

# The Role of Agriculture in Transformational Development in Sub-Saharan Africa

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John Staatz ([staatz@msu.edu](mailto:staatz@msu.edu))

Duncan Boughton ([boughton@msu.edu](mailto:boughton@msu.edu))

Steve Haggblade ([blade@msu.edu](mailto:blade@msu.edu))

**Food Security III Cooperative Agreement**

Dept. of Agricultural Economics

Michigan State University



## Objective

### Examine the relationships between:

- *Agricultural transformation*
- *Structural transformation*
- *Transformational development*



# Outline of the Presentation

- Paradox of investing in agriculture in order to make the economy less agricultural
- How agriculture contributes to structural transformation
- Contributions of investments in agriculture and the food system to transformational development
- How this approach succeeded in Asia
- Special challenges in Sub-Saharan Africa
- Illustration of a way forward: NEPAD/CAADP



## Agricultural growth, economic growth, & poverty alleviation

- $\frac{3}{4}$  of poor are rural, depend directly or indirectly on agriculture
- Therefore, agricultural growth is the most powerful poverty-reducing engine available (Byerlee et al. 2005, Diao, ....). More than twice as powerful than other sectors (Christaensen et al.)
- But poverty-reducing power depends on:
  - Type of agricultural growth fostered
  - How agriculture and consumers are linked to the rest of the economy





# Paradox of investing in agriculture to foster structural transformation

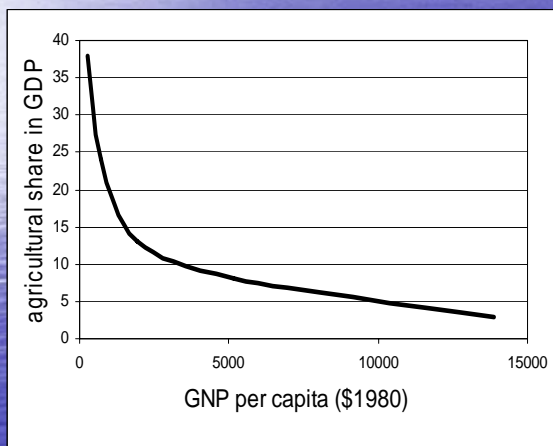
	Agriculture-based countries	Transforming countries	Urbanized countries
<b>Demographic and economic information in 2002 (74 countries)</b>			
GDP per capita (2000 US\$)	339	873	3,109
Rural population (million)	398	2,190	259
Share of rural population (%)	69	65	27
Share of agriculture in GDP (%)	31	15	6
Share of agriculture in GDP growth (%) (1990-2005)	27	8	4
Agricultural growth (%) (1990-2005)	3.2	2.9	1.6
Non-Agricultural growth (%) (1990-2005)	2.8	7.2	2.2
<b>Poverty (\$2 a day) in 2002 (60 countries)</b>			
Number of rural poor (million)	278	1,530	91
Rural poverty rate (%)	83	73	36
Urban poverty rate (%)	73	36	22
Share of rural poor in total poor (%)	70	79	39



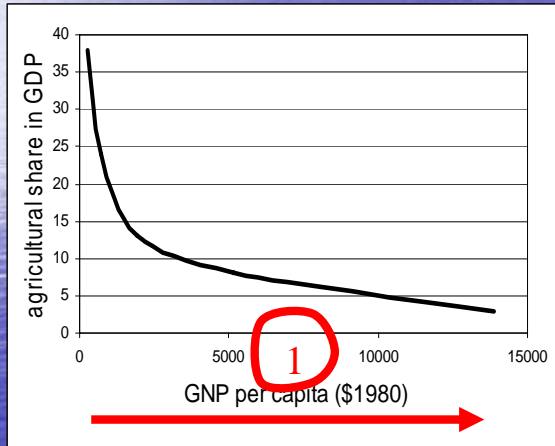
Source: World Bank, World Development Report 2008



