

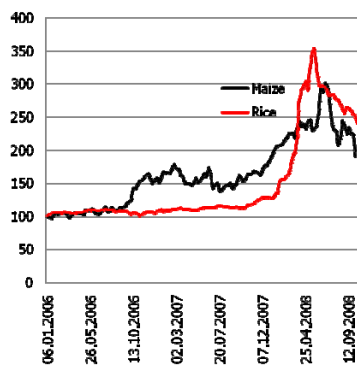
# The Global Food Security Challenge



The Foundation for Science and Technology, Oct 15<sup>th</sup>

## A Global Food Crisis

Indices of World Grain Prices



The Economist

Brazil as the next oil giant  
God help Italy  
London's funny but sad election  
The return of Disney  
Cancer's link to stem cells

The silent tsunami  
The food crisis and how to solve it



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## Impacts of the Price Shocks on the Poor

- ❑ Poverty and hunger
  - 1.4 billion people live on less than \$1.25 per day (WB)
  - 0.9 billion suffer from hunger (FAO)
- ❑ Poor spend 60% of earnings on food
  - Doubling of food prices lowers their real incomes by one third
  - Estimated additional 100 m poor, 75 m hungry
  - Question of survival for many

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## Critical Role of Agriculture in Food Security

- ❑ In ensuring adequate food supply
  - Global food supply and demand (and shocks)
  - National food supply and demand for many countries (Africa, China, India)
- ❑ In providing means for poor to access to food
  - 70 percent of the world's poor are rural, and most depend on agriculture for livelihoods
  - Essential role of agriculture in providing subsistence and incomes of the poor

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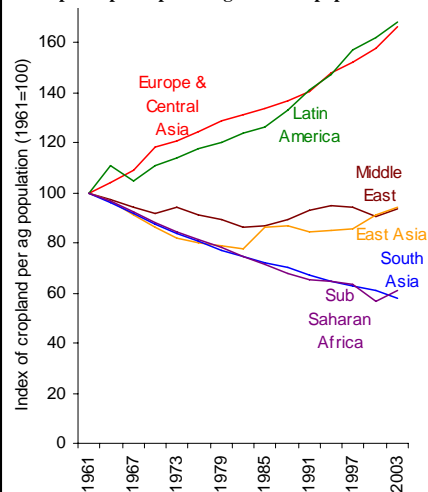
# WHITHER GLOBAL SUPPLY AND DEMAND?



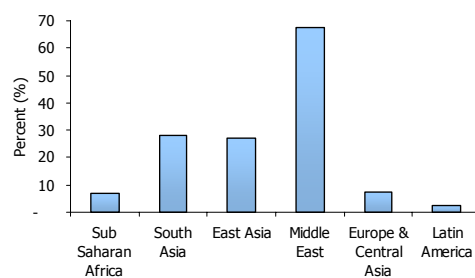
## Global Markets – Supply Side

### Critical land and water constraints

Cropland per capita of agricultural population



% of population in absolute water scarcity

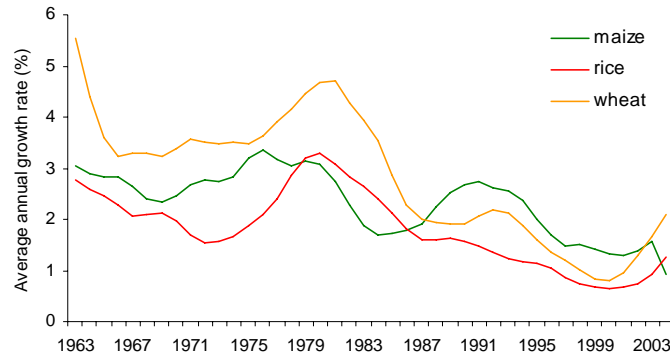




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## Global Markets – Food Supply

Growth rates of yields for major cereals in developing countries is slowing



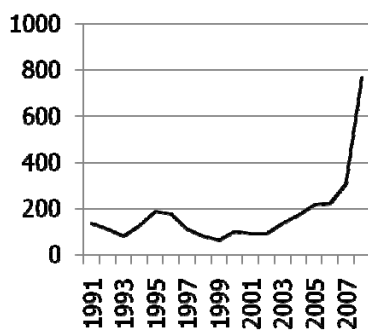
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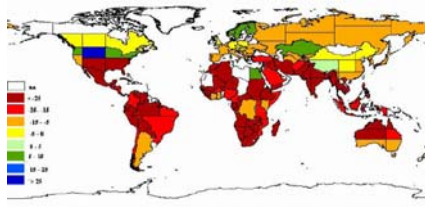
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## Rising Energy Prices and Climate Change

