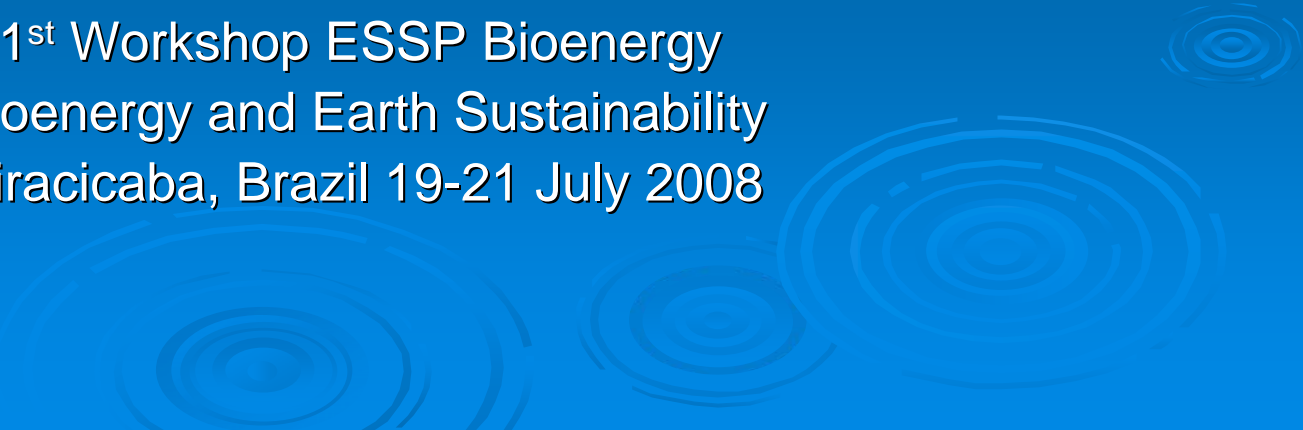


Tradeoffs and Synergies Resources


Biofuels and Food Security

Keith Wiebe, FAO

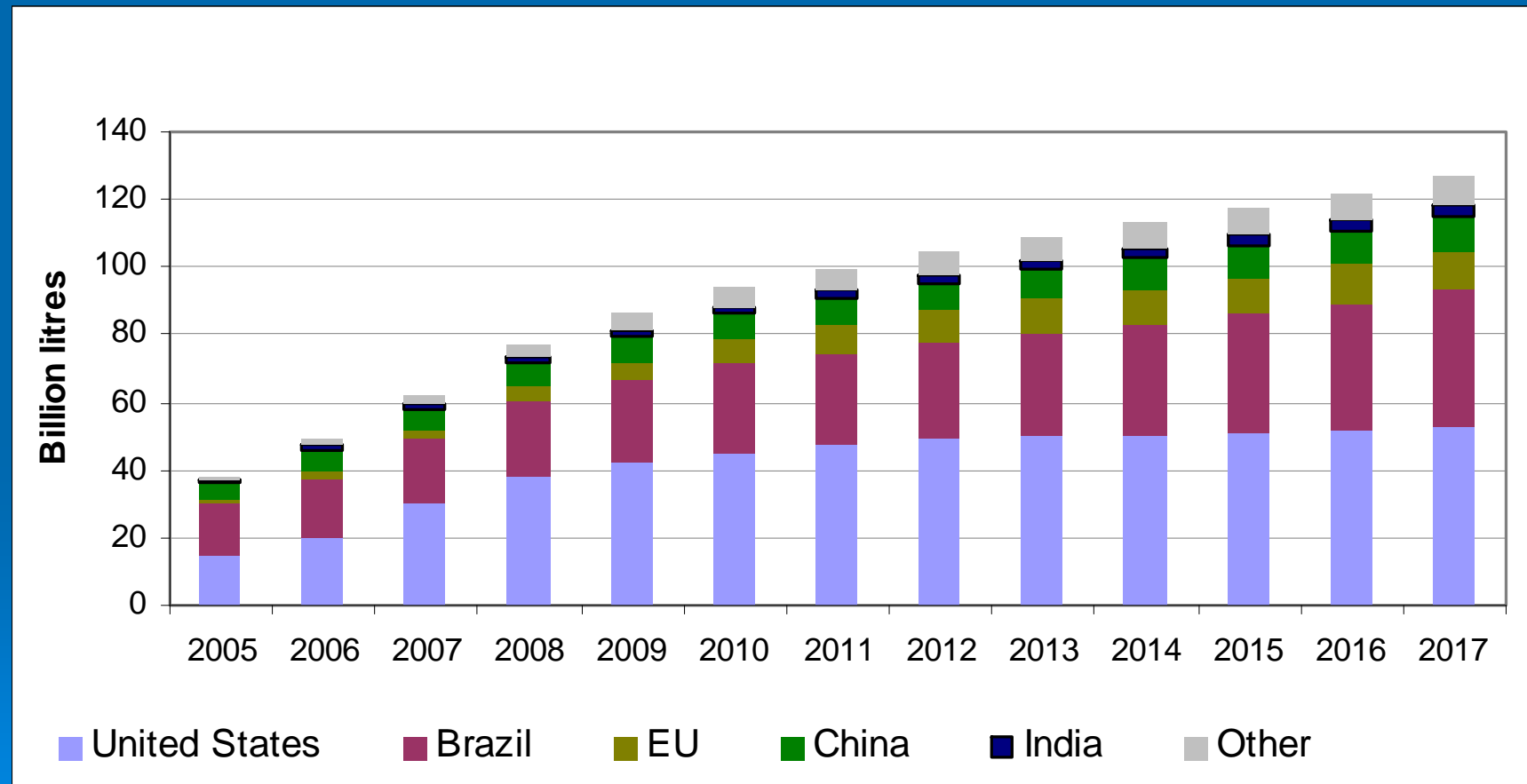
1st Workshop ESSP Bioenergy
Bioenergy and Earth Sustainability
Piracicaba, Brazil 19-21 July 2008



