

AGRI-FOOD SYSTEMS AND YOUTH LIVELIHOODS IN SUB-SAHARAN AFRICA



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Seminar at USAID/BFS
Ronald Reagan Building, Washington, DC, November 3, 2016

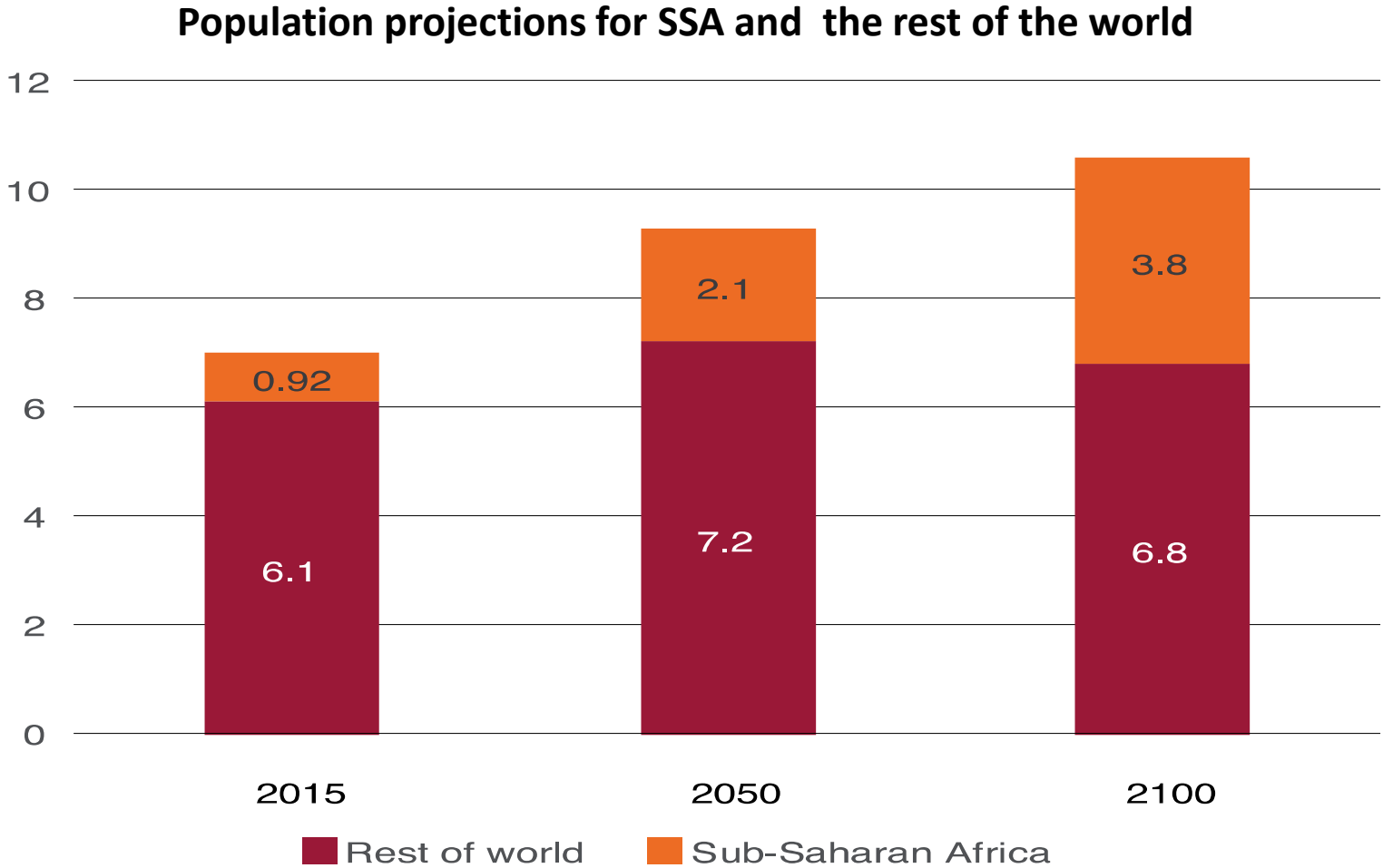


Main messages

1. Significant economic transformation in Africa since 2000
 - Highly variable but often rapid rates of youth exit from farming to off-farm sectors
 - In many countries, less than 50% of youth FTE labor force are in farming
 - Reflecting historically low profitability of smallholder farming
2. Farming remains extremely important for economic transformation
 - pace of exit from farming fastest in countries experiencing highest rates of agricultural productivity growth
3. Strategies that effectively raise the returns to labor in farming will be crucial to building broad-based and inclusive economic growth and fostering successful economic transformation in Africa.

