



Meeting the Demand for Food:  
Prices or Productivity  
by  
Will Martin and Maros Ivanic

Power Point Presentation for the  
International Agricultural Trade Research Consortium  
Analytic Symposium  
*“Confronting Food Price Inflation:  
Implications for Agricultural Trade and Policies”*

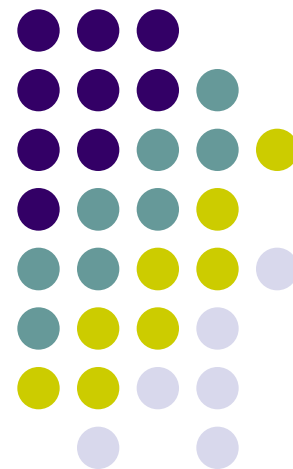
June 22-23, 2009  
Seattle, Washington

# Meeting the Demand for Food: Prices or Productivity?

Will Martin and Maros Ivanic\*

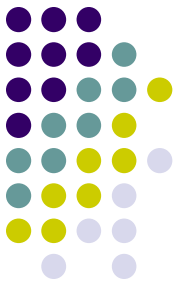
IATRC Seattle Symposium

22 June 2009



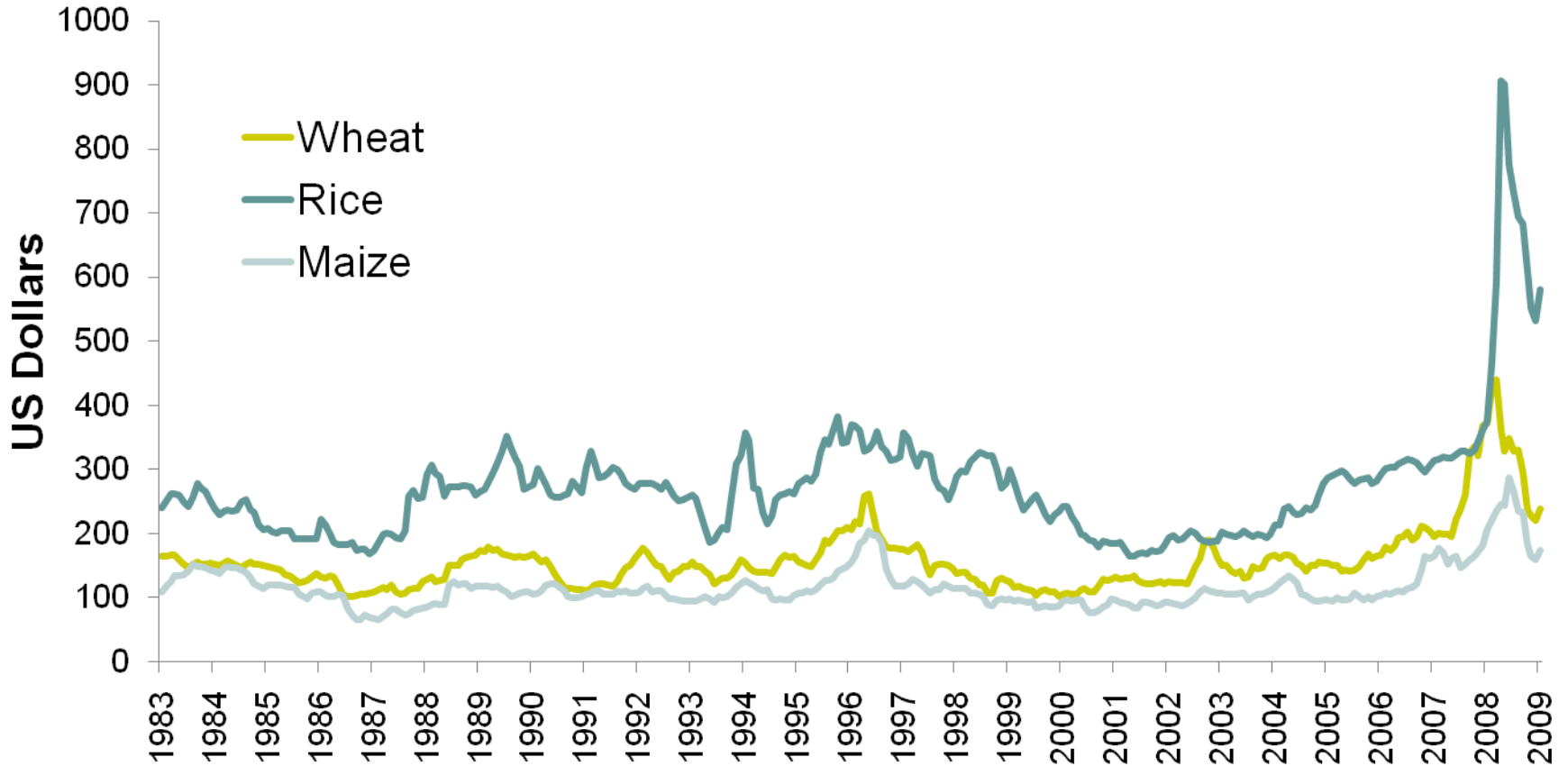
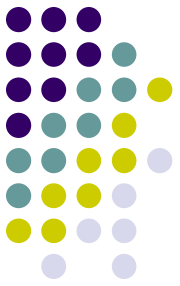
\*This presentation reflects the views of the authors alone

# Key issues



- Demand for food seems likely to grow strongly
  - Food, feed, fuel demand
- Demand can be met by
  - Higher prices or higher productivity
  - Domestic prices may be further increased by protection
- Price instability/vulnerability questions important
- Impacts of higher food prices and of productivity improvements for poverty in poor countries