## Structural transformation

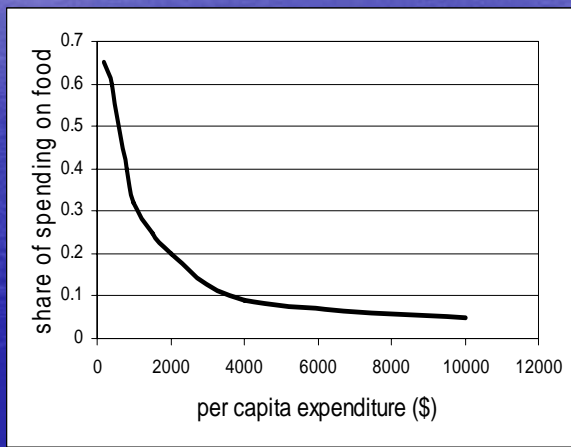
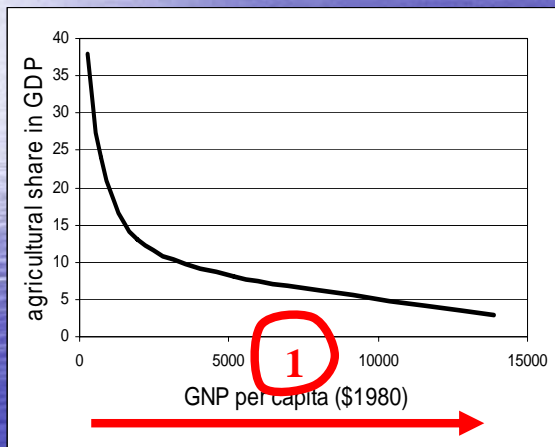