Price of Urea Fertilizer (\$US/t)



Climate change will negatively affect yields in the tropics, 2080



Source: Cline (2007)

**Doubling of oil prices increases grain prices by about 20%**

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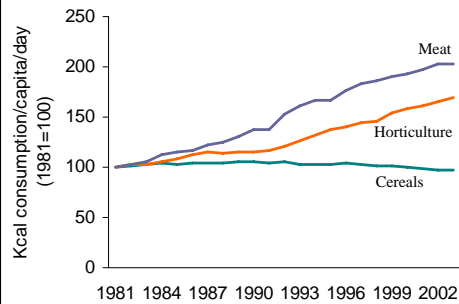


## Global Markets: Demand Side

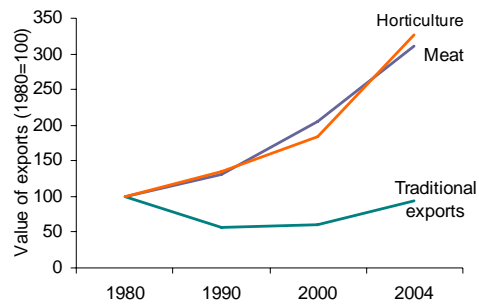
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### Changing diets – Rising demand for high value products (and feed grains)

Developing country consumption



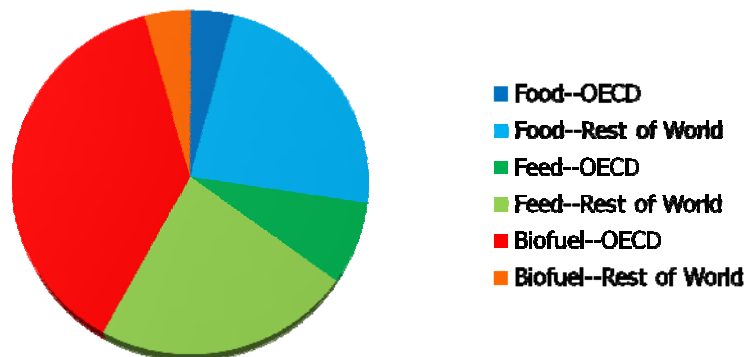
Developing country exports



## Demand for Grain for Biofuels is a Major New Factor in Global Markets

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### Projected Global Increase in Consumption of Wheat and Coarse Grains, 2005-17 (Total 307 M t)



Source: OECD and FAO, 2008



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## Other Factors in Current Price Shock

- ❑ Very low world stocks
- ❑ Accelerating economic growth rates in developing countries (incl. Africa)
- ❑ Drought in Australia and others
- ❑ Decline of the US dollar
- ❑ Response by some major exporters
  - Export bans and tariffs

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## Outlook at Global Level

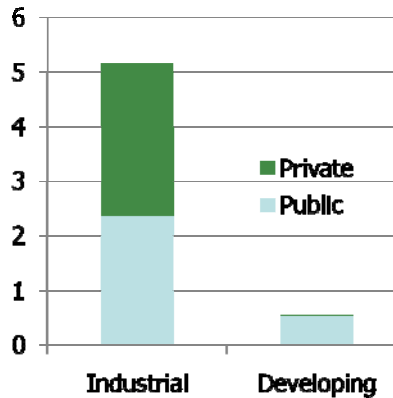
- ❑ Reversal of long term downward trend in food prices with 'business as usual'
  - More severe and frequent shocks
- ❑ Requires emphasis on technological and institutional innovations:
  - Higher **yield** potential to revamp productivity growth
  - Overcoming key resource constraints (**water, drought**)
  - Role of **GMOs** for poor farmers and consumers
  - Substitution of **fossil energy** use
  - Adaptation to **climate change** and reduced GHGs
  - More efficient and inclusive **supply chains**
  - **Risk management** for more frequent price shock

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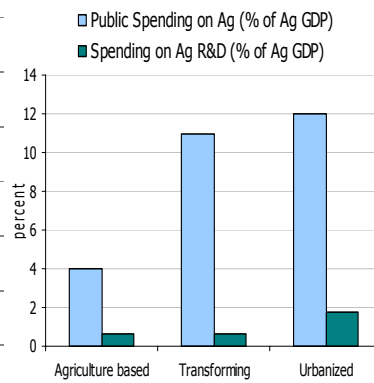