# Dramatic rise in food prices



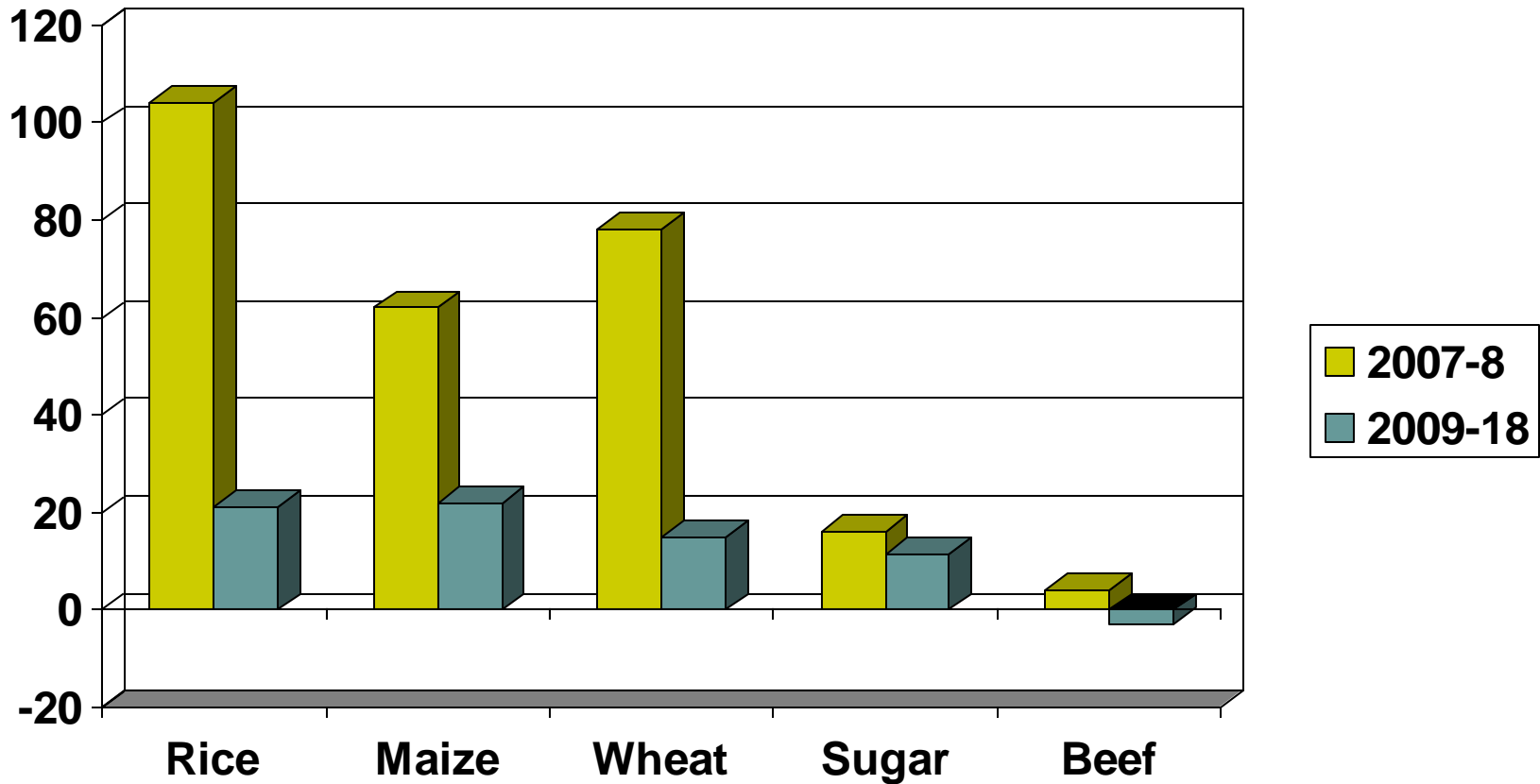
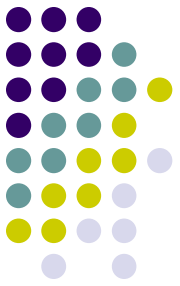
# The spike is over



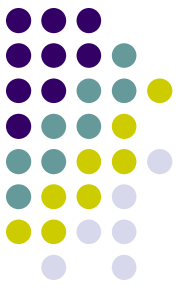
- Food prices seem likely to remain higher
  - Increasing demand for food, feedstuff, fuel
  - Higher energy prices
- What are the implications for poverty?
- How might policy responses affect poverty?

# OECD-FAO projections to 2018

% change relative to previous decade

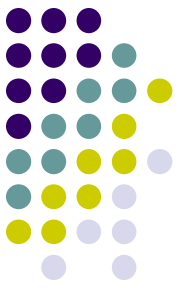


# Impacts of high food prices on poor people an empirical question



- Rural people are almost always poorer than urban, but
  - Poorest spend 75% of their income on staple foods
  - Poor farmers don't gain much from higher food prices
    - Many are net buyers of staple foods
- Impacts on poverty depend on gains to poor net sellers relative to losses of poor net buyers
  - Not enough to know whether poor people are predominantly net buyers or sellers
  - Which commodity prices change may be important

# In our first look at this question



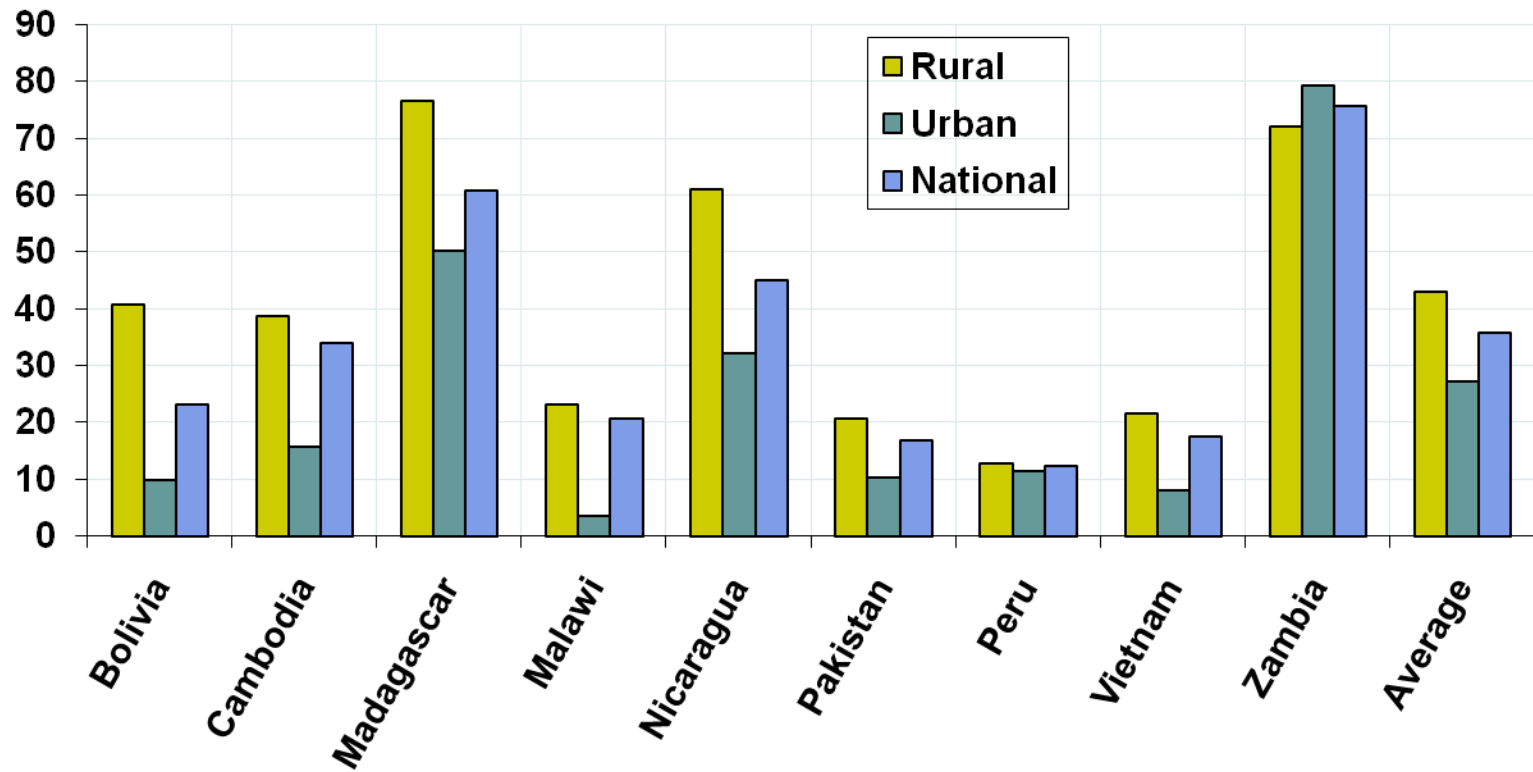
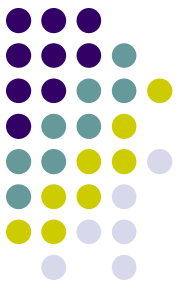
- Obtained data on household production, purchases & sales of major staple foods
  - maize, wheat, dairy, rice, sugar, beef, & chicken
  - sales of unskilled labor
- Obtained household survey data for ten low-income country-periods
  - Bolivia, Cambodia, Madagascar, Malawi, Nicaragua, Pakistan, Peru, Vietnam, Zambia
- Used World Bank \$1 per day poverty rates