# Structural transformation

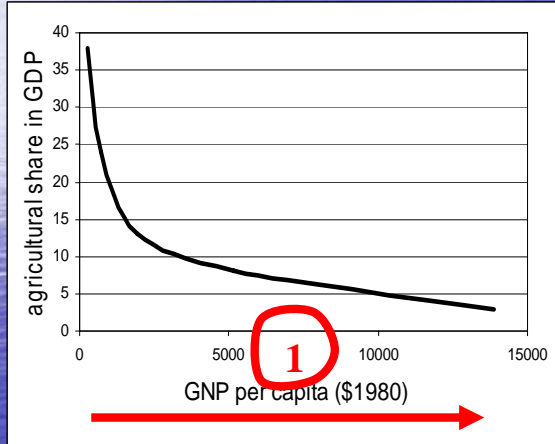


# Structural transformation

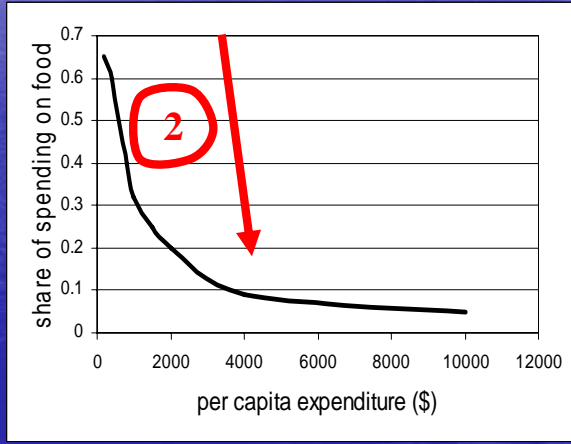
## Engel's Law



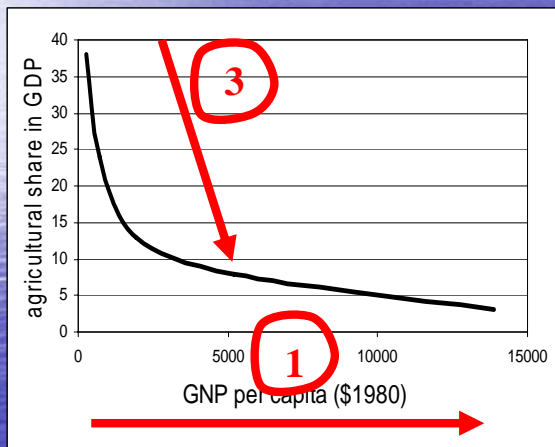
# Structural transformation



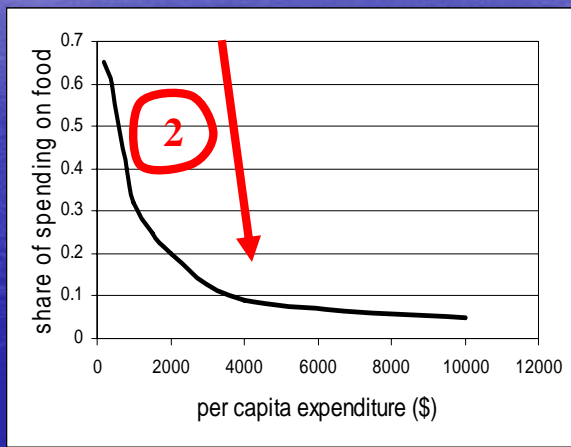
# Engel's Law



# Structural transformation



# Engel's Law





# The Structural Transformation

- The process by which increasing proportions of employment and output of an economy are accounted for by sectors other than farming as per capita incomes rise.
- Movement of the economy away from subsistence-oriented household-level production towards an integrated economy based on specialization and exchange.
- Linking of household to the knowledge system of the wider world.



So why invest in agriculture and the food system? Their contributions to structural transformation:

- Labor
- Food
- Capital
- Foreign exchange
- Market for non-agricultural products
- Incentives for more efficient (less liquid) investments



## Pathways between agricultural growth, broader economic growth, and poverty alleviation

- Direct participation
  - As family farmers
  - As farm laborers
- Indirect (linkage) effects
  - Production linkages (backward & forward)
  - Factor market linkages
  - Consumption Linkages
  - Productivity linkages
- Wage-good effects



## Pathways between agricultural growth and poverty alleviation

- Both direct and indirect effects depend both on technology *and* institutions, especially markets
- Experience of Green Revolution in Asia was that the *indirect* effects (especially the consumption linkage and wage-good effects) had bigger anti-poverty effects than the direct effects.





## Agriculture's Contributions to Transformational Development

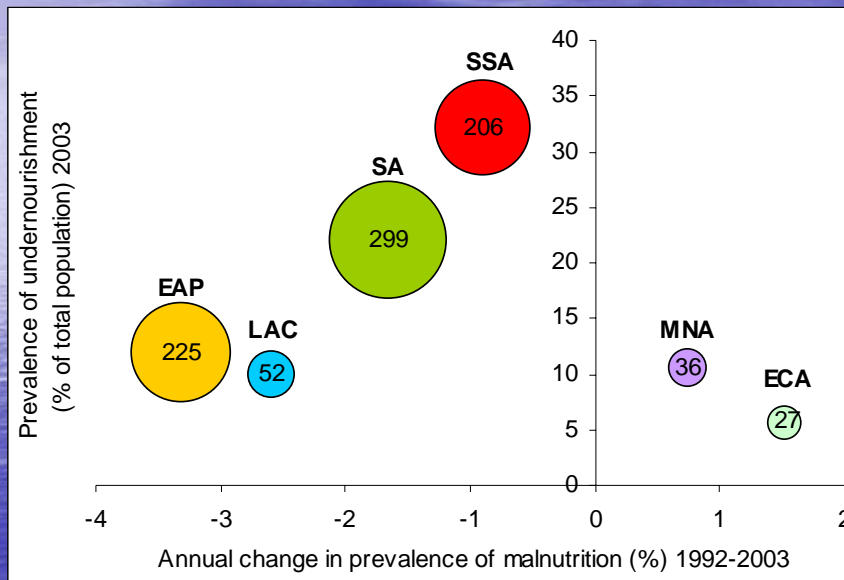
<i>Type of Country</i>	<i>Peace &amp; Security</i>	<i>Good Governance</i>	<i>Investing in People</i>	<i>Economic Growth</i>	<i>Humanitarian Assistance</i>
<i>Rebuilding</i>					
<i>Developing</i>					
<i>Transforming (e.g., Mali)</i>	F.S. as a political priority	Local gov't focus on food security	Local tax base for education	Spurring broader econ. growth	Avoid/mitigate disasters & improve their management
<i>Sustaining Partnership</i>					
<i>Restrictive</i>					
<i>Global or Regional</i>	Very important in Africa given small size of most African economies				