Key messages

- modest impact on energy security
 - varying impacts on climate change
 - significant impacts on agriculture and food security
 - short-term threat (*to some*)
 - longer-term opportunity (*for some*)
 - policy decisions are critical
- 

Ethanol production, 2005-2017



Source: OECD-FAO, 2008

Biofuel growth is driven by policy support measures

- goals include energy security, climate change mitigation and support for agriculture
- even at current oil prices, biofuel production costs remain higher than fossil fuel prices—except in Brazil
- biofuel blending targets and support measures in Brazil, EU, US, China, India and many other countries
- total support over \$6 billion in US in 2006
- total support about \$5 billion in EU in 2006

Biofuels will have a modest impact on energy markets...

- 62 billion litres in 2007 (90% in US, Brazil and EU)
- 150 billion litres in 2017 (80% in US, Brazil and EU)
- 40 percent of Brazil's gasoline transport fuels
- 1.8 percent of world transport fuels in 2007
- 3.5 percent of world transport fuels in 2030

...and varying impacts on greenhouse gas emissions...

- impacts vary with feedstock, location, agricultural practices and conversion technologies
 - 80-90 % reductions for Brazil sugarcane ethanol and 2nd-generation biofuels
 - 40-60 % reductions for EU rapeseed biodiesel
 - 10-30 % reductions for US maize ethanol
 - smaller reductions—or even increases—when land use change is considered

...but much bigger impacts on agriculture and food security

- a significant and growing share of agricultural land and commodities are used for biofuels

	Brazil	US	EU	World
Cropland	5% → 10%	2% → 5-10%	1% → 12-16%	1% → 3-4%
Output	50% of sugarcane → 65%	30% of maize → 40%	60% of rapeseed → ?	5% of cereals, 9% of vegetable oils, but <u>over half of the increase</u> since 2005

Biofuels are one of several key drivers of high food prices

- rapid growth in biofuels
- economic growth and changes in diet
- declining investment in agriculture
- weather-related production shortfalls
- declining cereal stocks
- rising energy costs
- exchange rates and export restrictions