# Assessing impacts in poor countries

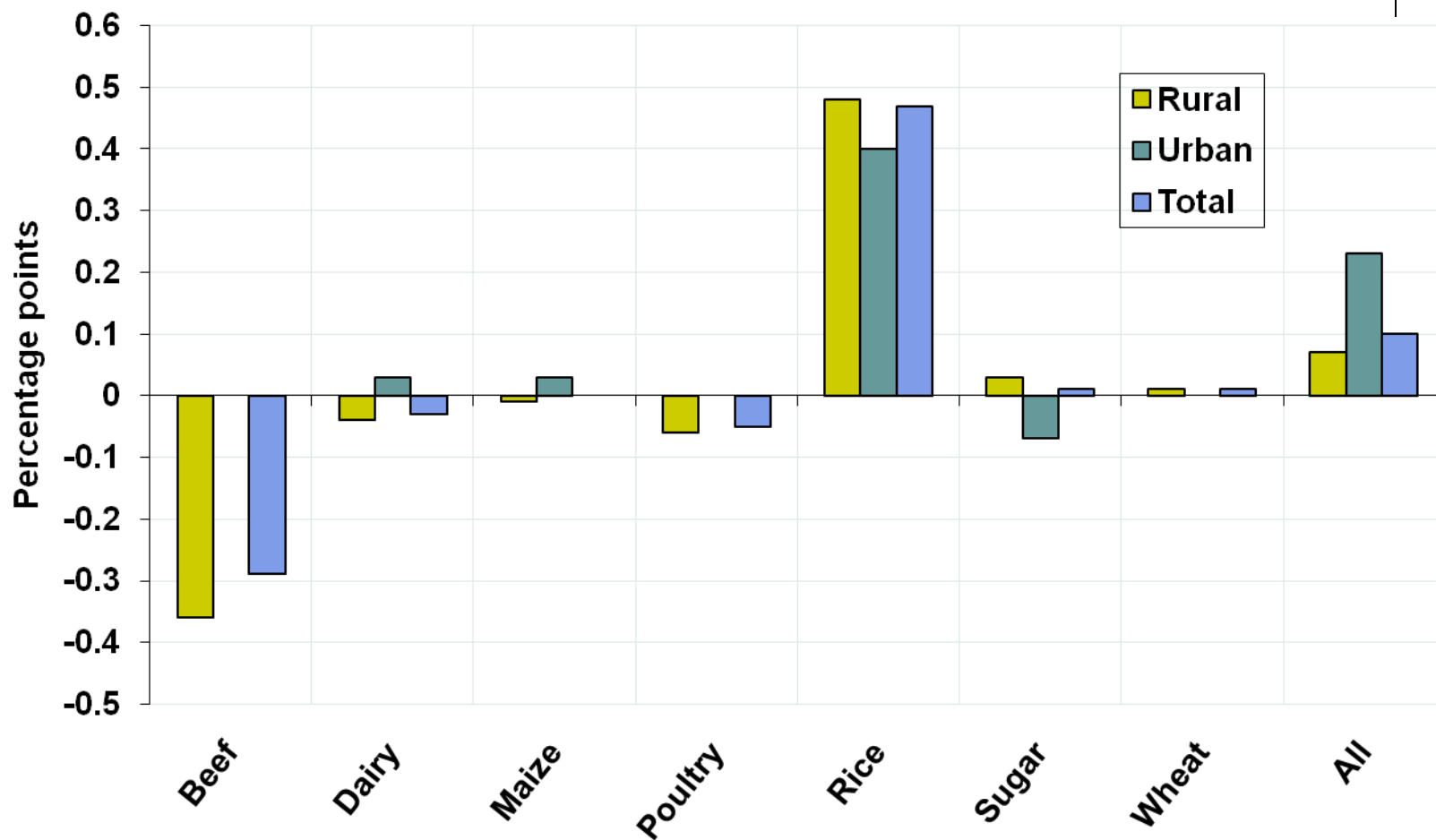


1. First check whether rural poverty rates are higher than urban
2. Assess impacts of 10 % price changes of staple foods to see which are important
  - Take into account impacts through commodity prices & unskilled wages
  - Assess impacts on household welfare
  - Calculate impacts on poverty rates & gaps
3. Consider food price changes 2005- 2008(Q1)

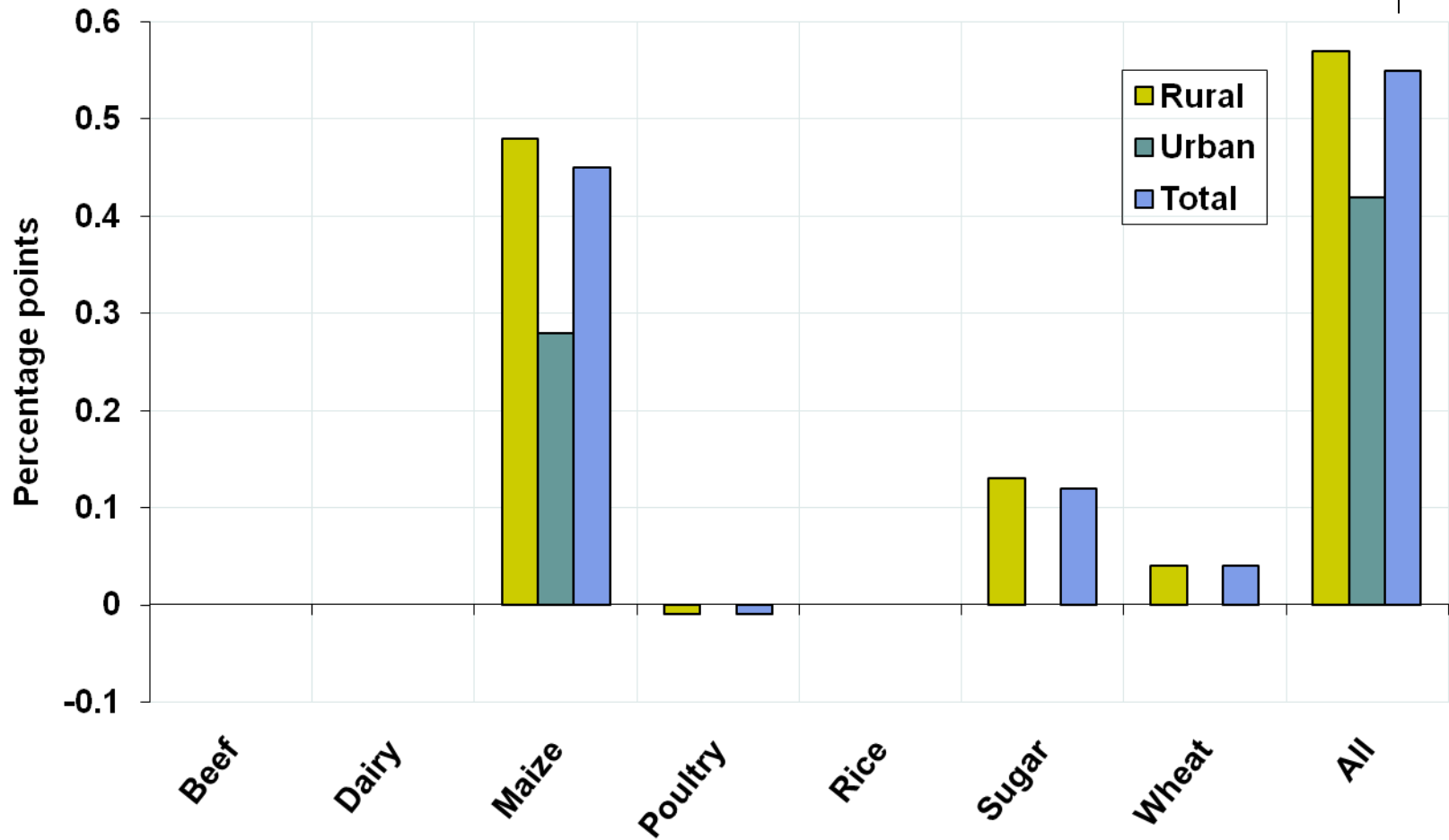
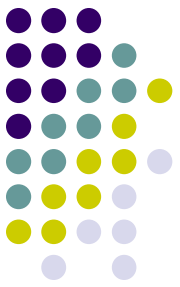
# Rural poverty rates higher in 8 of 9 countries