## How did it work in Asia? The Asian Green Revolution model

- Productivity increase in staple crop grown by smallholders →
  - Income increase of adopters
  - Some increase in labor demand for staples production
  - Increased labor demand in forward and backward linked industries
  - Big increase in employment in labor-intensive goods demanded by richer staple food producers (and those in linked industries)—often horticulture and animal products (e.g., dairy)
  - Lower staple food prices:
    - Increased real income of huge number of low-income consumers
    - Held down wage rates, allowing expansion of non-agricultural employment



# Progress in Asia; less in SSA



SSA=Sub-Saharan Africa  
SA=South Asia  
LAC= L. Amer. & Caribbean  
EAP = East Asia & Pacific  
MNA = Middle East & N. Africa  
ECA= Europe & Central Asia



Source: World Bank, World Development Report 2008



## Is the Asian model appropriate for Sub-Saharan Africa?

- While same basic principles apply, structural differences between Asia and SSA imply that Africa's green revolution(s) will look very different from those in Asia, suggesting the need for some different strategies.



# A few key structural differences

- Size & diversity of Africa → diversity of farming systems
- Population density & infrastructure density
  - Marketing costs
  - Production/marketing risks
  - Investment challenges



# A few key structural differences

- 48 separate states, many small
  - Scale & spillovers
  - Importance of regional trade & transaction costs
  - Need for regional cooperation
- Diversity of smallholders
  - Size of farm
  - Asset base
  - Market involvement





# Diversity of smallholders

- A minority of smallholders will be able to “farm their way out of poverty”
- Therefore:
  - The *indirect* impacts of agricultural growth become extremely important for poverty reduction
  - Need complementary investments (e.g., in education, labor & land market improvements) to help the most resource-constrained move out of poverty agriculture



# Implications for an ag strategy

- Different technological needs for different types of smallholders
  - E.g., yield stabilization vs. yield growth
  - Different mix of crops and livestock
  - Value chains vs. making rural food markets work better
- Need to focus on both types of farmers

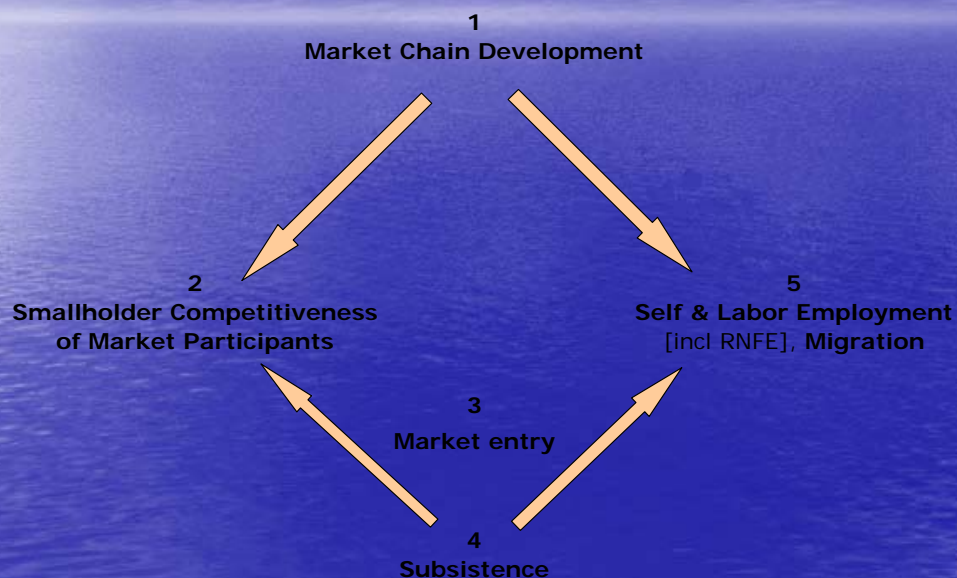


# Making rural institutions work better

- Farmer and trader organizations for:
  - Collective action in input supply, marketing, and extension
  - Lobbying for more pro-agricultural policies
- Complementary investment to increase labor mobility, including intergenerationally
  - Rural education
  - Easing migration and remittances



## *Five dimensions of an agriculture-for development strategy*



Source: World Bank, WDR 2008





# Dealing with the Small-Country Challenge: The NEPAD/CAADP Process

How does the Food Security III LWA contribute to USAID's transformational growth objectives?



