



# FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative

# INTRODUCTION & GLOBAL FOOD SECURITY STRATEGY

Food Security and Agriculture Core Course

*Photo: Morgana Wingard*



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## AGRI-FOOD SYSTEMS TRANSFORMATIONS & FOOD SECURITY



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## TAKEAWAYS

- The vision of agricultural transformation is in the eye of the beholder
  - “Transformation” takes complex forms
  - And affects many systems
- There are multiple drivers and measures of transformation
  - Including policy levers as drivers
  - And different drivers affect different systems differently
- Why can't we get there the old fashioned way—driven by on-farm technical change?
  - On-farm technical change is still a key component
  - But not sufficient to catalyze
  - Increasing importance of value chains and market systems



## WHAT ARE WE TRANSFORMING?

From subsistence agriculture to something with higher incomes, more and better food ...

But to what, and how?





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## TRANSFORMING GRAIN PRODUCTION



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## TRANSFORMING RURAL COMMUNITIES



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## PRESERVING BIODIVERSITY



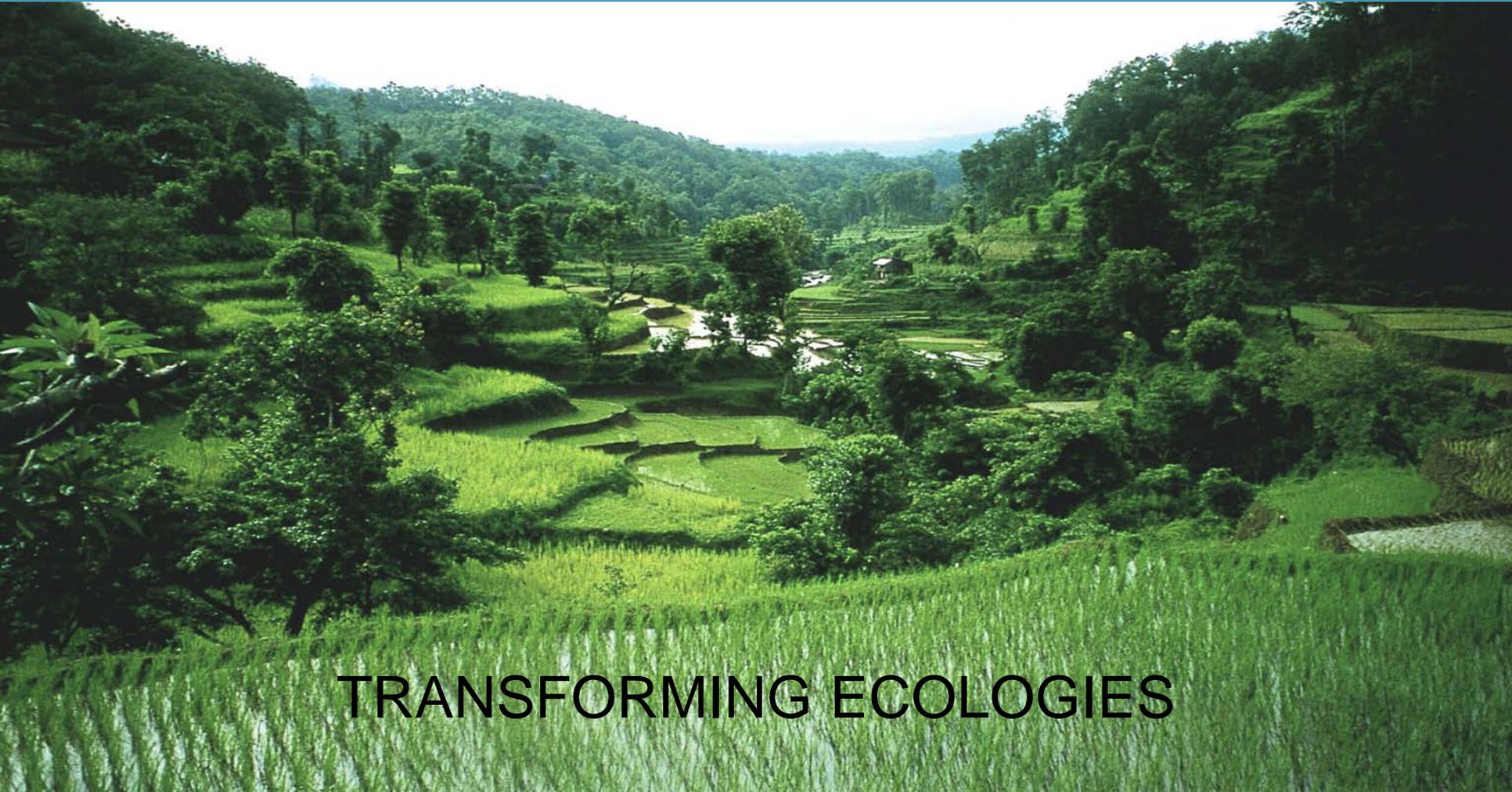
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*Photo: Julie Larsen Mahe*