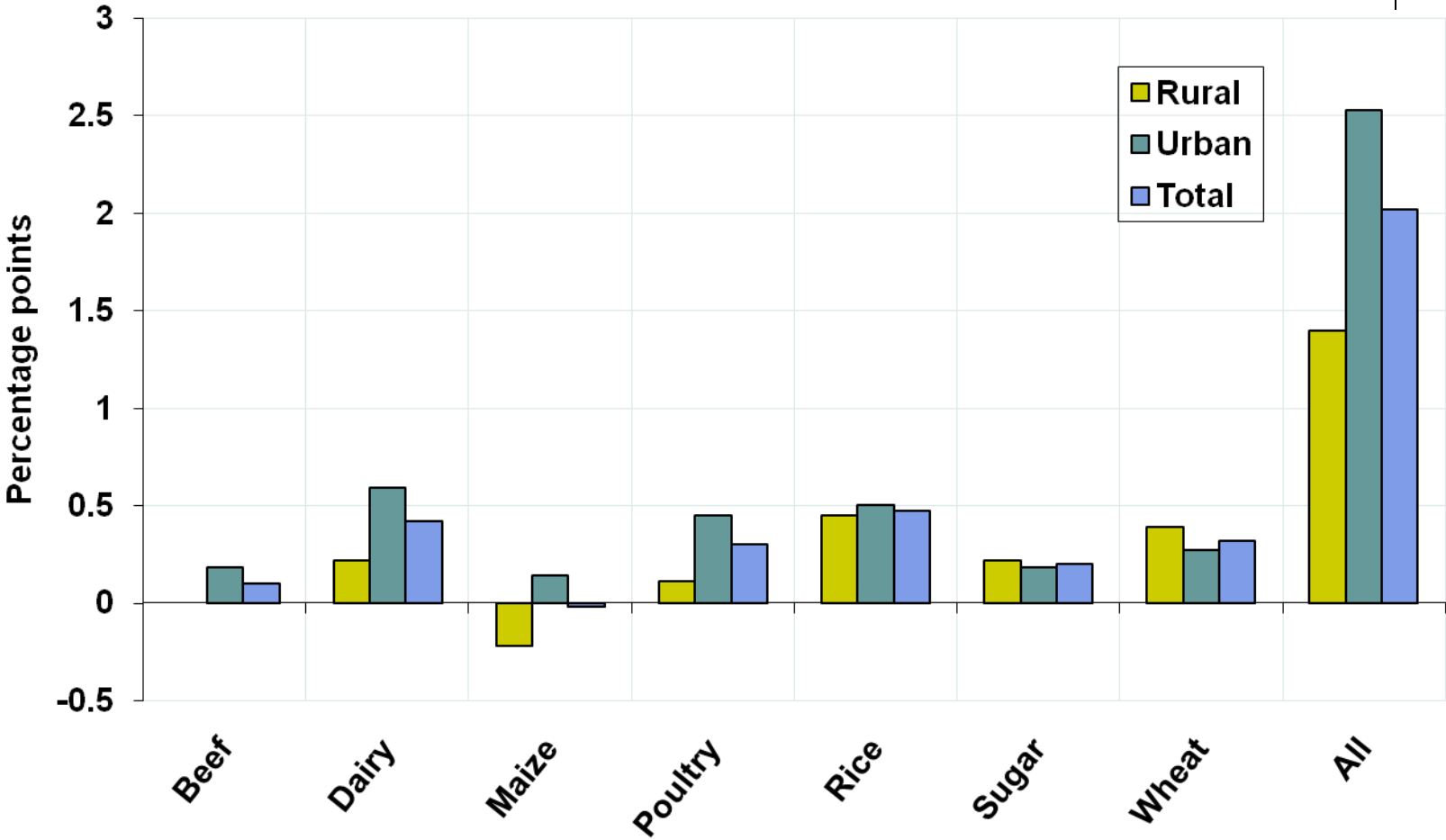
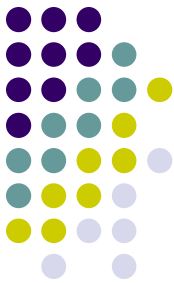
# Change in poverty rates: Cambodia



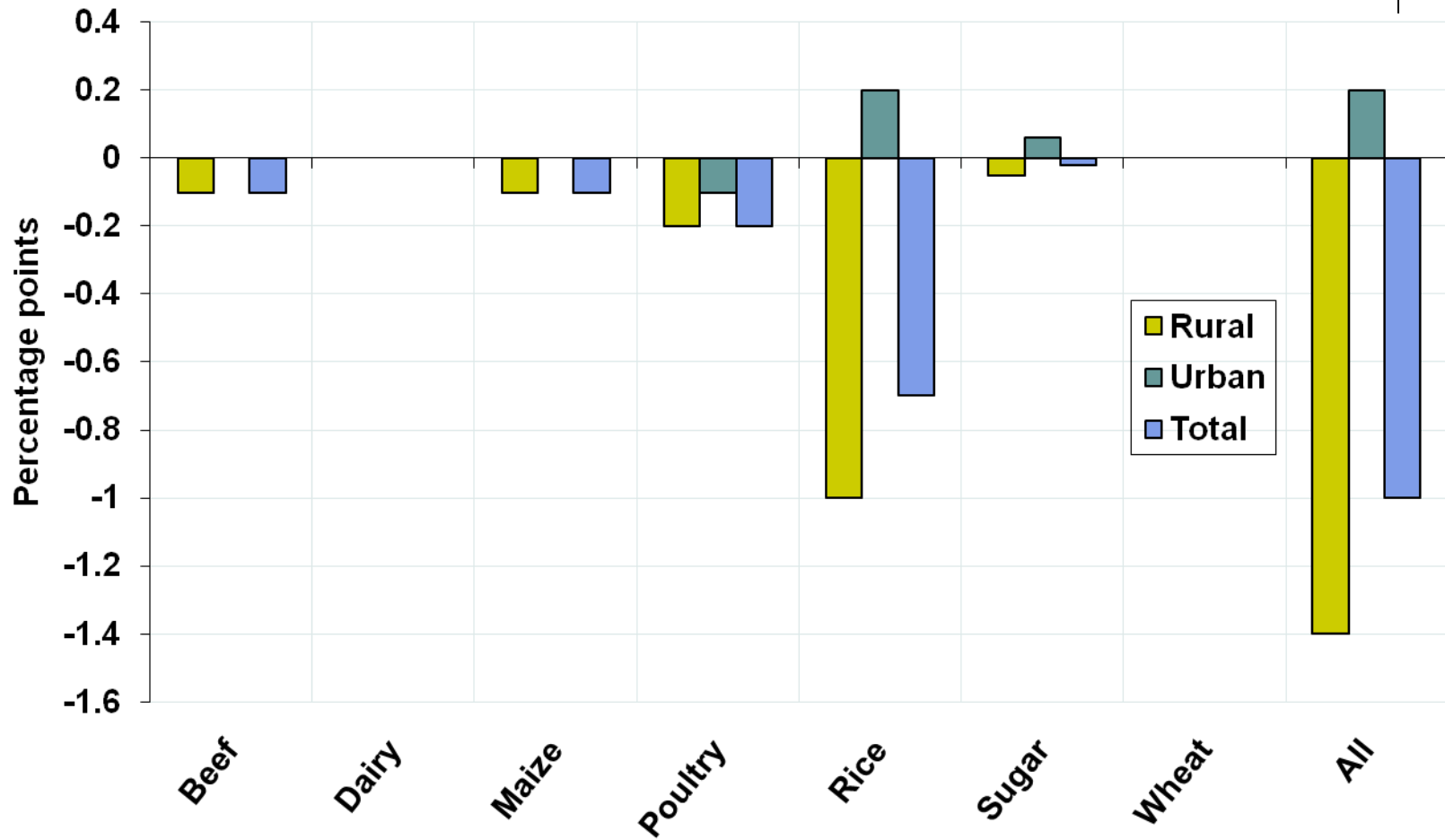
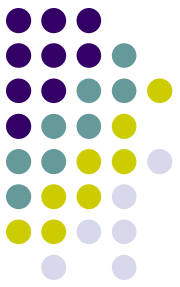
# Change in poverty rates: Malawi