Motivation

Sub-Saharan Africa's population explosion



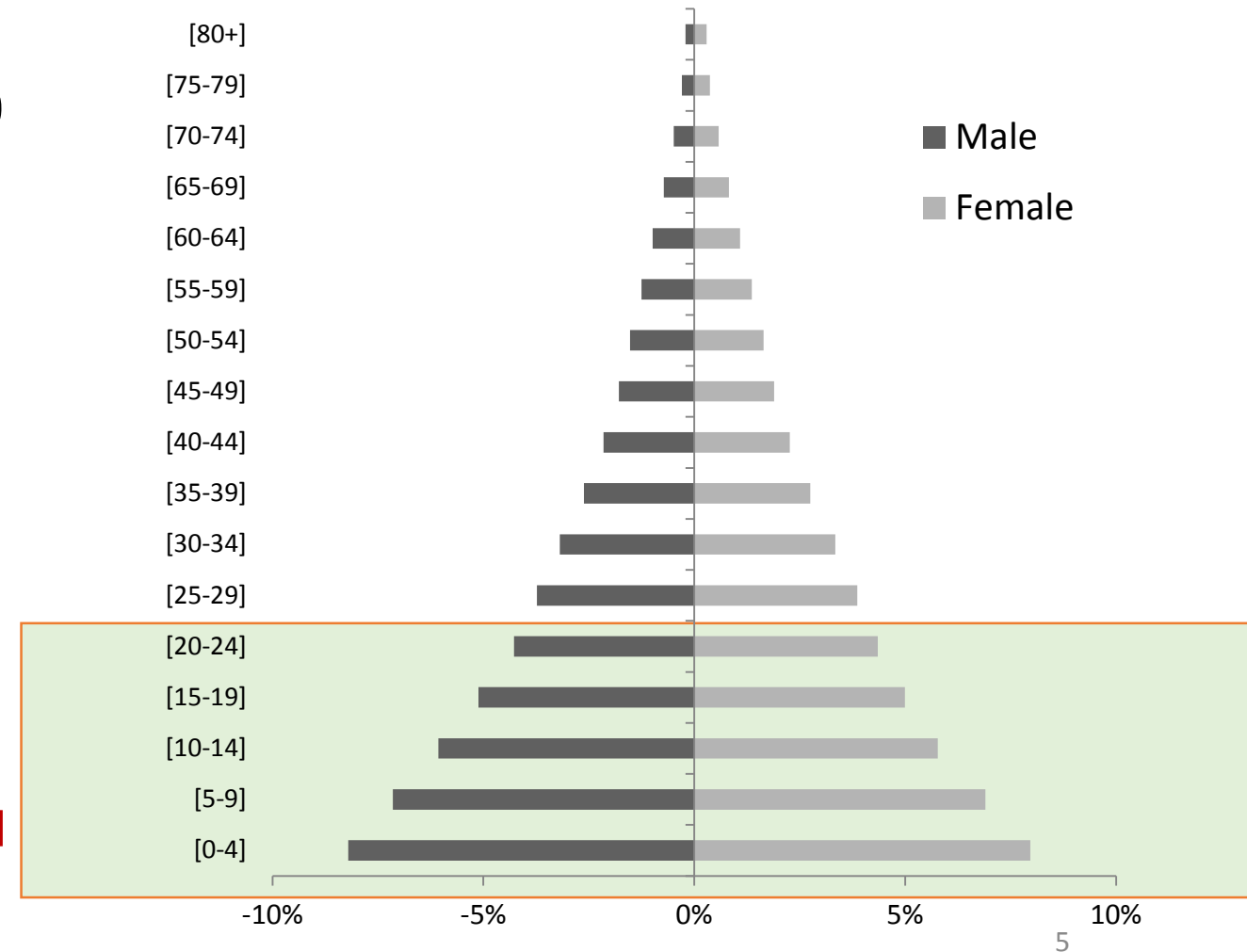
Source: United Nations (2016)

Looming employment challenge

11 million people to enter labor market each year

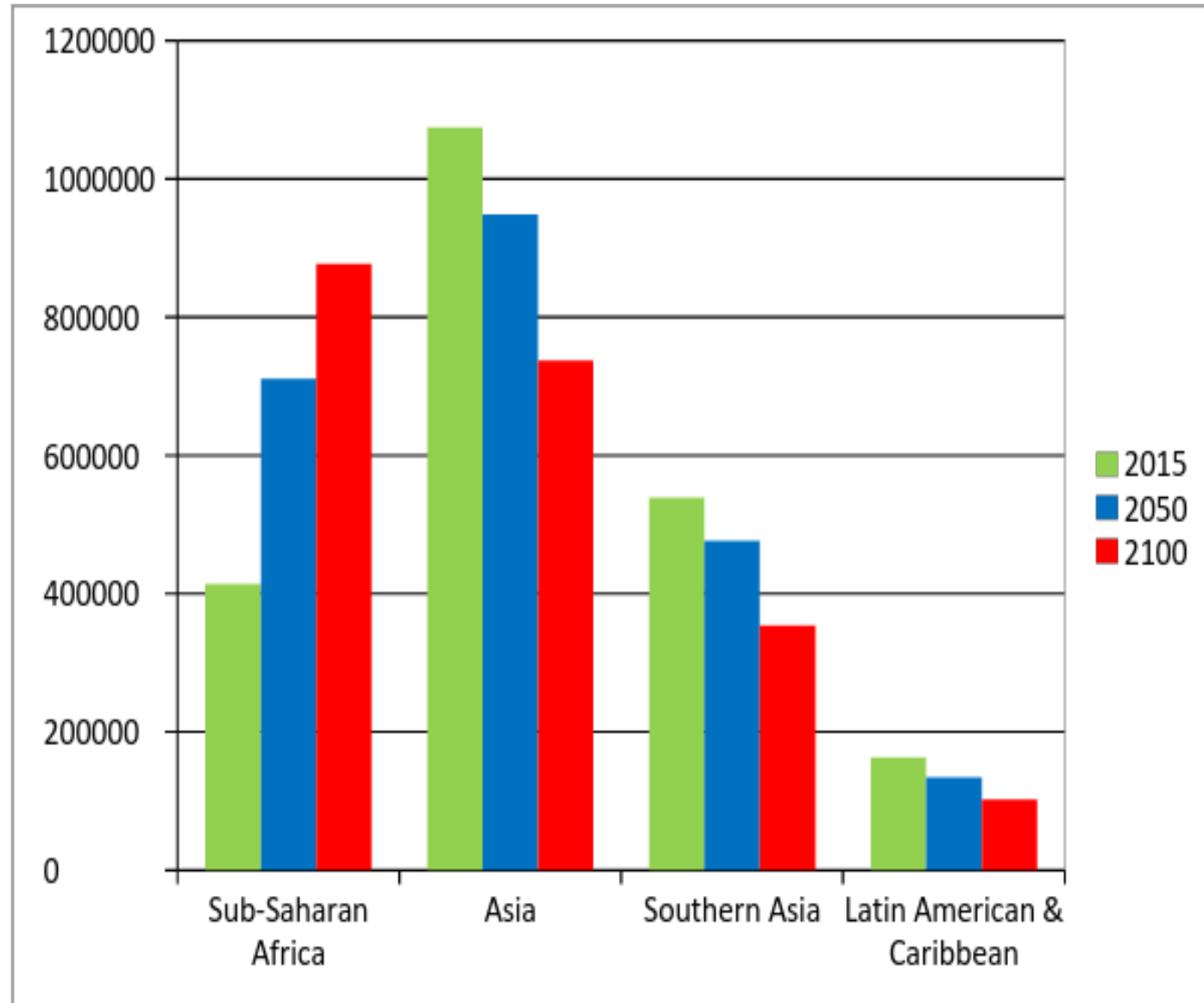
- Rural and young population
 - 53% more people in rural areas by 2050 (UN 2016)
- 3% growth in labor force per year
- Slow demographic transition
 - High fertility rates
 - Low child mortality rates