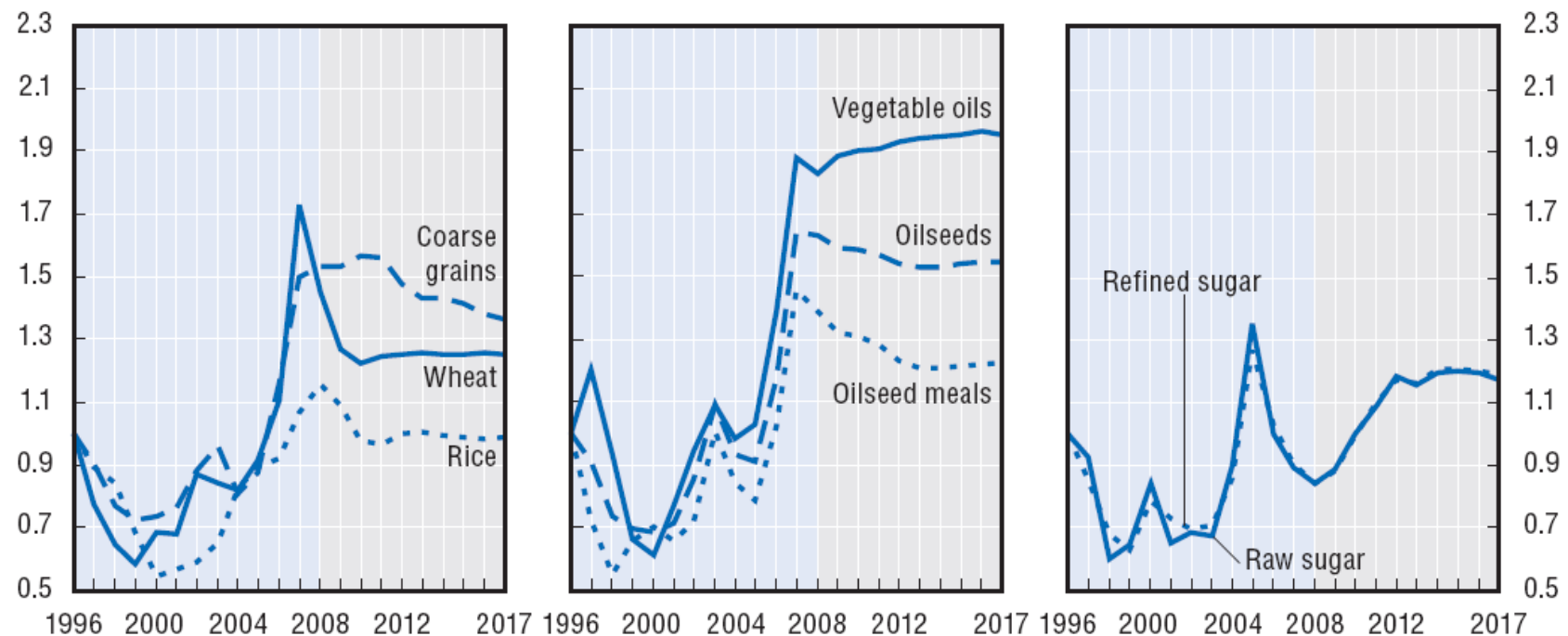
Biofuel impacts on prices

Source	Estimate	Commodity	Time period
World Bank (April 2008)	75 %	global food	January 2002 – February 2008
IMF (2008?)	70 % 40 %	maize soybeans	? ?
IFPRI (May 2008)	39 % 21-22 %	global maize global rice & wheat	2000 – 2007 2000 – 2007
OECD-FAO (May 2008)	42 % 34 % 24 %	global coarse grains global oils global wheat	2008 – 2017 2008 – 2017 2008 – 2017
Collins (June 2008)	25-60 % 23-35 %	maize US retail food	2006 – 2008 2006 – 2008
Glauber (June 2008)	23-31 % 10 % 4-5 %	global commodities global food US retail food	April 2007 – April 2008 April 2007 – April 2008 January – April 2008
CEA (May 2008)	35 % 3 %	global maize global food	March 2007 – March 2008 March 2007 – March 2008

Crop price projections to 2017

Figure 1.4. **Outlook for world crop prices to 2017**

Index of nominal prices, 1996 = 1



Source: OECD and FAO secretariats.