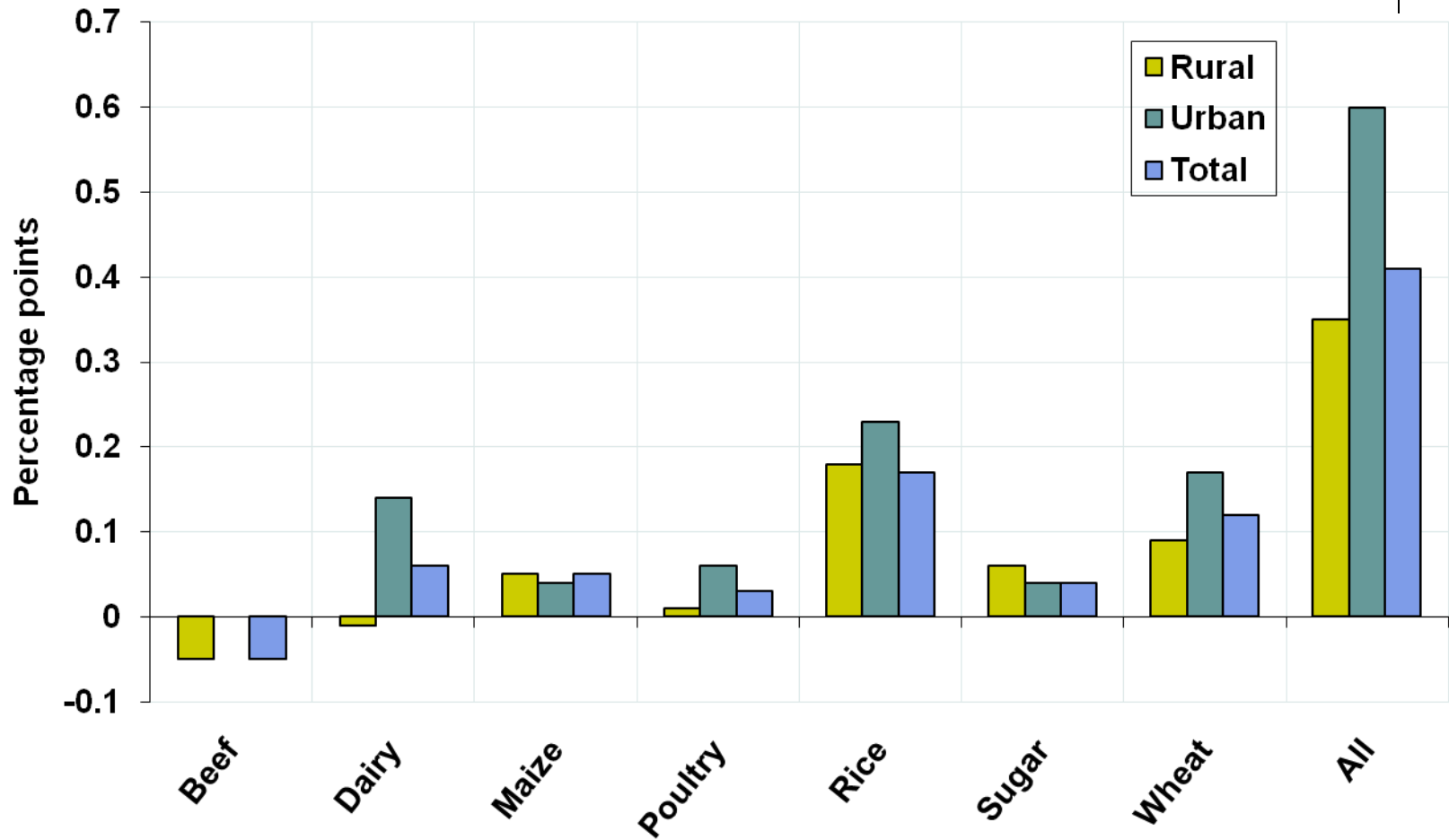
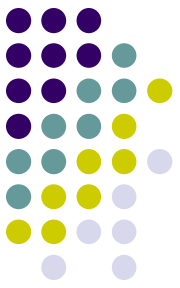
# Change in poverty rates: Nicaragua



# Change in poverty rates: Vietnam



# Change in poverty rates: Average

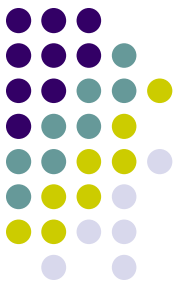


# Effects of food price surge: 2005–2008.Q1



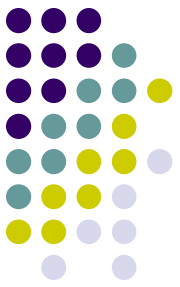
- Big increases in world prices
  - US dollar devaluation & increases in other prices reduce the impact
- Many countries had changed trade policies
  - Export restrictions lowered prices in Vietnam & others
  - Tariff reductions lowered domestic prices in many cases
  - Assume only 66% of price rise transmitted from world prices to domestic