62% of people <25 years old



Source: UN Pop Council, 2013

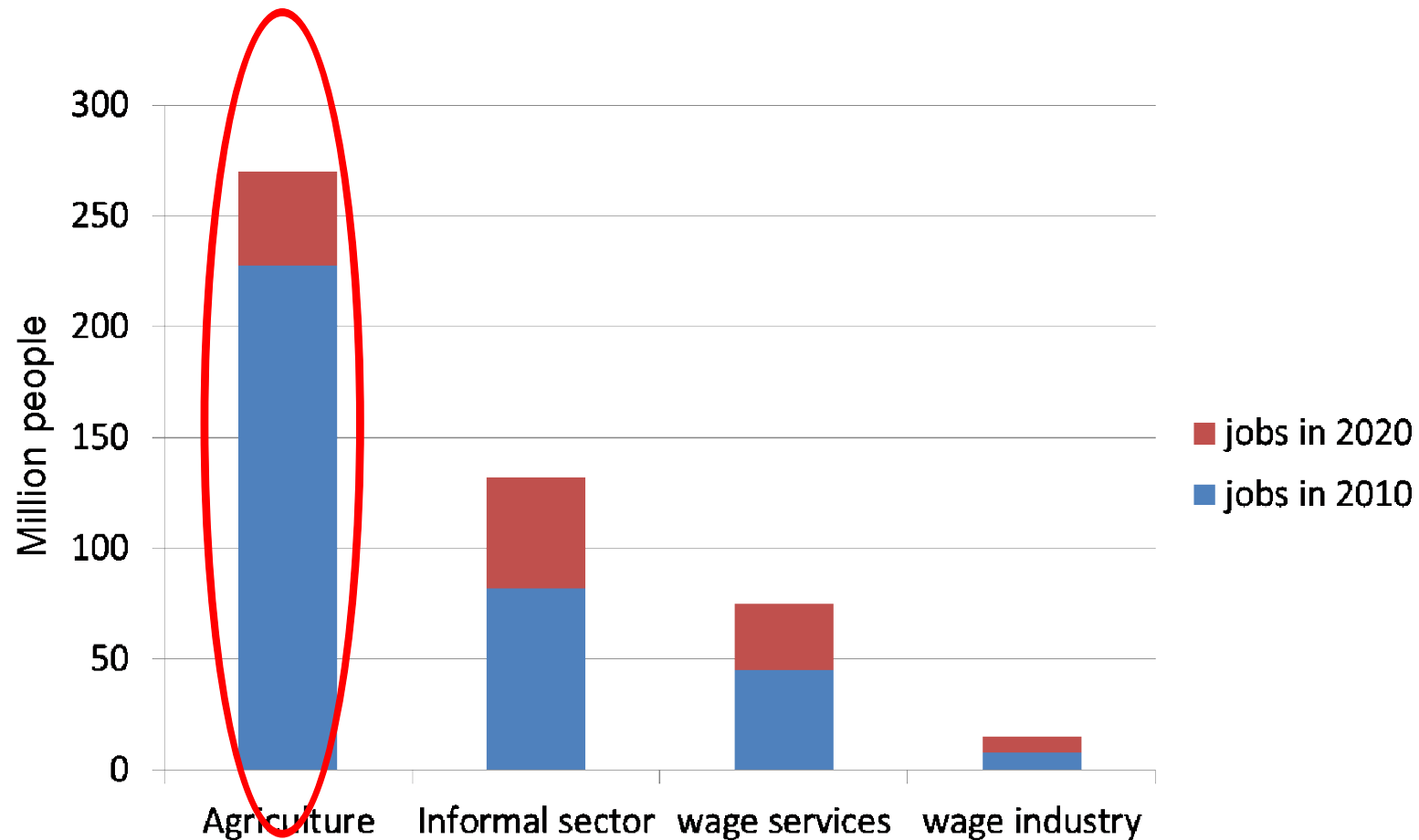
Projected Population Aged Less Than 15 Years



- Will Africa's youthful labor force yield a demographic "dividend" or "time bomb"?
- What can governments do to expand employment opportunities?



Agri-food system - A sector of opportunity



Source: Filmer and Fox 2014

What is the evolving role of agriculture in Africa's employment structure?

Data and Analytical Approach

- Nationally representative multi-year household data
 - LSMS-ISA (Ghana, Nigeria, Rwanda, Tanzania, Uganda)
 - Labor force surveys (Zambia)
 - Census Data from IPUMS/Minnesota Population Center (Kenya, Malawi, Mali)
- Sectoral employment “stocks” and “flows” in three employment groups
 - Farming
 - Off-farm segment of agri-food system
 - Non-farm sector (outside agri-food system)