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## TRANSFORMING ECOLOGIES



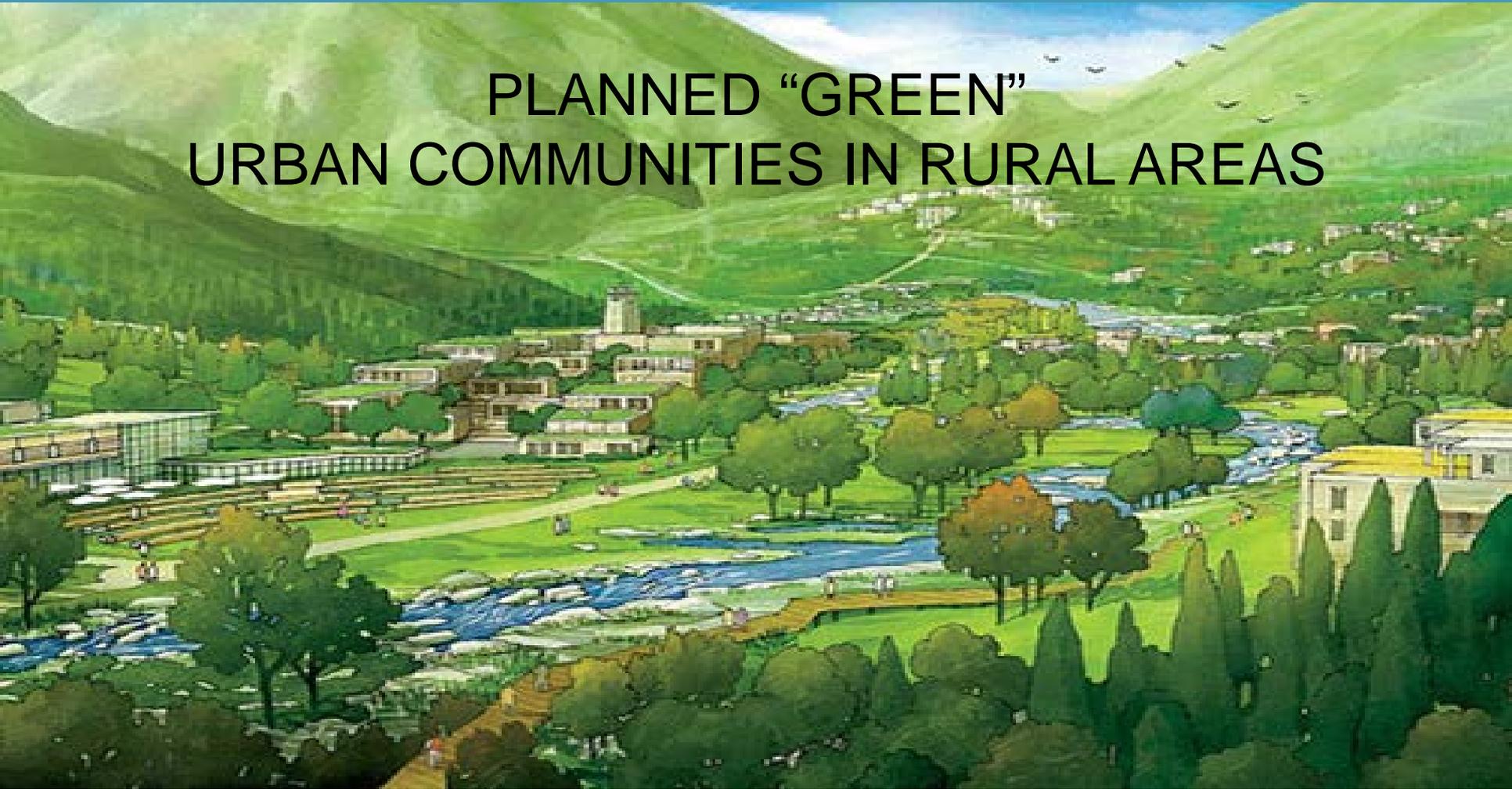
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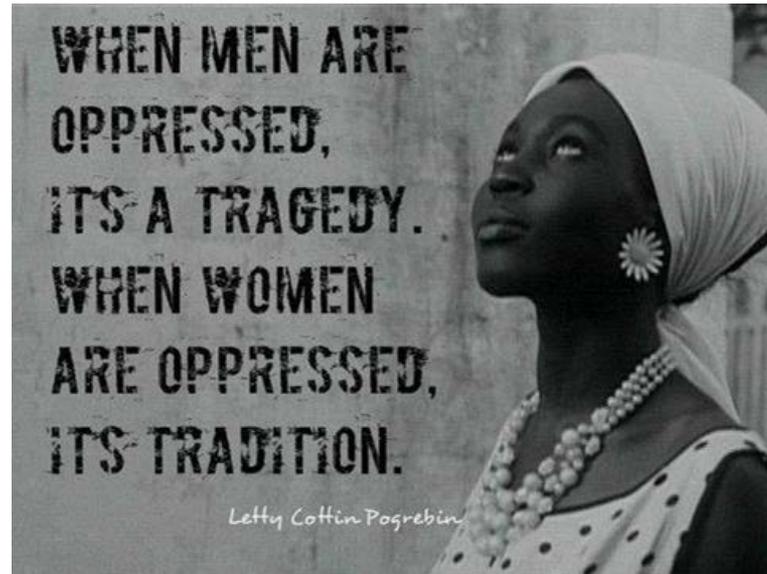
## PLANNED "GREEN" URBAN COMMUNITIES IN RURAL AREAS



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## TRANSFORMING RURAL SOCIAL SYSTEMS





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## TRANSFORMING NUTRITION? NOT ALL BOWLS ARE EQUAL



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## TRANSFORMING EMPLOYMENT SYSTEMS





## AND MANY MORE TRANSFORMATIONS

- Behavioral systems
- Migration patterns and system
- Rural market systems
- Rural food systems employment
- Rural service employment
- Non-commodity rural economies





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THERE ARE  
MULTIPLE DRIVERS,  
POLICY LEVERS AND INDICATORS



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## TOP-LINE GOALS



### Brazil

- World's 3rd largest agricultural exporter and 8th largest economy
- 1992/94 – 2012/14 Food production up 125%
- Poverty: 3.7% (2014)
- Stunting: 7.1% (2007)
- Underweight: 2.2% (2007)

### Niger

- Reclaimed 5,000,000 ha, 1/3 of arable land
- Food production up 158%, 1992/94 – 2012/14
- Poverty: ↓ 35.7 ppt (1994–2014)
- Stunting: ↓ 11.2 ppt (2000–2014)
- Underweight: ↓ 5.7 ppt (2000–2014)

Which country has an exemplary transformation that can be a model for your Feed the Future country?

