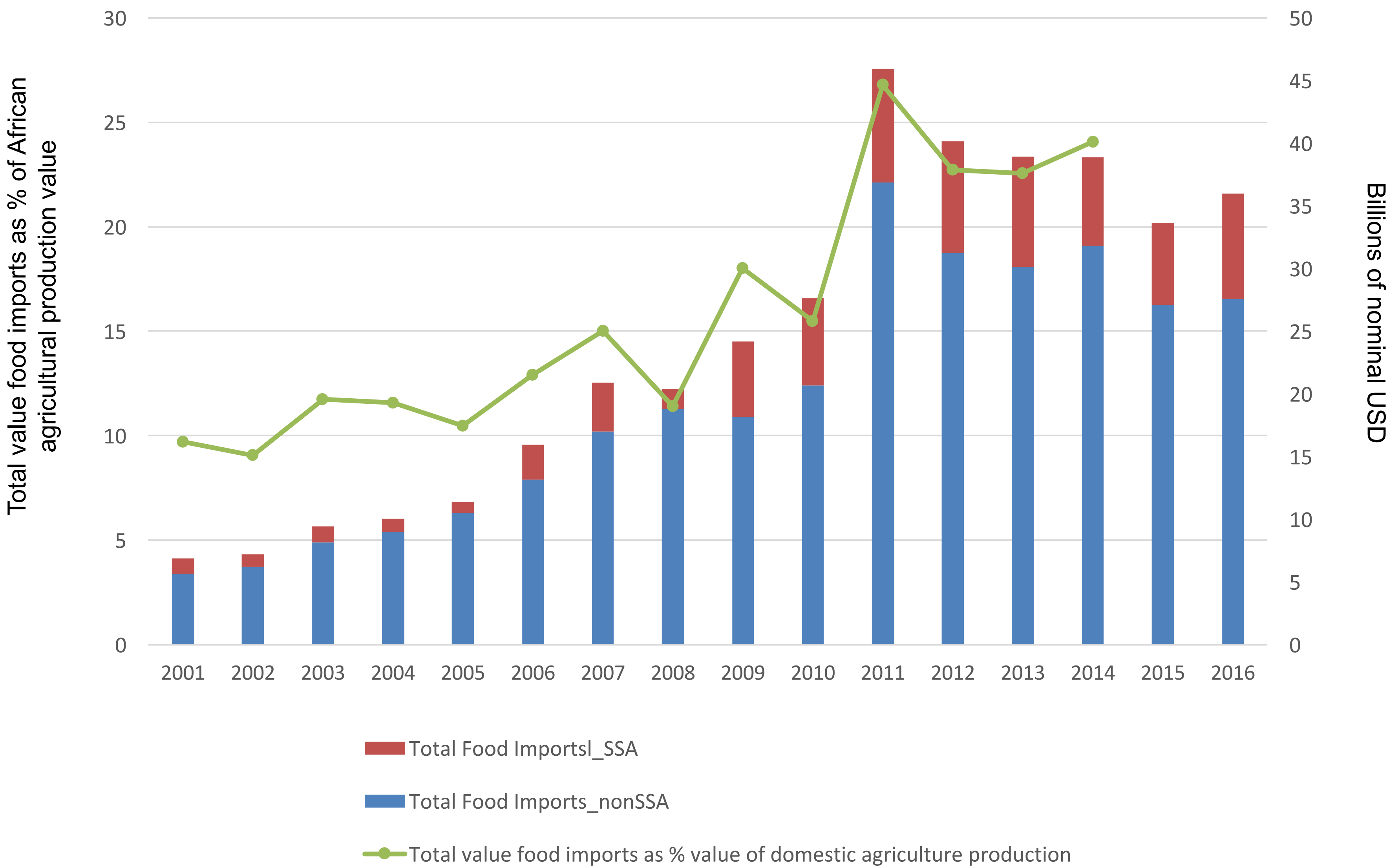
SUB SAHARAN AFRICA : ONLY REGION OF THE WORLD WHERE RURAL POPULATION CONTINUES TO RISE PAST 2050