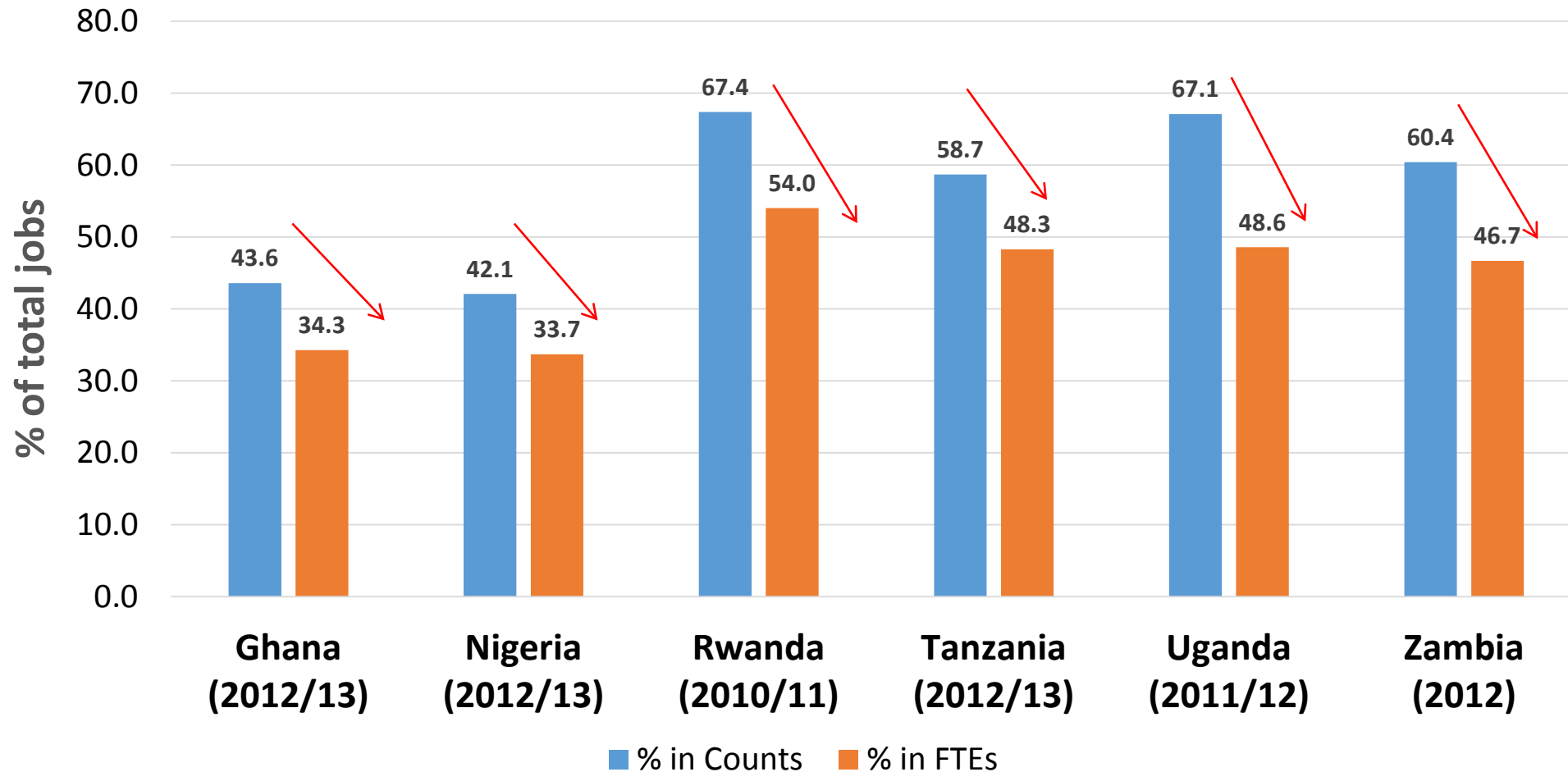


Youth vs. entire workforce

- Employment trends of entire workforce similar to that of youth (15-24 years) and young adults (25-34 years)
- Africans between 15 and 35 years of age account for 55% of the region's labor force
- Relatively high levels of unpaid or family-based activities
 - 43%-63% of all unpaid family-based jobs held by youth
- Relatively high levels of economic inactivity and unemployment
 - 30% or more of people aged 15-24 years are inactive

- Two computation approaches
 - Count of jobs
 - Full time equivalents (FTEs)
 - Share of individuals work time over the year allocated to job

Farming's employment share in counts vs FTE



A woman with dark skin, wearing a white t-shirt and a red necklace, is working in a field of green plants. She is looking down at the plants. The background shows a line of trees and a clear sky. The text "Employment Trends" is overlaid on the left side of the image.

Employment Trends

Variable rates of labor exit from farming to off-farm

Country	Survey years	Farming	Off-farm AFS	Non-farm
		% of FTE jobs	% of FTE jobs	% of FTE jobs
Ghana	2005/06	43.5	14.9	41.6
	2012/13	34.3	19.2	46.5
Nigeria	2010/11	30.6	21.0	48.2
	2012/13	33.7	23.2	43.1
Rwanda	2005/06	65.7	7.8	26.6
	2010/11	54.0	8.9	37.0
Tanzania	2010/11	47.3	17.5	35.2
	2012/13	48.3	17.2	34.5
Uganda	2005/06	57.0	13.0	30.0
	2011/12	48.6	13.7	37.7
Zambia	2005	61.2	4.7	34.1
	2012	46.7	9.2	44.1

Rapid % growth in non-farm outside AFS

Country	Survey years	Farming % of FTE jobs	Off-farm AFS % of FTE jobs	Non-farm % of FTE jobs
Ghana	2005/06	43.5	14.9	41.6
	2012/13	34.3	19.2	46.5
Nigeria	2010/11	30.6	21.0	48.2
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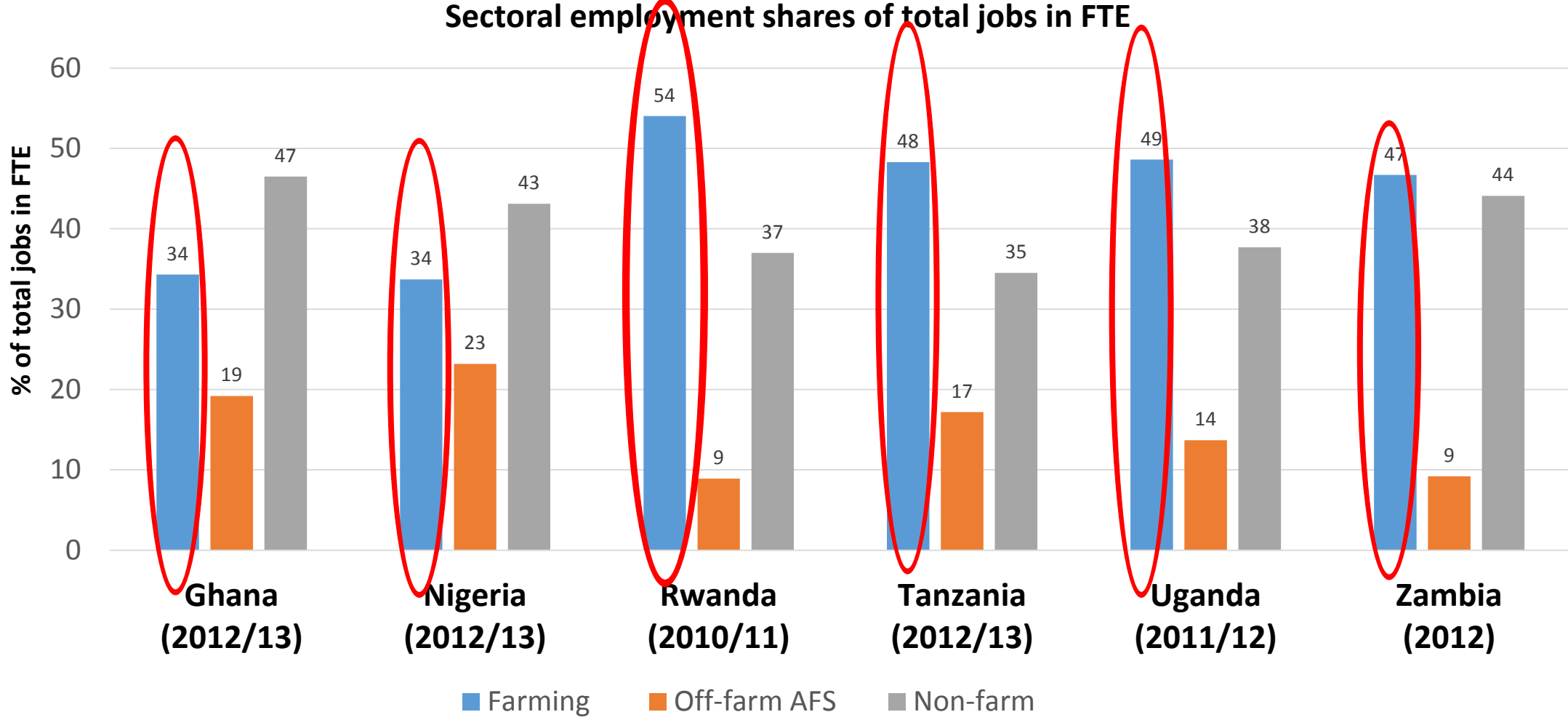
Rapid % growth in off-farm AFS but from low base