Dimensions of food security

➤ availability

- global, national, local, household

➤ access

- national, local, household, individual
- prices, income, wealth

➤ utilization

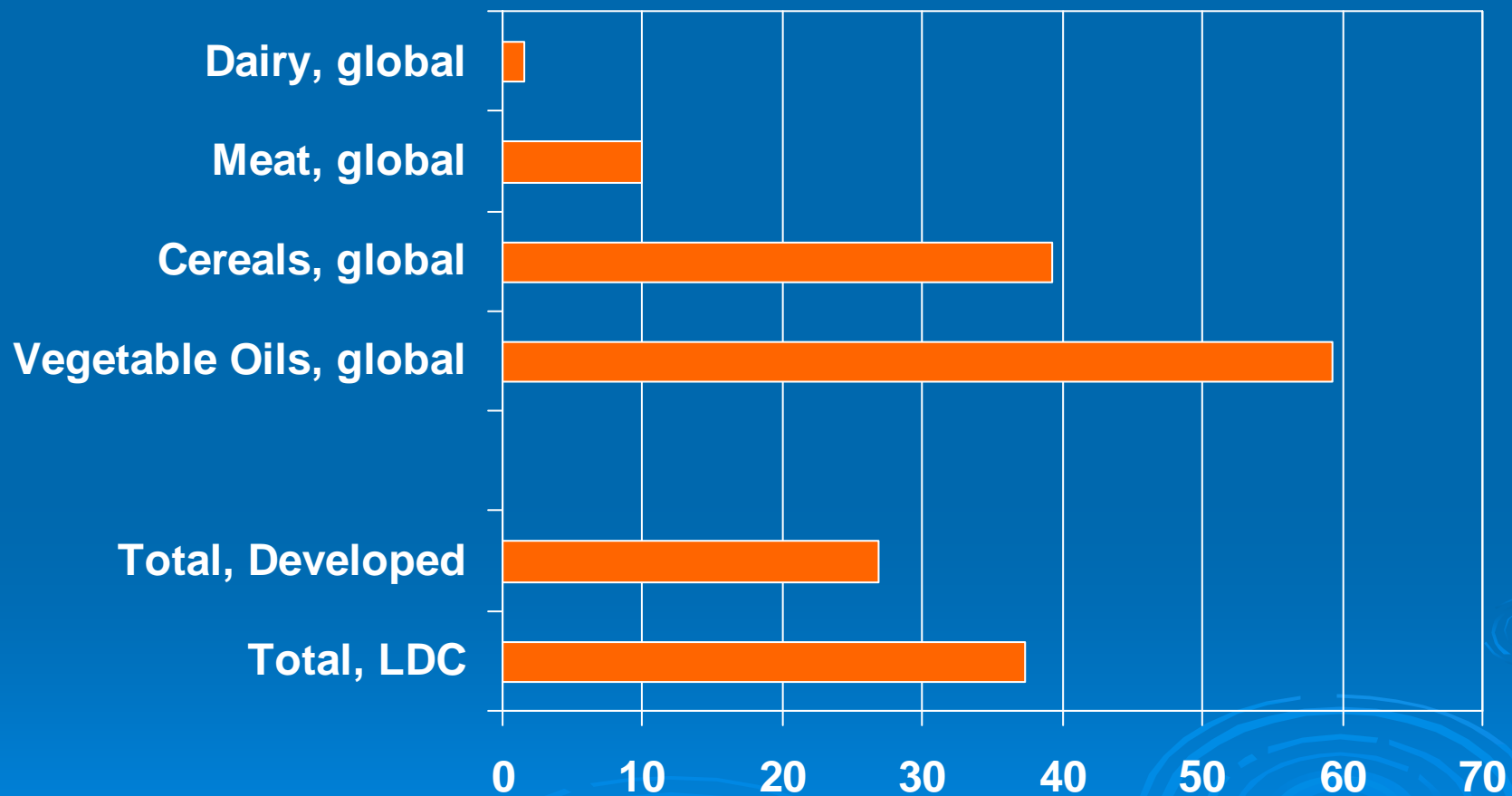