- 2017 resurgence of deforestation
- 7% of global agricultural GHG emissions

- Ranks last on UNDP's 2015 Human Development Index





## TAKEAWAYS

- “Transformation” takes complex forms
  - And affects many systems
- There are multiple drivers and measures of transformation
  - Including policy levers as drivers
  - And different drivers affect different systems differently
  - The “optimal” transformation and policy drivers are very country- and context-dependent





## HOW DO WE GET THERE? TRENDS AND OPPORTUNITIES

- Green Revolution pattern:
  - Via research and technology driven increases in farm productivity (e.g., research to develop semi-dwarf rice)
  - Accompanied by manufacturing-led urban jobs growth
  - Capturing urban agglomeration economies
- But today's transformations will be different





## TODAY'S TRANSFORMATIONS WILL BE DIFFERENT

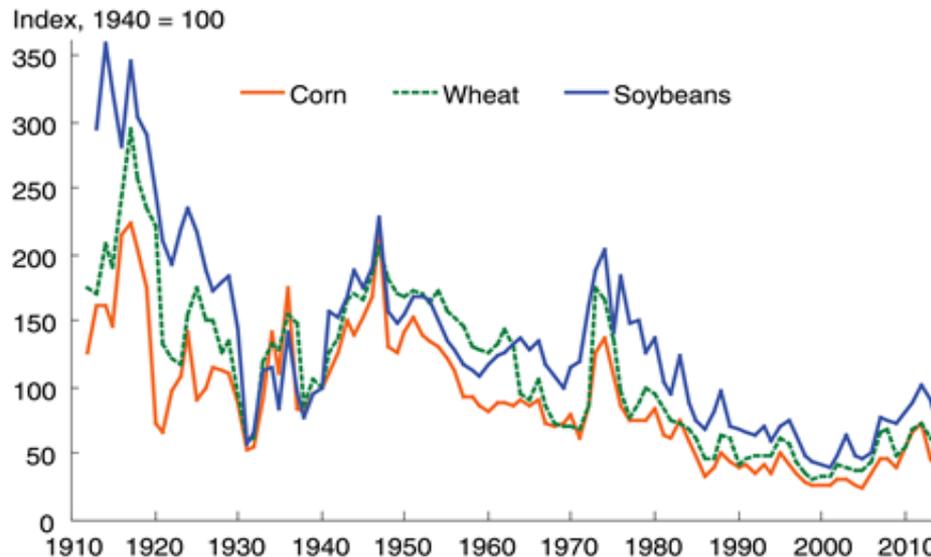
- Declining terms of agricultural trade
- Demographics
- De-industrialization
- Global climate change
- Lengthening food supply chains & dietary change