Country	Survey years	Farming % of FTE jobs	Off-farm AFS % of FTE jobs	Non-farm % of FTE jobs
Ghana	2005/06	43.5	14.9	41.6
	2012/13	34.3	19.2	46.5
Nigeria	2010/11	30.6	21.0	48.2
	2012/13	33.7	23.2	43.1
Rwanda	2005/06	65.7	7.8	26.6
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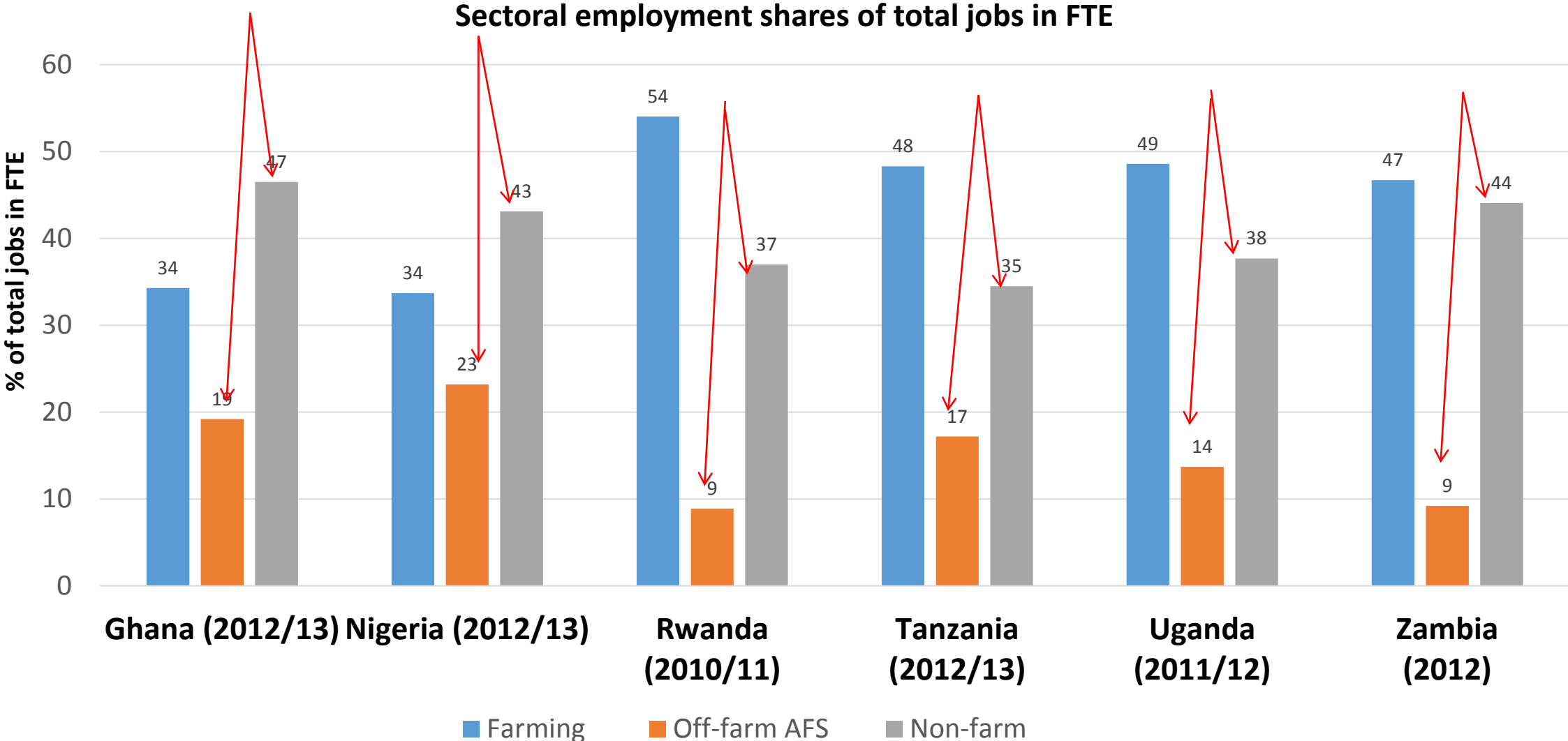
Off-farm AFS jobs largely in commerce and less in agro-processing