## More and Better Investments in R&D to Bridge Growing Divide

**Agricultural R&D Intensity 2000 (% AgGDP)**



**Agricultural R&D as a Share of Budget, 2000-04**



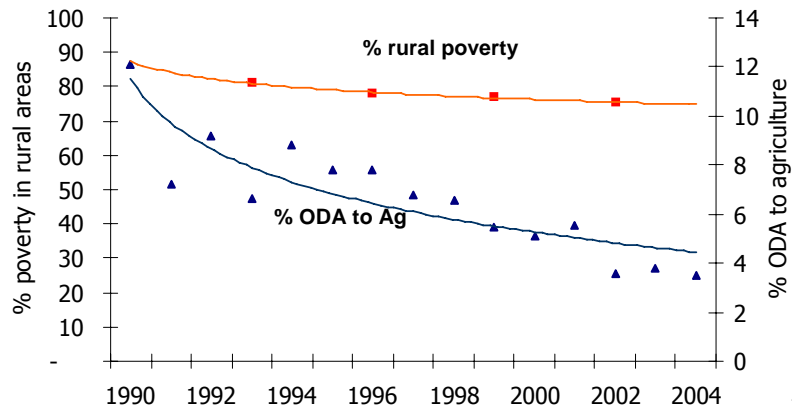
Source: Pardey and Beintema,

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## Global Political Economy

### Reversal of donor support to agriculture to address first MDG on poverty

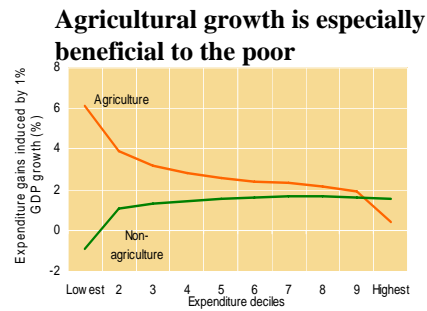


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## Agriculture as a Powerful Engine for Increasing Incomes of the Poor

- Globally 75% of poor live in rural areas and most depend on agriculture
- **Major conclusion of World Development Report 2008:** Productivity growth of smallholder agriculture is especially effective in reducing poverty and hunger



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## ETHIOPIA AS A CASE STUDY OF THE CHALLENGE TO ASSURING FOOD SECURITY

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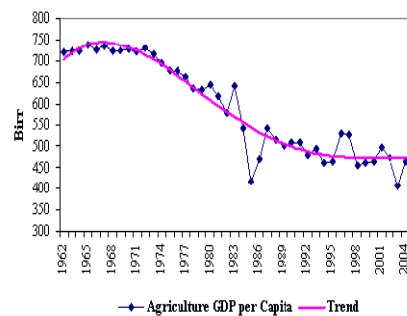




## Ethiopia: The Food Security Challenge

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- ❑ History of food insecurity and famines
  - Population of 85 million
  - 85% rural small-scale farmer with average 1 ha
  - 44% of farmers net food buyers
  - Largest food aid recipient
- ❑ Large agricultural intensification program



## Ethiopia's Next Harvest, 2009?

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- ❑ Cereal prices increased 170%, 2007-08
  - Rapid economic growth—demand for food
  - Drought in the minor season, 2008
- ❑ Insufficient food aid due to high prices in 2008
- ❑ Acute shortage of foreign exchange
  - Rising oil prices wiped out all export revenues
  - Commercial food imports with shortfall in food aid
- ❑ Global fertilizer prices up 3-4 times since 2006
  - No forex
- ❑ Next harvest?



## Implications for the Global Community

- ❑ Do no harm
  - Reform farm and biofuel subsidies
  - Mitigation of climate change
- ❑ Support emergency response
  - Safety nets, targeted food subsidies, food aid
  - Budget and foreign exchange support
- ❑ Invest in global public goods
  - R&D (CGIAR)
- ❑ Get agriculture back on the agenda in foreign assistance

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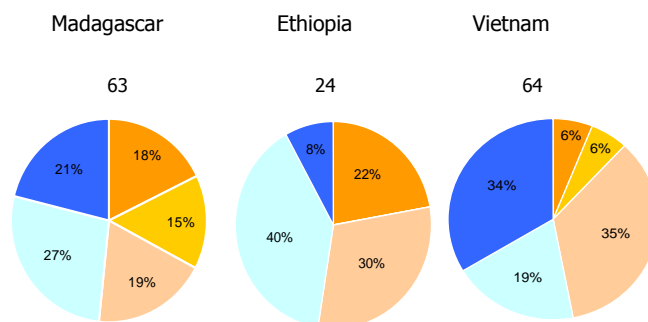


## On what side of the market are most of the poor?

% of internationally traded staples in food consumption of the poor

Distribution of the poor

- Urban (buyers)
- Rural landless (buyers)
- Smallholder net buyers
- Smallholder self-sufficient
- Smallholder net seller



Few will benefit from higher prices as net sellers (in blue)  
Of those, who will have the capacity to respond?

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