## DIFFERENCE: DECLINING AGRICULTURAL TERMS OF TRADE

**Inflation-adjusted corn, wheat, and soybean prices, 1912-2014**



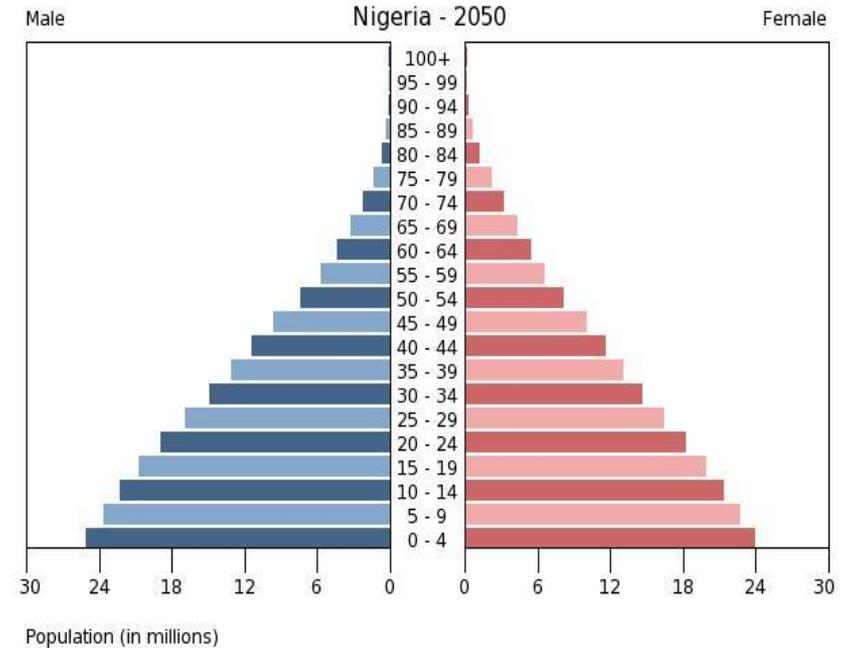
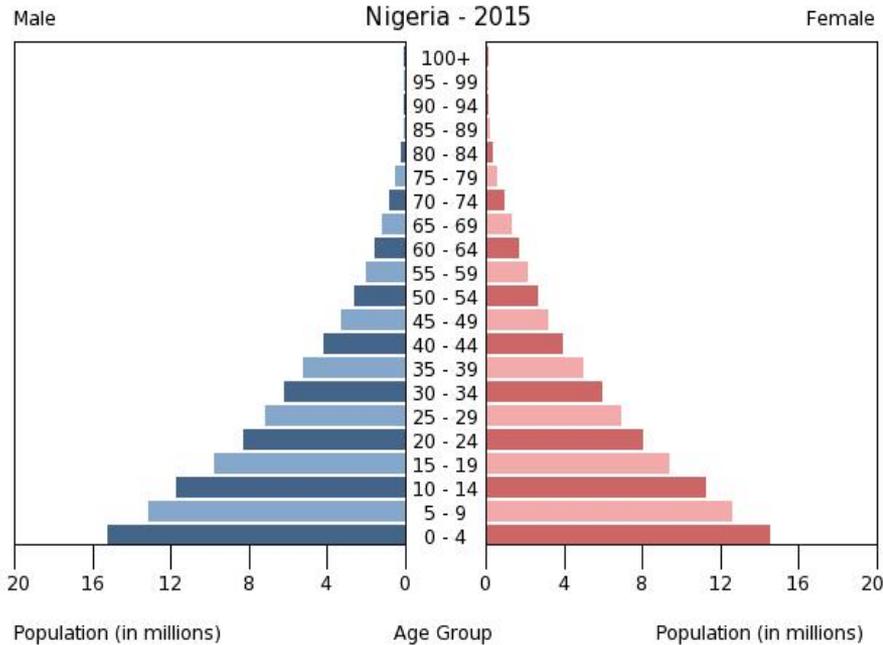
Source: USDA, Economic Research Service calculations using data from USDA, National Agricultural Statistics Service and U.S. Department of Labor, Bureau of Labor Statistics.