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

Farming is single largest employer in most countries despite declining job share



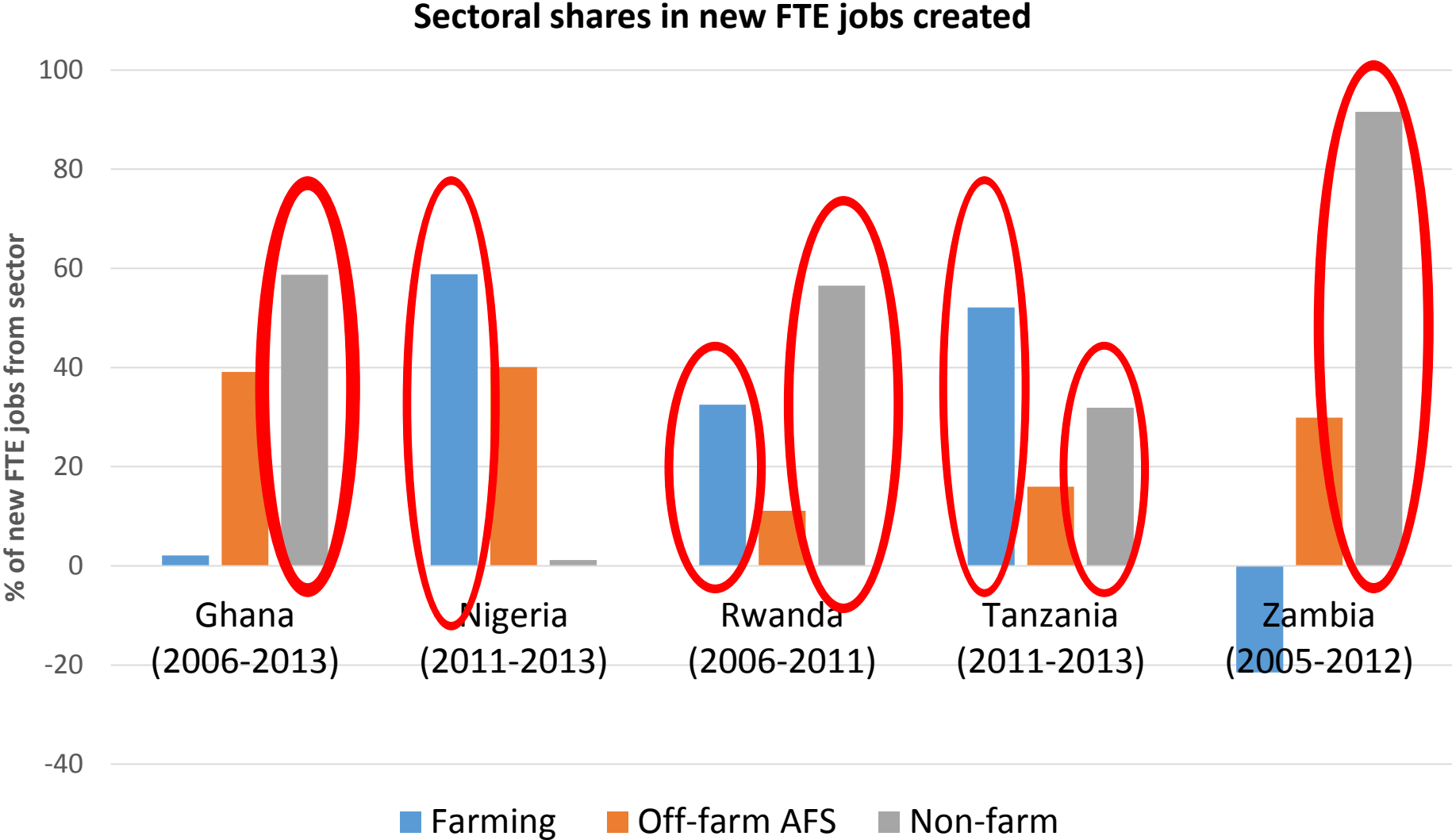
Greater share of jobs in non-farm sector than off-farm AFS





Sources of new jobs

Farming is a key source of new jobs but largest source of new FTE jobs come from non-farm sector