- clean water, sanitation, health

➤ stability

- variability in any of the above, and in coping capacity

Rising food import bills

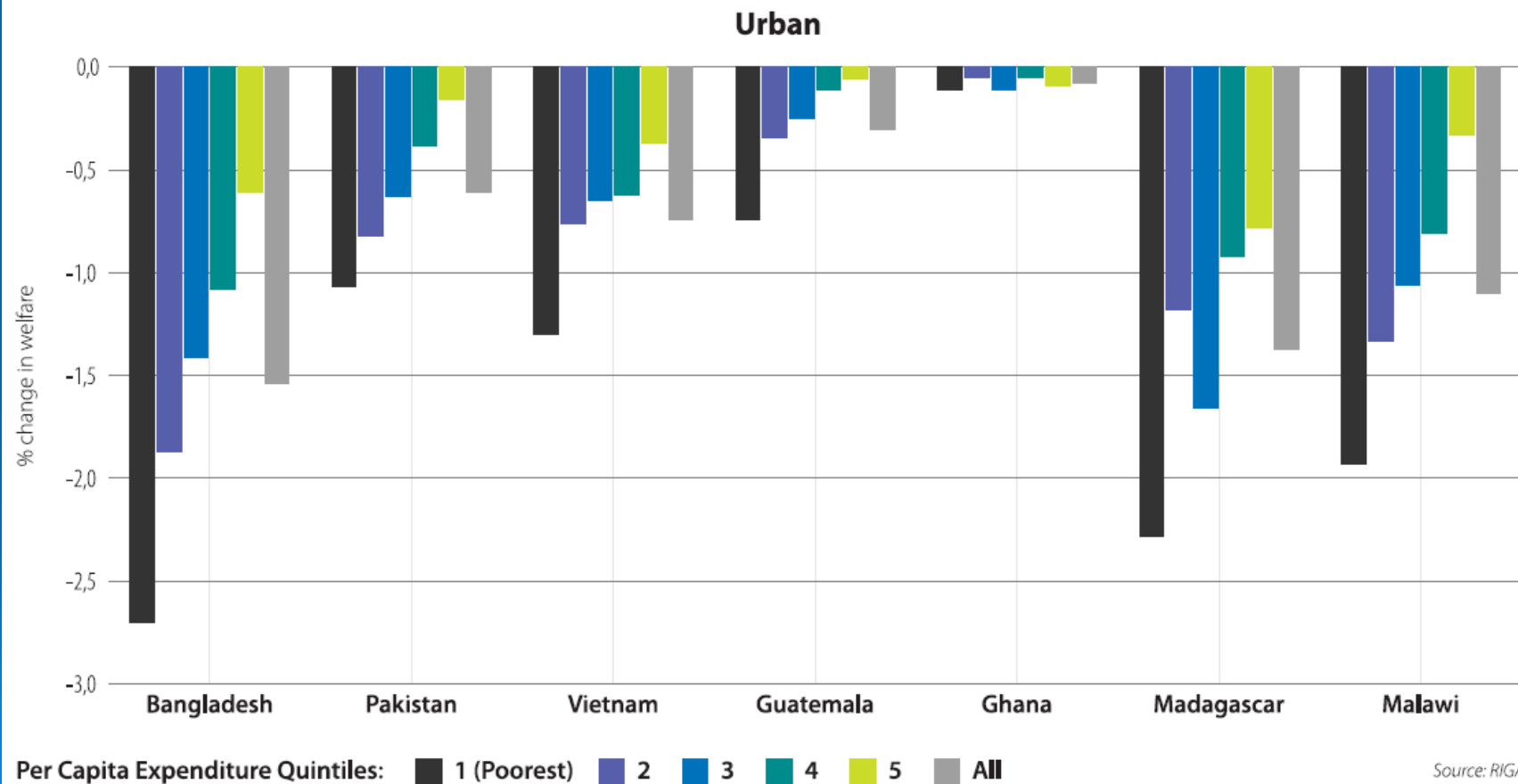
% increase, 2008 over 2007



Source: FAO, 2008