## DIFFERENCE: DEMOGRAPHICS

### Nigeria 2015 and 2050





## DIFFERENCE: DEINDUSTRIALIZATION

2015 Chinese cell phone manufacturing technology  
reduces work force by up to 90%





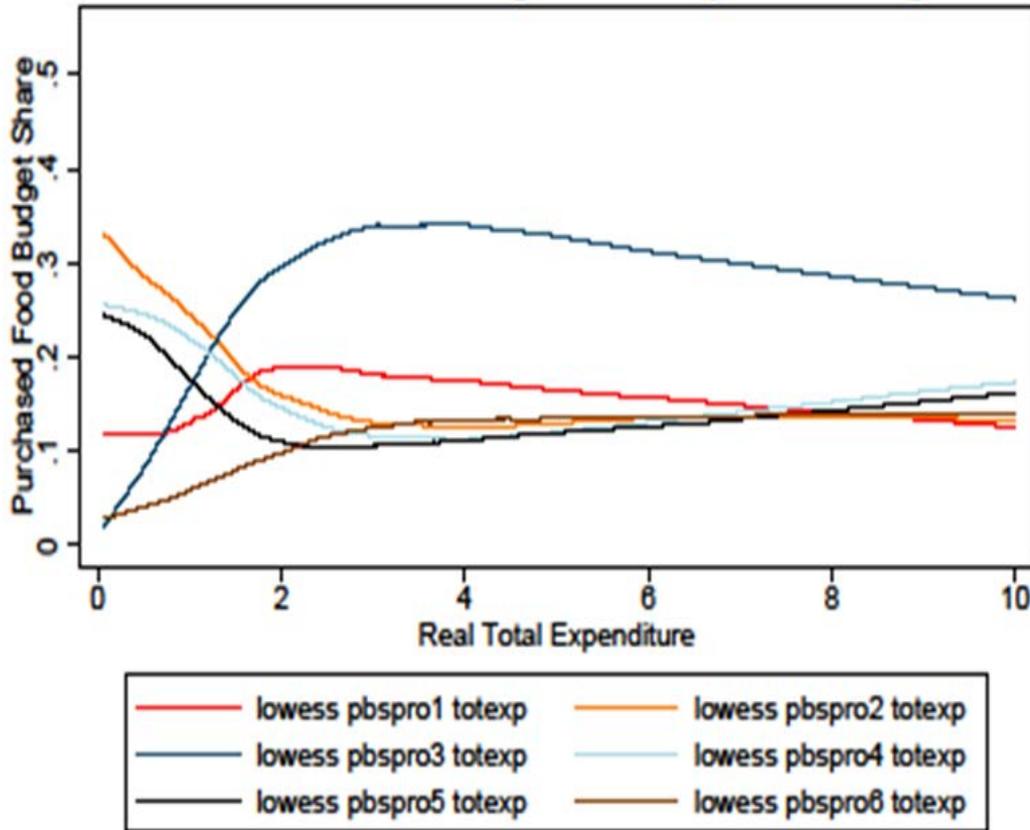
## DIFFERENCE: LENGTHENING FOOD SUPPLY CHAINS

- Food is becoming more purchased: about 50% of food by value in rural Africa to 70% in Asia
- Food is becoming more perishable: 50%–70% of dietary costs; meats, dairy, fruit & vegetables
- Food is becoming more processed: >50%





## ESA Purchased Food Budget Share by Processing Levels



- Unprocessed non-perishable
- High processed non-perishable
- Low processed perishable
- Low processed non-perishable
- Unprocessed perishable
- High processed perishable