Type of jobs

Wage jobs remain elusive

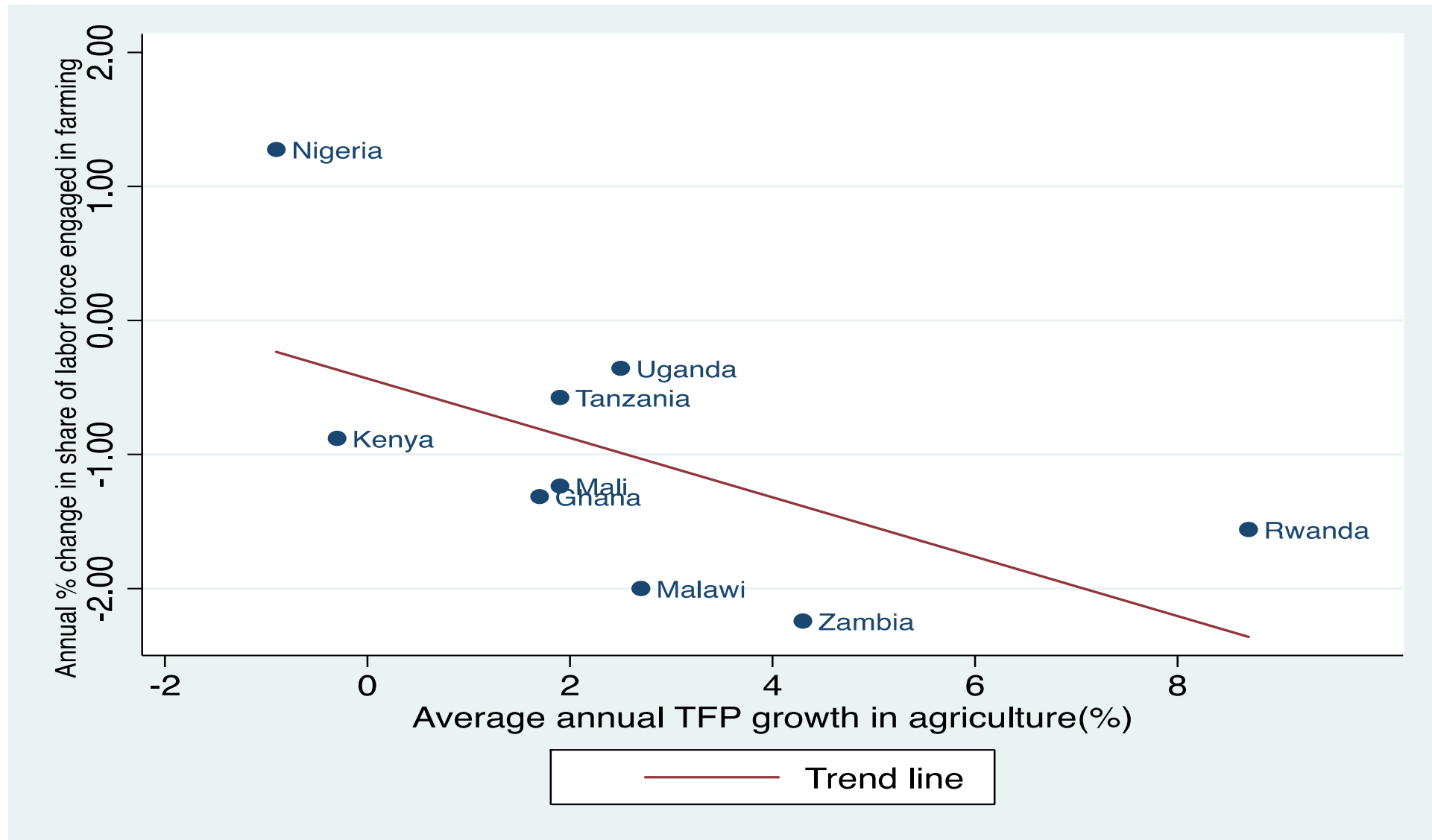
Private wage > public wage

Countries		% of employment		
		Wage/salary		Self-employed/ unpaid family labor
		Public	Private	
Ghana				
	2005/06	5.7	11.9	82.4
	2012/13	5.9	16.6	77.5
Nigeria				
	2010/11	6.5	7.26	86.2
	2012/13	4.41	6.99	88.6
Rwanda				
	2005/06	3.2	20.4	86.6
	2010/11	3.6	28.4	77.8
Tanzania				
	2010/11	2.6	16.9	80.5
	2012/13	3.1	15.2	81.7
Uganda				
	2005/06	2.7	17.4	79.9
	2011/12	3.9	14.8	81.3
Zambia				
	2005/06	3.3	3.5	93.3
	2011/12	5.3	6.5	88.2
Malawi				
	1998		14.1	85.9
	2008		21.6	78.4
Mali				
	1998		5.7	84.2
	2009		4.5	85.9

A woman wearing a red t-shirt and a pink headwrap is standing in a field of cabbages. She is holding a tablet computer and looking at the screen with a smile. The field is filled with rows of green cabbages. In the background, there are trees and a clear sky. The sun is low in the sky, creating a warm, golden light. The overall scene is bright and sunny.

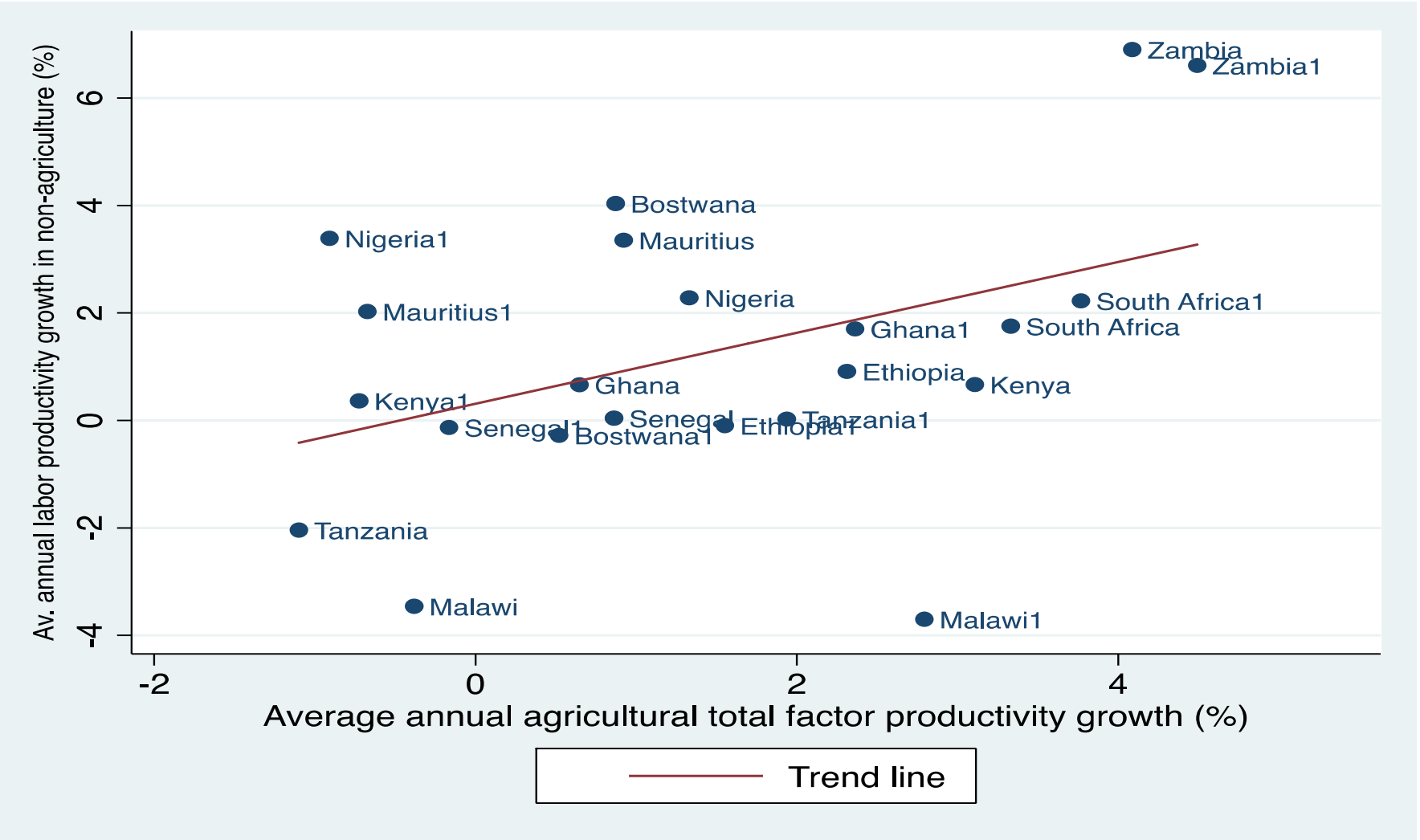
**Role of agricultural
productivity growth**

Farming share declining most rapidly among countries enjoying highest agricultural productivity growth



Source: Yeboah and Jayne, 2016

Non-farm labor productivity growth highest among countries with high agricultural productivity growth