# Percentage point change in poverty rates at \$1/day:



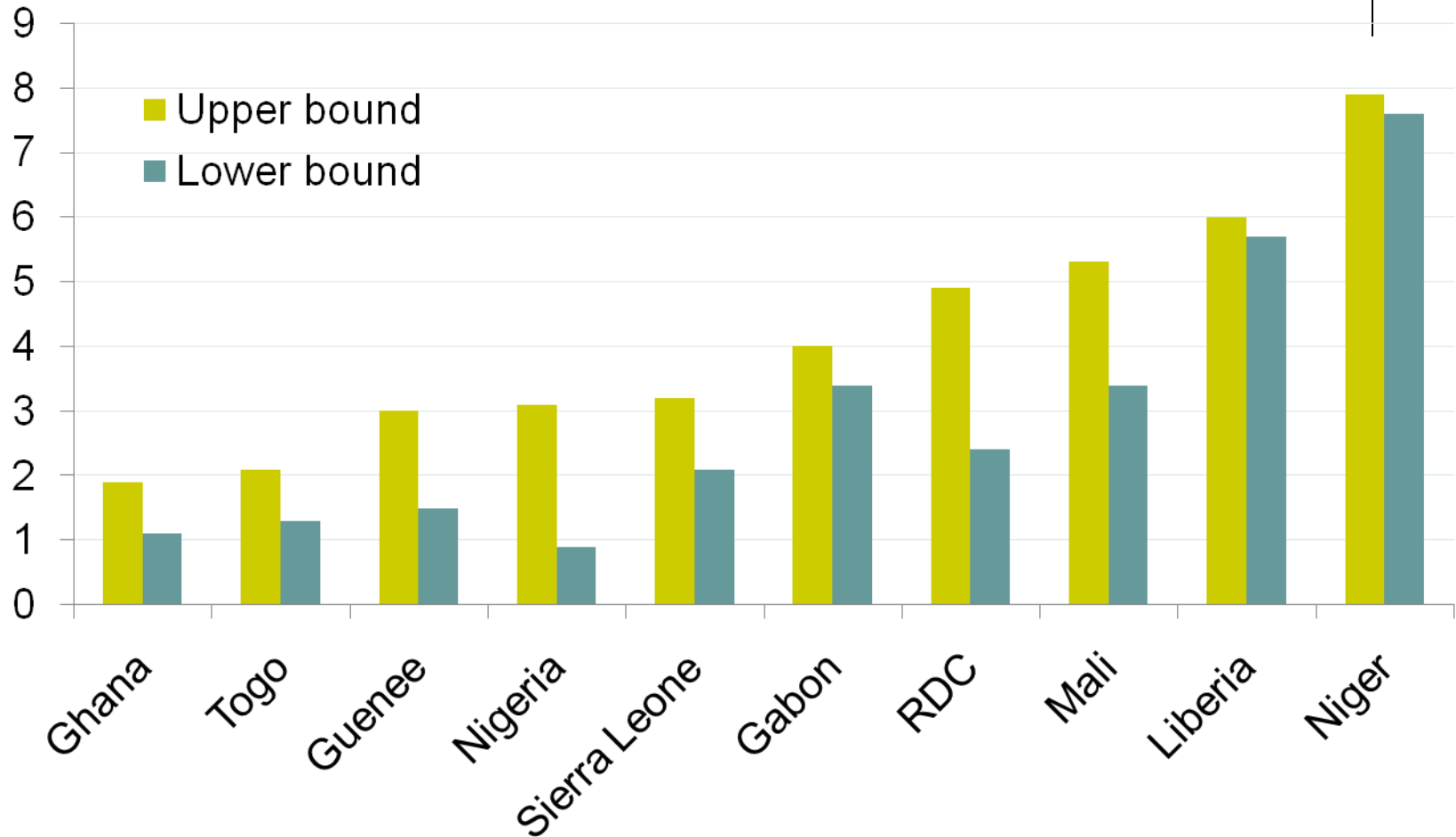
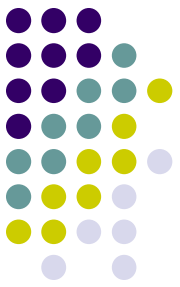
- Raises average poverty rates in our sample of nine countries (in percentage points)
  - Rural: 4.2, urban 5.0, total 4.5
  - With 2.3 billion people in low-income countries = **105 million** people thrown into poverty
- Historical rate of poverty reduction since 1984 0.7 percentage points/ year
  - Suggests a loss of about **7 years** in poverty reduction
- Based only on short-run impacts
  - Longer-term impacts may be more favorable

# What do other studies find?



- Most obtain similar results
  - Food price rises raise poverty in most low-income countries
  - But may lower it in cases like Vietnam
    - Supported by Minot and Goletti 1998; Glewwe 2008
- Wodon and Zaman for Africa, Inter-American Development Bank for LAC, AsianDevB for Asia
- Aksoy and Izik-Dikmelik highlight the diversity of net buyers/sellers

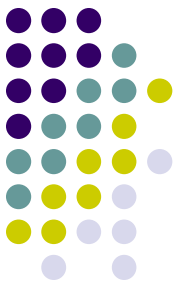
# Wodon & Zaman—poverty impact of 50% price rise



# Some thoughts on policy



- Protection generally unhelpful for food security
- Taxation of export crops—usually cash— can raise poverty
- The desirability of price insulation debated
  - Potentially helpful for individual countries, but increases the instability of world markets
- Stabilization of world market prices is very difficult
  - Domestic storage may be inadequate
  - May be a role for some national public storage
- Long-term food security comes from raising incomes
- Investments in agricultural R&D attractive