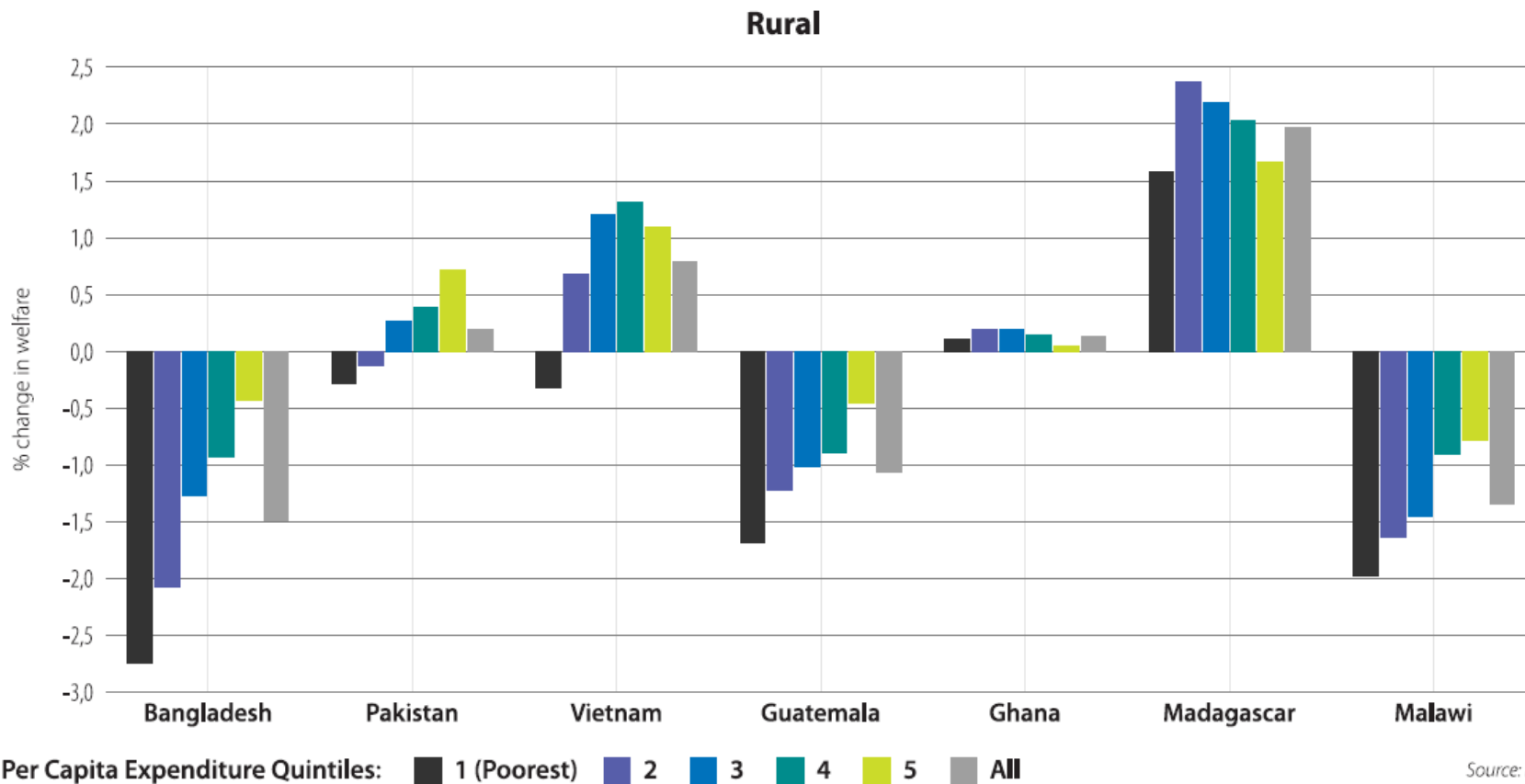
Price impacts on urban households

Figure 12 Percentage welfare gain/loss from a 10 percent increase in the price of the main staple, by income (expenditure) quintile