## CAADP Focus

- CAADP links global, continental, subregional and national initiatives.
- CAADP targets for agricultural sector growth and public sector investment are a focal point for
  - mobilizing resources
  - prioritizing resource allocation
  - supporting regional and national policy change to increase returns
- Investment programs organized in four pillars through regional and country compacts



# CAADP Pillars

1. Extending the area under sustainable land management and reliable water control systems;
2. Improving rural infrastructure and trade-related capacities for market access;
3. Increasing food supply, reducing hunger, and improving responses to food emergency crises; and
4. Improving agriculture research, technology dissemination and adoption.



# FSIII support to CAADP design and implementation

- Regional Economic Community
  - COMESA
  - ECOWAS
- Country level
  - Kenya, Malawi, Mali, Mozambique, Niger, Zambia
- Hallmarks of country and regional support
  - Close collaboration with IFPRI and ReSAKSS
  - Effective integration of in-country MSU faculty
  - Build on foundation of core-funded applied research drawing lessons across countries on what works





# Examples of recent progress

- Regional level
  - preparation of concept paper for Pillar 3 in collaboration with COMESA
  - MOU with COMESA on applied research to support regional trade expansion in food staples
  - Preparation for country level compact preparation with ECOWAS and COMESA



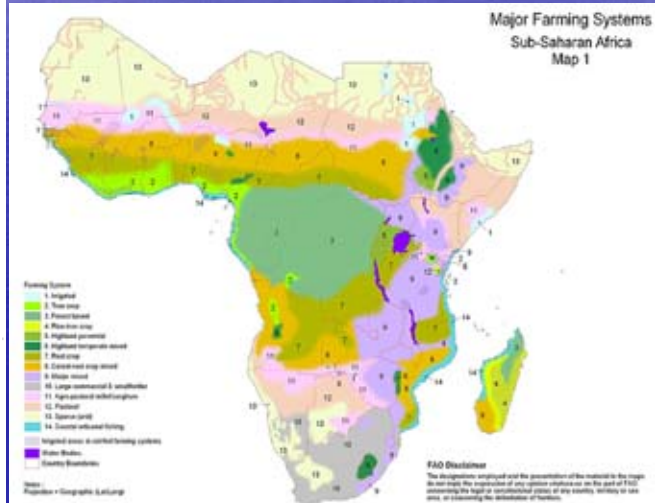
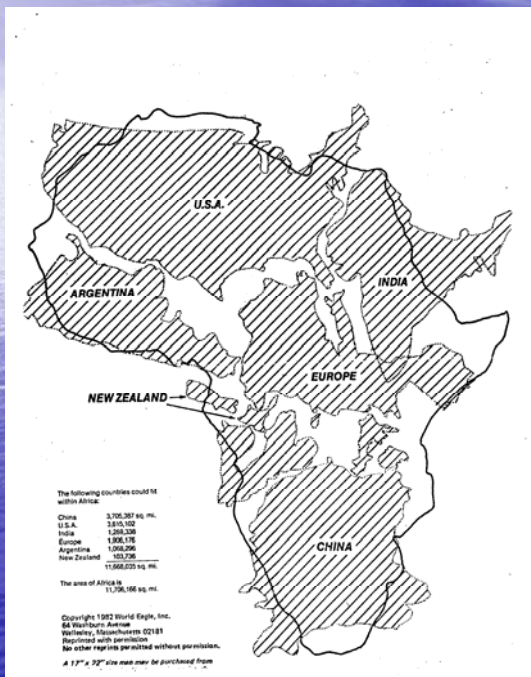
# Examples of recent progress

- Country level
  - Completion of agricultural public expenditure analysis for Zambia
  - Analysis of agricultural research priorities and preparation of an investment plan for Mozambique's new agricultural research institute
  - Evaluation of Malawi's agricultural input subsidy program and market-smart options
  - Measurement of rural household income growth and impacts of HIV/AIDS