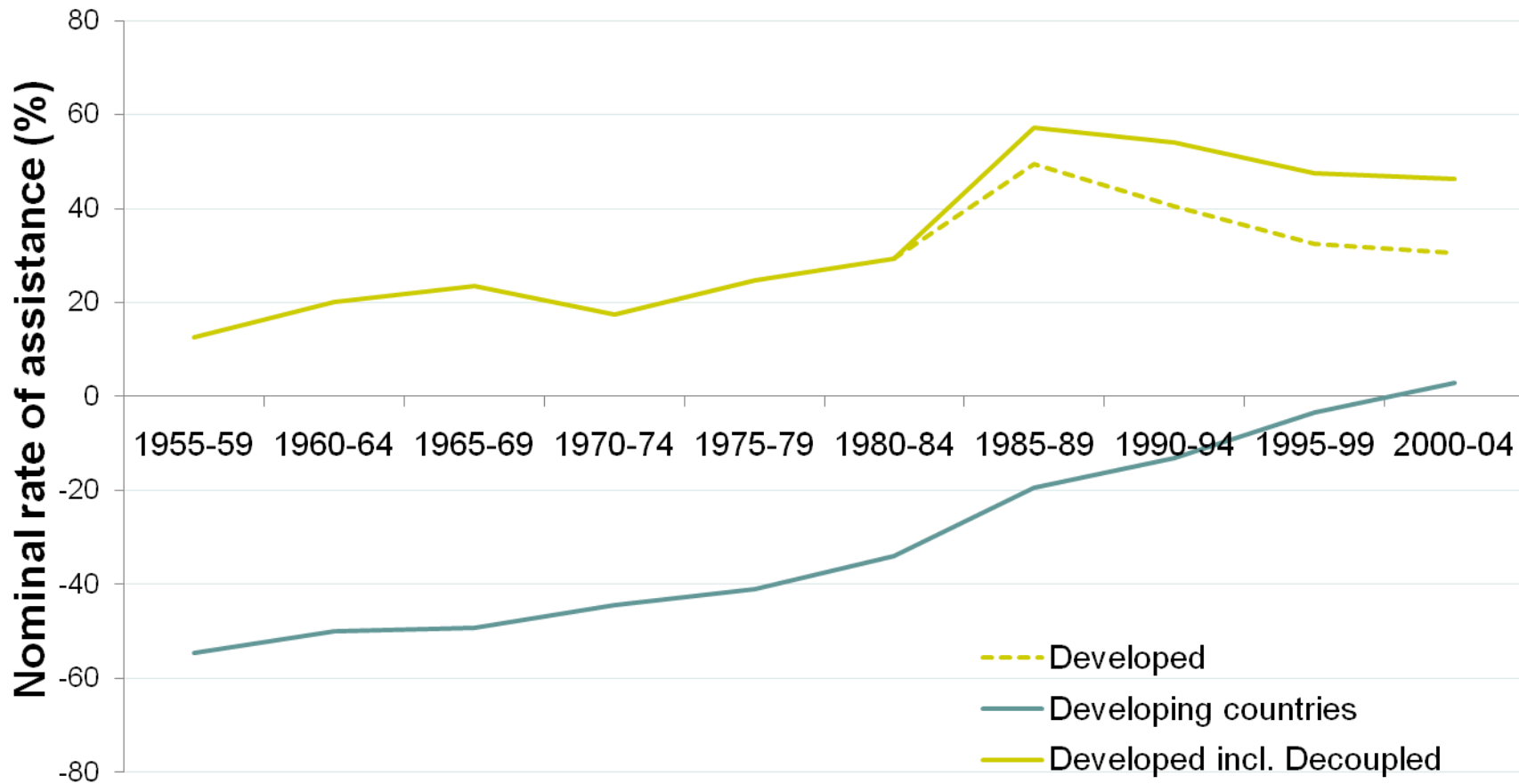


# Protection?

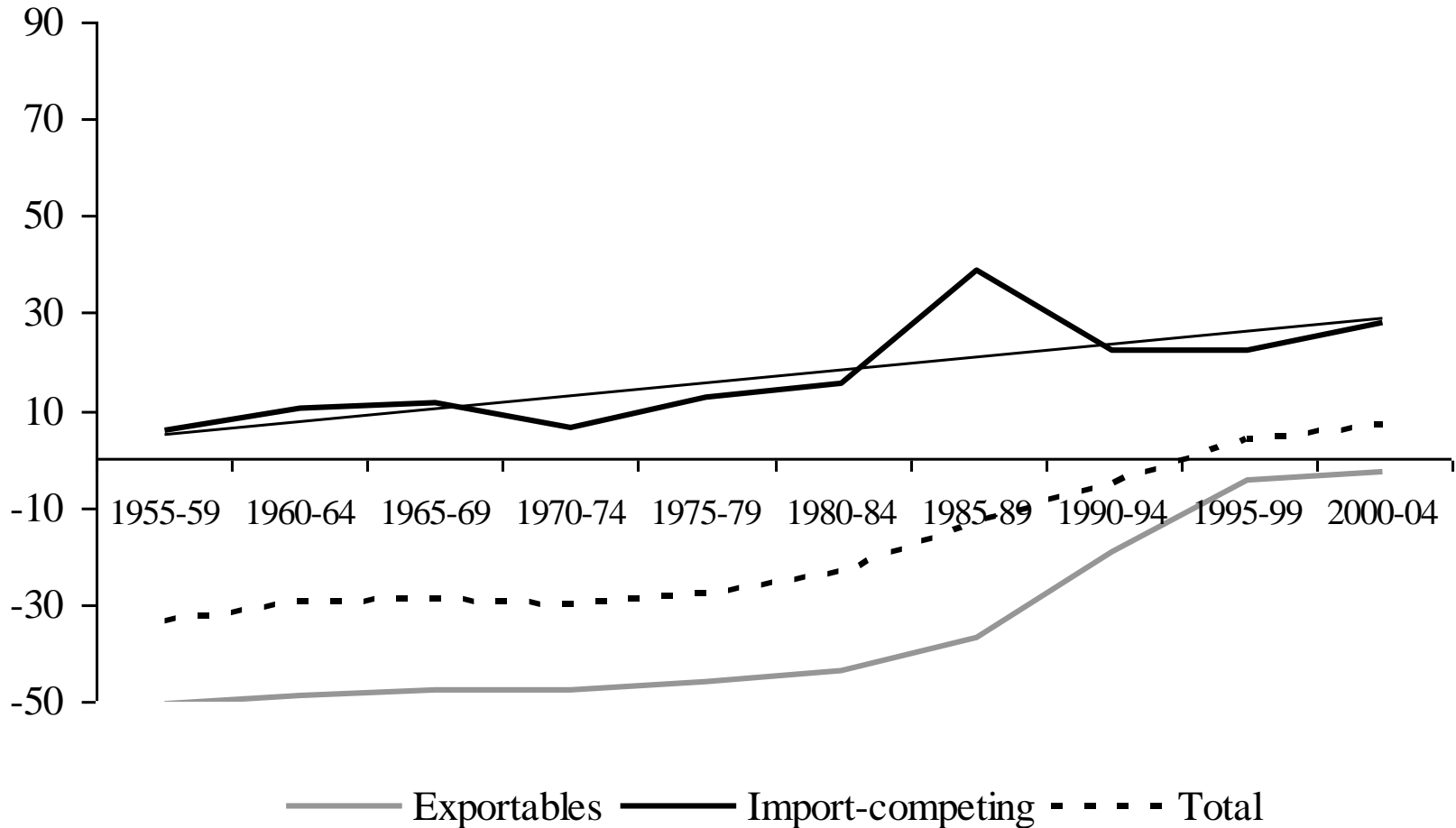
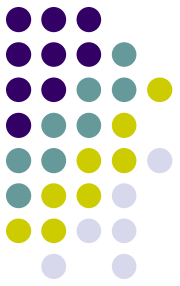
- Renewed interest in light of food crisis
  - And longer-term political-economy shifts
- Raises national output, reduces consumption, raises self-sufficiency
- But self-sufficiency is not food security
  - Food security depends on whether people—especially poor people—have access to food
  - Higher prices resulting from protection are likely to reduce access to food and hence food security
    - In both short and long run
- WTO disciplines reduce industrial country insulation and shocks to developing countries

# Changing nature of world agric protection

[www.worldbank.org/agdistortions](http://www.worldbank.org/agdistortions)



# Developing country agric protection

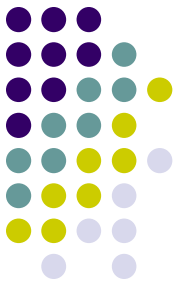


# Meeting long term demand growth



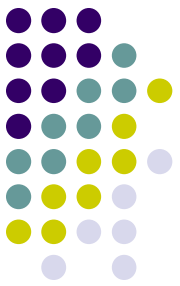
- Protection cannot raise food output substantially
- Improving technology can
- Appears to have been serious under-investment
  - Rates of return on public investment of 50%/year
  - Great scope for public-private partnerships
- Important to ensure technologies improve in developing countries
  - Remember the treadmill
- Other sectors such as infrastructure, health interventions may be similarly underinvested