Source: Yeboah and Jayne, 2016

Time series analysis

- Expanded data with additional set of countries (GGDC Africa sector data)
 - 11 SSA countries
- Independent variables
 - Lagged labor productivity in agriculture
 - Lagged labor productivity in non-agriculture
 - Country governance indicator
 - Population density
 - Market access (Road density)
 - Time trend
 - Country fixed effects
- Run different types of models
 - Pooled OLS, random and fixed effect models, first difference

	Model without road density variable					Model with road density variable		
	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)
	Pooled OLS	Pooled OLS	Random effect	Fixed effect	First difference	Pooled OLS	Random effect	Fixed effect
Log lag labor productivity in agriculture	-0.443***	-0.133*	-0.133*	-0.133*	-0.0228***	-0.284*	-0.284**	-0.284**
		(-2.07)	(-2.15)	(-2.15)	(-3.98)	(-2.01)	(-2.77)	(-2.77)
Log lag labor productivity in non-agriculture	-	-0.0121	-0.0121	-0.0121	0.00271	-0.176	-0.176	-0.176
		(-0.20)	(-0.23)	(-0.23)	(1.28)	(-1.34)	(-1.89)	(-1.89)
Other covariates								
Index of governance (lagged)	-	-0.0205	-0.0205	-0.0205	-0.00173	0.0698	0.0698	0.0698
		(-0.47)	(-0.45)	(-0.45)	(-0.22)	(0.80)	(1.06)	(1.06)
Time trend	-	-0.00961***	-0.00961***	-0.00961***	0.000178	-0.00458	-0.00458	-0.00458
		(-3.65)	(-4.62)	(-4.62)	(0.54)	(-0.97)	(-0.96)	(-0.96)
Population density	-	-0.00181	-0.00181	-0.00181	-0.00116	-0.00475	-0.00475	-0.00475
		(-0.92)	(-1.51)	(-1.51)	(-0.55)	(-1.64)	(-1.89)	(-1.89)
Road density	-	-	-	-	-	-0.000260	-0.000260	-0.000260
						(-0.26)	(-0.21)	(-0.21)
Countries								
Bostwana	-0.512***	-0.720**	-0.720***	-	-0.000929	-0.894	-0.894	-
	(-15.34)	(-2.88)	(-3.69)		(-0.10)	(-1.77)	(-1.90)	
Ethiopia	-0.448***	-0.101	-0.101	-	-0.0128*	-0.625***	-0.625***	-
	(-4.75)	(-0.57)	(-0.94)		(-2.22)	(-4.17)	(-4.85)	
Ghana	-0.195***	-0.333*	-0.333***	-	-0.0133*	-0.448*	-0.448**	-
	(-6.43)	(-2.19)	(-3.30)		(-2.57)	(-2.11)	(-2.82)	
Kenya	-0.356***	-0.390*	-0.390***	-	-0.00851	-0.680**	-0.680***	-
	(-9.40)	(-2.08)	(-3.69)		(-1.31)	(-3.16)	(-3.80)	
Mauritius	-1.043***	-0.808	-0.808	-	0.00425	1.020	1.020	-
	(-8.47)	(-0.97)	(-1.73)		(0.83)	(0.91)	(1.05)	
Malawi	-0.478***	-0.0395	-0.0395	-	-0.0174***	-0.340	-0.340*	-
	(-5.28)	(-0.37)	(-0.42)		(-4.47)	(-1.89)	(-2.28)	
Senegal	-0.349***	-0.356*	-0.356***	-	-0.00655	-0.623*	-0.623**	-
	(-8.54)	(-2.00)	(-3.32)		(-1.00)	(-2.59)	(-2.97)	
Tanzania	-0.285***	-0.120	-0.120	-	-0.0132	-	-	-
	(-4.12)	(-0.61)	(-1.11)		(-1.89)			
South Africa	-0.926***	-1.363***	-1.363***	-	-0.00594	-1.277**	-1.277**	-
	(-14.49)	(-5.72)	(-6.90)		(-0.69)	(-2.84)	(-3.14)	
Zambia	-0.0807*	-0.156	-0.156	-	-0.00491	-0.407	-0.407	-
	(-2.07)	(-0.68)	(-1.10)		(-0.55)	(-1.20)	(-1.30)	
Constant	-0.486***	-0.118	-0.118	-0.519**	0.000667	0.401	0.401	0.0690
	(-17.51)	(-0.35)	(-0.58)	(-3.07)	(0.07)	(0.89)	(1.24)	(0.20)
Number of observations	183	161	161	161	95	78	78	78
Number of Countries	11	11	11	11	11	10	10	10
Adjusted/Overall R-square	0.98	0.992	0.99	0.71	0.398	0.997	0.99	0.87
Time period	1995-2011	1995-2011	1995-2011	1995-2011	1995-2011	1995-2011	1995-2011	1995-2011

Lagged labor productivity in agriculture is key driver of observed decline in agriculture employment

t and z statistics in parentheses"

** p<0.05

*** p<0.001"

Recap

1. Significant labor exit from farming in Africa since 2000s
 - Pace more pronounced when jobs computed in FTEs
2. Farming remains extremely important for livelihoods and for economic transformation despite declining job share
 - largest employer and key source of new jobs
3. Rapid % growth in off-farm AFS but from low base
 - Greatest absolute number of new jobs for youth will be in farming and non-farm
 - Growing off-farm AFS relies on inputs from farming (milk, grains)
4. Performance of farm sector will influence job growth in overall economy
 - Pace of labor exit from farming and labor productivity growth in off-farm sectors linked to agricultural productivity growth

Emerging findings:

- Determinants of youth migration out of rural home (Tanzania):
 1. Landholding size of parents (-)
 2. Agro-ecological potential and market access conditions of farm (-)
 3. Number of same-sex siblings (+)
 4. Education of individual (+)
- Rapid changes in farmland ownership patterns – rise of MS farms
- MS farms now account for 30-50% of total farmland in 5 African countries analyzed
- MS farmers tend to be older
- When they retire, likely that much of this area will be bequeathed to new generation of relatively capitalized medium-scale farmers

What should governments do?

- Promote investment in agricultural productivity growth
 - create new opportunities for farming and
 - generate the multipliers effects that expand job opportunities in the rest of economy
 - Youth are interested in opportunities
 - Government policies/investment patterns influence profitability of farming / AFS
- Invest in education and skills training
 - Prepare youth to take advantage of new job opportunities in agri-food system
 - Increase productivity and returns to labor in the informal sector enterprises

Thank you



Questions????