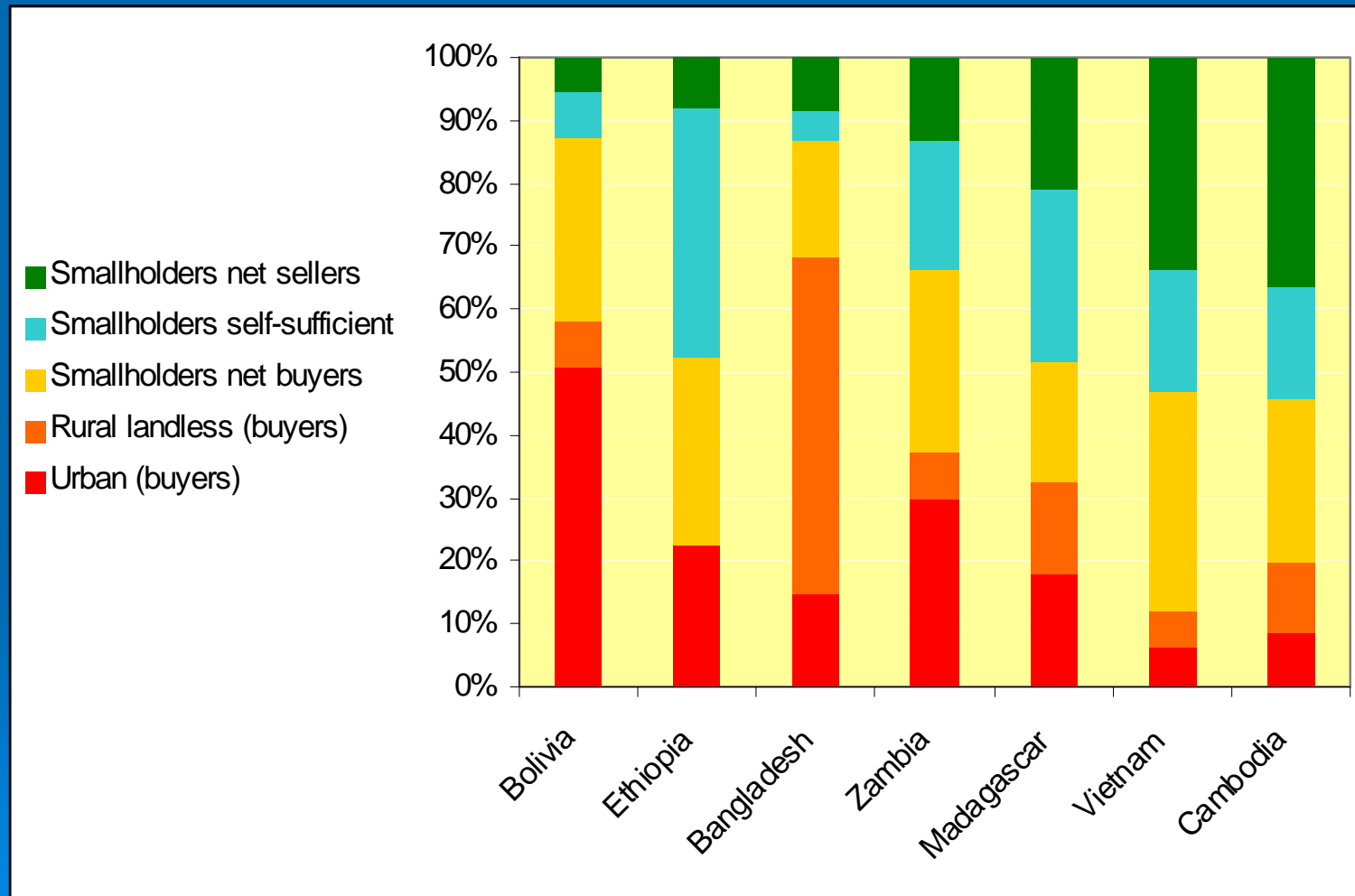


Price impacts on rural households

Figure 12 Percentage welfare gain/loss from a 10 percent increase in the price of the main staple, by income (expenditure) quintile



Impacts will vary for net sellers and net buyers of staple foods



Source: World Bank 2007

Impacts depend on technology, policy and access to resources

- diverse impacts on net buyers and sellers at household and country levels
- employment opportunities depend on scale of production and technology
- rising resource values: opportunity and conflict
- short-term risk to the poor, but this could change in the longer term—with appropriate policy measures and agricultural sector response

Policy action is urgently needed

- **protect the poor and food insecure**
 - safety nets, access to resources, tenure security
- **invest in agriculture and rural development**
 - seeds, irrigation, technology, infrastructure, institutions
- **ensure environmental sustainability**
 - good practices, payments for environmental services
- **review current biofuel policies**
 - redirect support toward 2nd-generation technologies
- **promote international policy coordination**
 - food, agriculture, environment, trade, energy

Thank you

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