# Productivity vs protection?



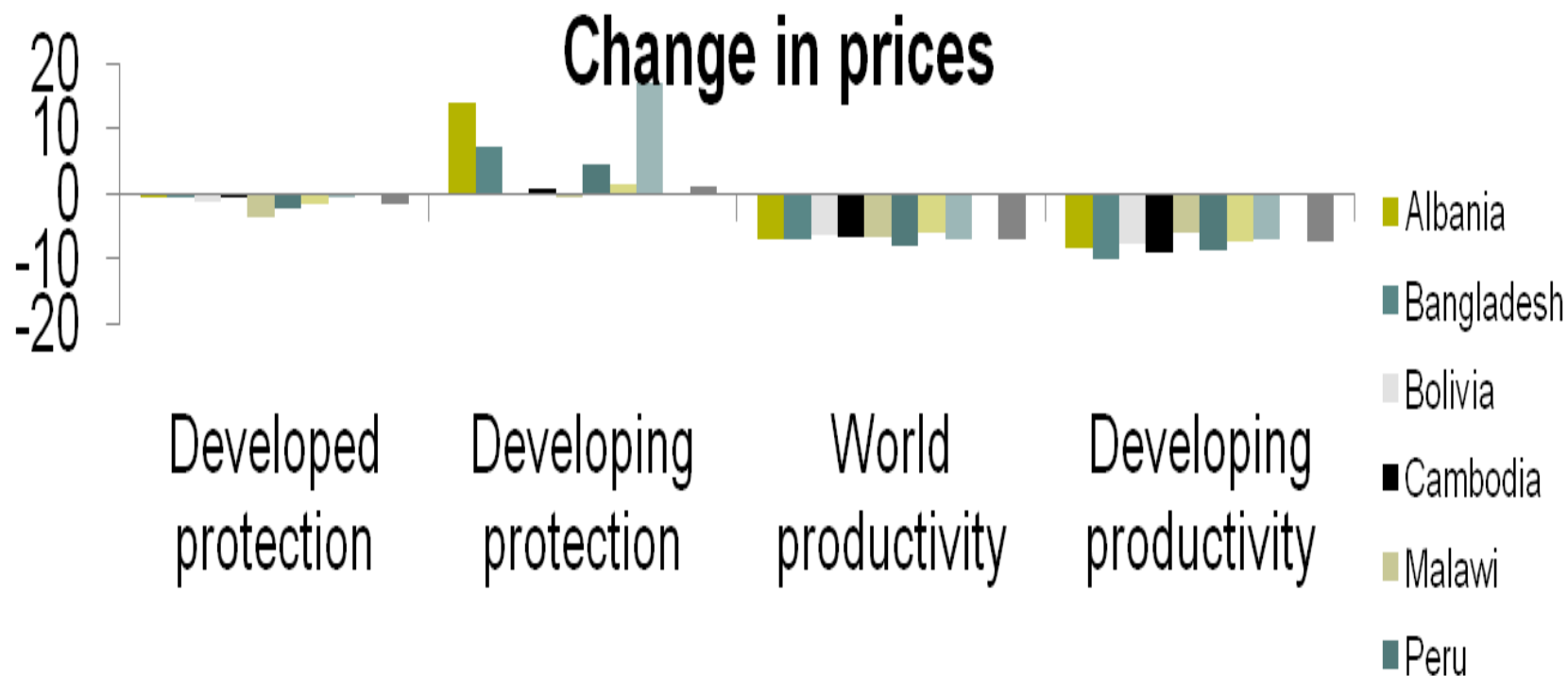
- Use the GTAP model to assess changes in policies needed to raise world agricultural output by 1%
- Trace out the impacts on
  - Agricultural prices
  - Agricultural output
  - Food prices
  - Food consumption
  - World prices
  - Poverty in a range of countries
- New sample of countries designed to consider a wider range of impacts than in previous work

# Global impacts

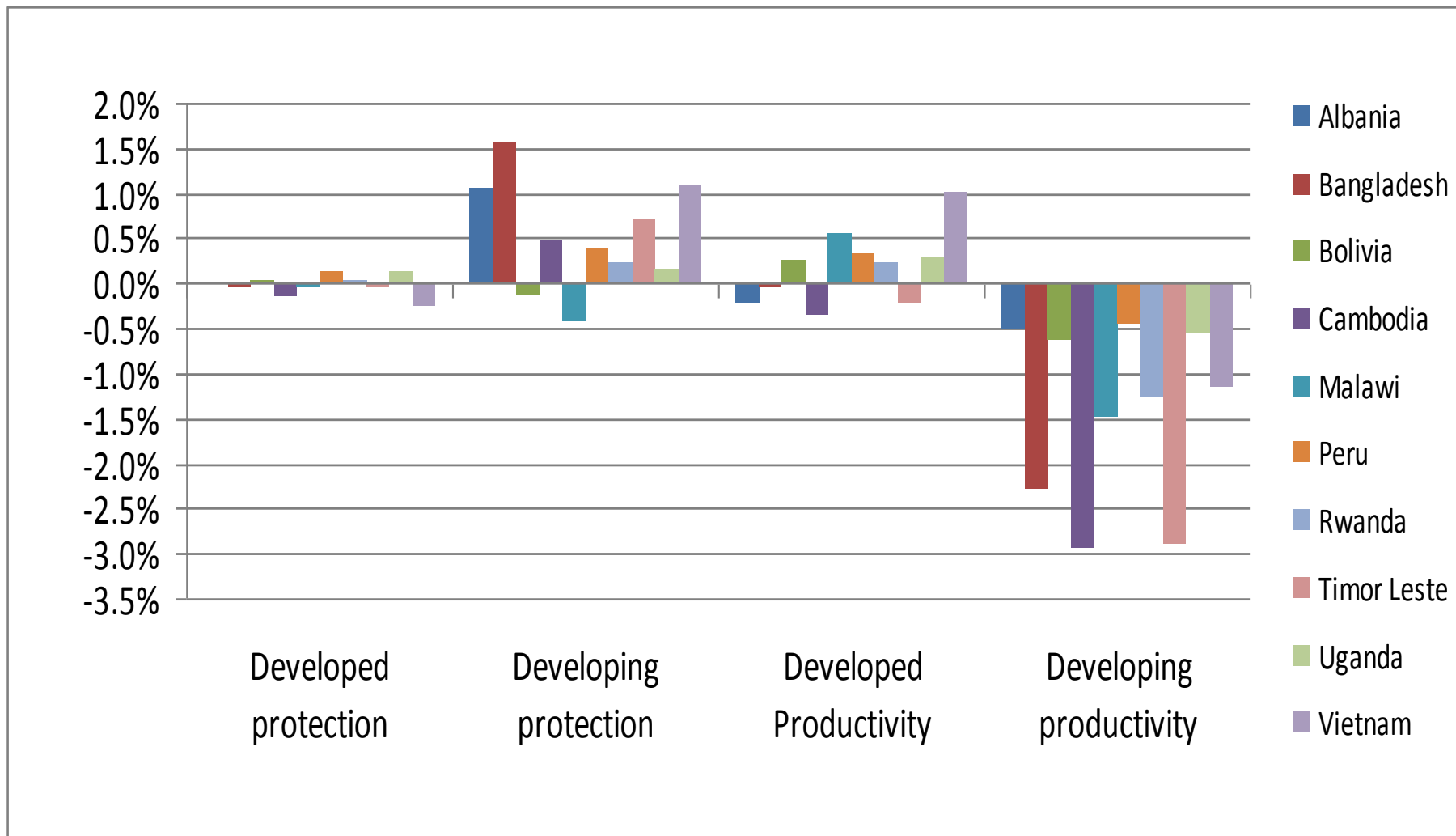


	Scenario			
	Rise in developed countries' protection	Rise in developing countries' protection	Rise in global agricultural productivity	Rise in developing countries' agric productivity
Policy change needed, %	30.1	88.2	4.2	7.6
Global agric export price, %	0.3	0.2	-6.7	-5.3
Agric output ( <b>given</b> ), %	<b>1.0</b>	<b>1.0</b>	<b>1.0</b>	<b>1.0</b>
Developing countries,%	-1.0	2.6	1.5	5.4
Food consumption,%	-0.5	-0.3	1.2	1.1
Developing countries, %	0.1	-0.9	1.5	2.2
Welfare change (\$bn)	-23.9	-24.8	99.4	95.5
Developing countries	-2.5	-21.6	46.2	78.9

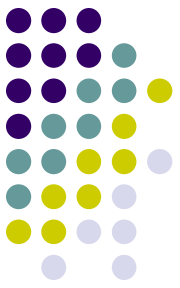
# Impacts on farm prices in developing countries



# Poverty impacts of raising world agric prodn by 1% through:



# Safety-net policies important for instability



- Much more effective—where feasible—than policies targeting food prices for all
  - Food aid
  - Cash transfers
  - School food programs
- Short-term support to producers?
  - Subsidization of fertilizers, seeds etc to help increase agricultural supply
- Unpredictability of shocks argues for quite general programs, rather than a food focus

# To conclude



- Most increases staple food prices raise poverty in poor countries
  - Many studies suggest these effects are currently large
- Growing food demand likely means higher prices
  - This problem could be exacerbated by increasing protection
- Most traditional policy recommendations intact
  - Protection raises self sufficiency, but reduces food security
  - Increased investments in R&D, infrastructure help lower poverty
    - Especially investments in developing country R&D
  - Social safety nets important for volatility