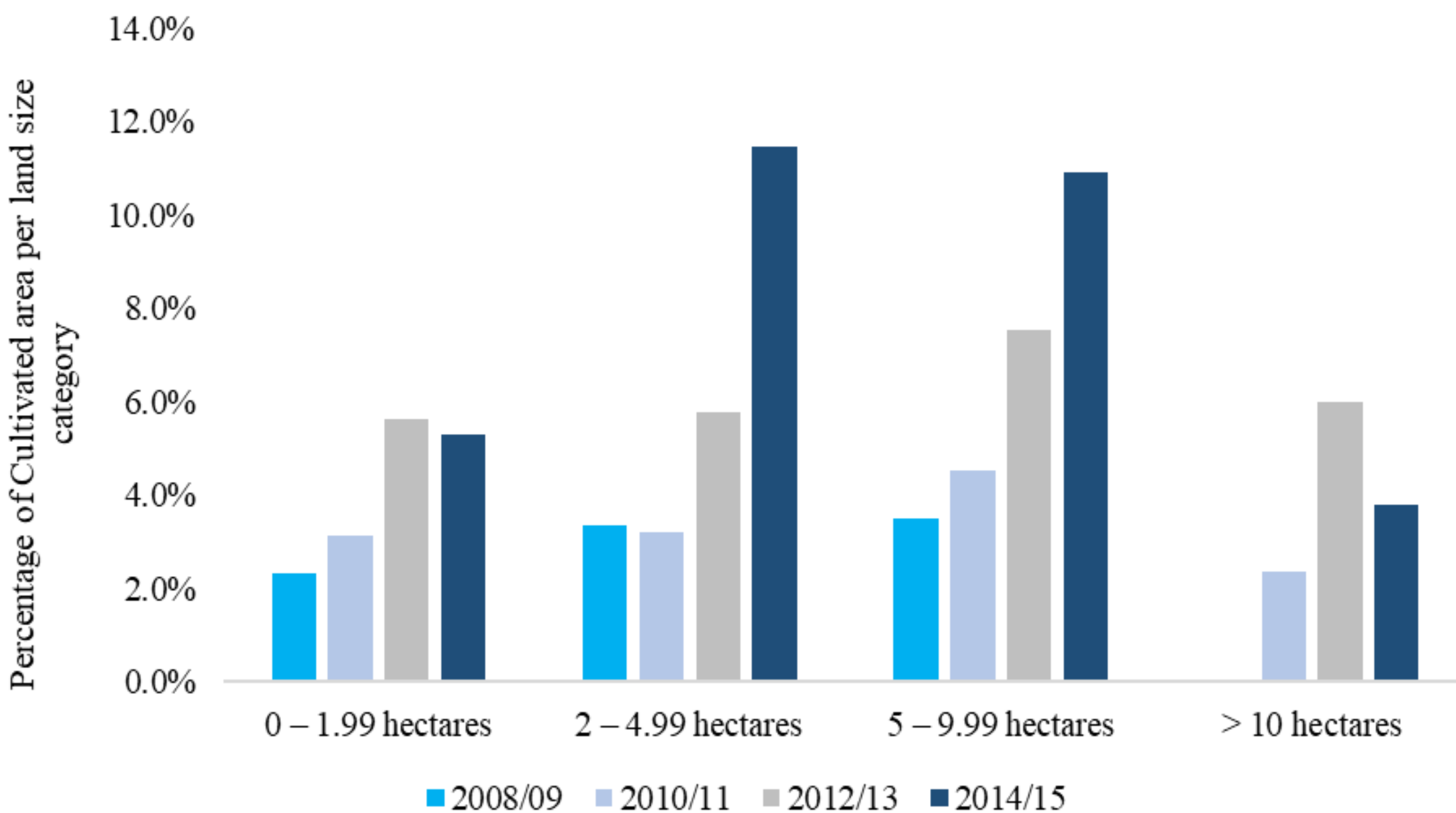
Source: UN 2013

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

(intra SSA trade from 1 to 10 billion USD)



% OF FARM HOUSEHOLDS RENTING TRACTOR SERVICES IN TANZANIA, 2009 VS 2015



Source: Van der Westhuisen et al., 2018, based on NPS/LSMS surveys

MARKET ACCESS CONDITIONS, ZAMBIA, 2014

Distance from farm to:	*Percentile of farm household distribution*					
	Mean	*10th*	*25th*	*50th*	*75th*	*95th*
	------------- km distance -------------					
Nearest district town (km)	37.1	6.0	13.0	30.0	58.0	94.0
Point of maize sale to trader (km)						

Source: Chapoto and Jayne, 2014, based on 2014 Crop Forecast Survey, n=13,859 farm households

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Distance from farm to:	*Percentile of farm household distribution*					
	Mean	*10th*	*25th*	*50th*	*75th*	*95th*
	------------- km distance -------------					
Nearest district town (km)	37.1	6.0	13.0	30.0	58.0	94.0
Point of maize sale to trader (km)	6.8	0.0	0.0	0.0	2.0	58.0

Source: Chapoto and Jayne, 2014, based on 2014 Crop Forecast Survey, n=13,859 farm households

MAJOR CHALLENGES TO BE TACKLED

1. Future ag growth needed from higher value per hectare and per laborer, not just area expansion

2. Land/soil degradation – will make continued agricultural transformation more difficult unless addressed

   - Proximate causes: low adoption of “climate smart” and “sustainable” land management practices

   - Underlying culprits – ineffective national ag R&D and extension systems

3. The “employment challenge”: each year, roughly 17 million young Africans enter working age

LOOMING EMPLOYMENT CHALLENGE IN SSA