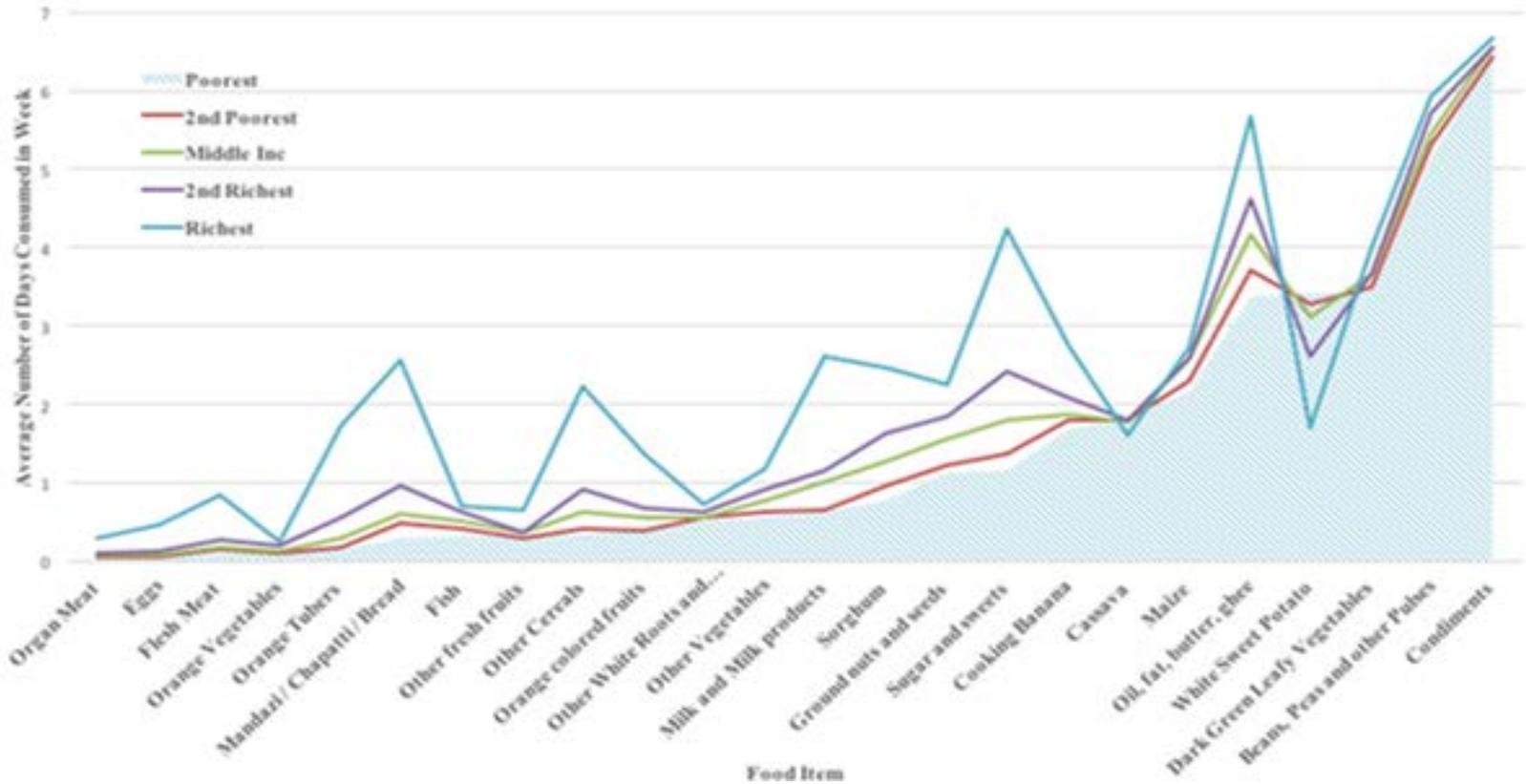
Source: Author calculations from LSMS data sets





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Average Number of Days/Week a Food Item Is Consumed by Household Income Group.

Source: Weatherspoon et al. 2017.



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## DIFFERENCE: WHERE VALUE IS CREATED

- Africa: Farm value is 40% of retail food cost
- South Africa: Wheat 13%–18% of retail bread cost
- Yet, debate on Ag Research is 90% on-farm





## DIFFERENCE: IMPORTANCE OF SECONDARY, TERTIARY CITIES

- 60% of urban pop. in 2nd, 3rd cities
- Critical points in rural-rural, rural-urban, and urban-rural food flows
- Employment and growth centers
- Sustainable escape from rural poverty





## THEN WHAT PATH TO TAKE?

- On-farm productivity
- Value chain productivity
- Rural job creation (food and non-food)
- Rural preparation for migration to city
- Development of rural towns and small cities
- Develop food market systems plus a broader set of rural goods and market services to support urban and rural growth





## TAKEAWAYS

- “Transformation” takes complex forms
- And affects many systems
- There are multiple drivers and measures of transformation
  - Including policy levers as drivers
  - And different drivers affect different systems differently
- We can't get there the old fashioned way, but we can get there
  - Better on-farm/off-farm balance
  - Market systems





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