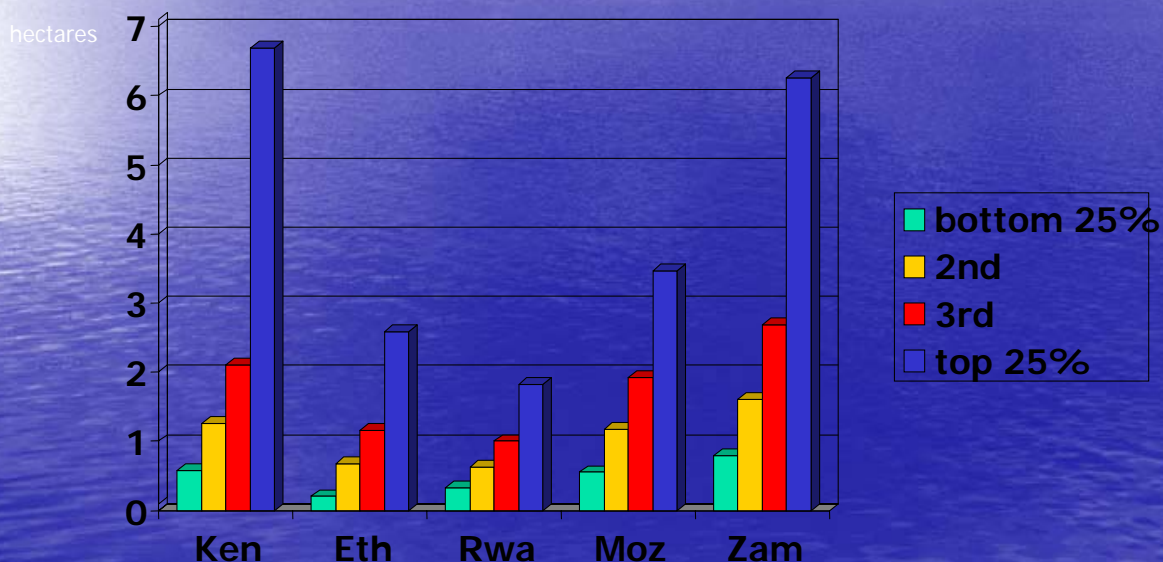
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very much!

## Africa's size & diversity





## Farm size distribution: Small farm sector

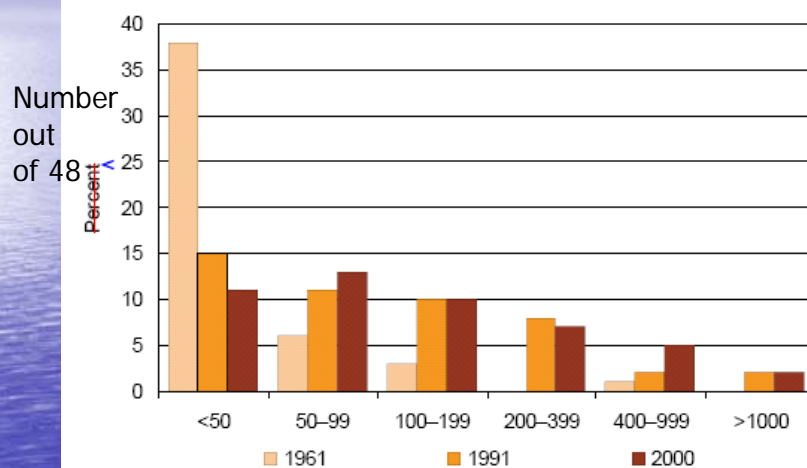


## Infrastructure Density

- % arable land irrigated
  - India, 1961: 15.8%
  - Dev. Asia, 1961: 21.5%
  - SSA, 2003: 3.5%
  - Cost of increasing Africa's irrigation to India's in 1961: at least \$114 billion
- Road density:
  - India, 1950: 730 km/1000 km<sup>2</sup>
  - SSA, 2003: 201 km/1000 km<sup>2</sup>

# Scale in Agricultural Research

**Figure 9**—Distribution of national agricultural R&D capacity by number of fte researchers, 1961, 1991, and 2000



Sources: 1961 and 1991 data are from Pardey, Roseboom, and Beintema (1997); 2000 data are compiled by authors from datasets underlying the ASTI country briefs and Roseboom, Beintema, and Mitra (2004).

Note: Data includes all 48 Sub-Saharan African countries.

Source: Beintema & Stads, 2006 (ASTI)