



How can a food systems approach lead to improved policy analysis and advice?

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A food system perspective can help ensure a coherent approach to the “triple challenge” facing policymakers

1 Food security and nutrition

Feeding a world population that is expected to approach 10 billion by 2050 and providing adequate nutrition

2 Resource use and sustainability

Doing so sustainably, i.e. using essentially the same amount of land and less water, while adapting to climate change and contributing to lower GHG emissions

3 Livelihoods and rural development

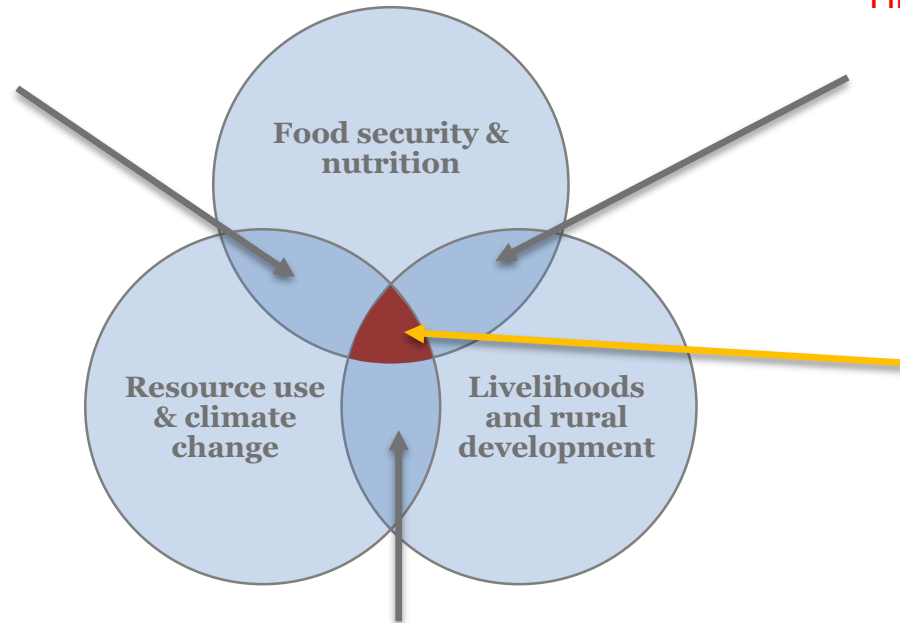
Providing incomes to more than 500m farmers and others along the food chain, and supporting balanced development



We need coherence because there are interactions across the three challenges

Lower livestock numbers
and protein availability
Healthy diets and lower
emissions

Higher farm incomes versus
lower consumer prices
Income generation
and food security



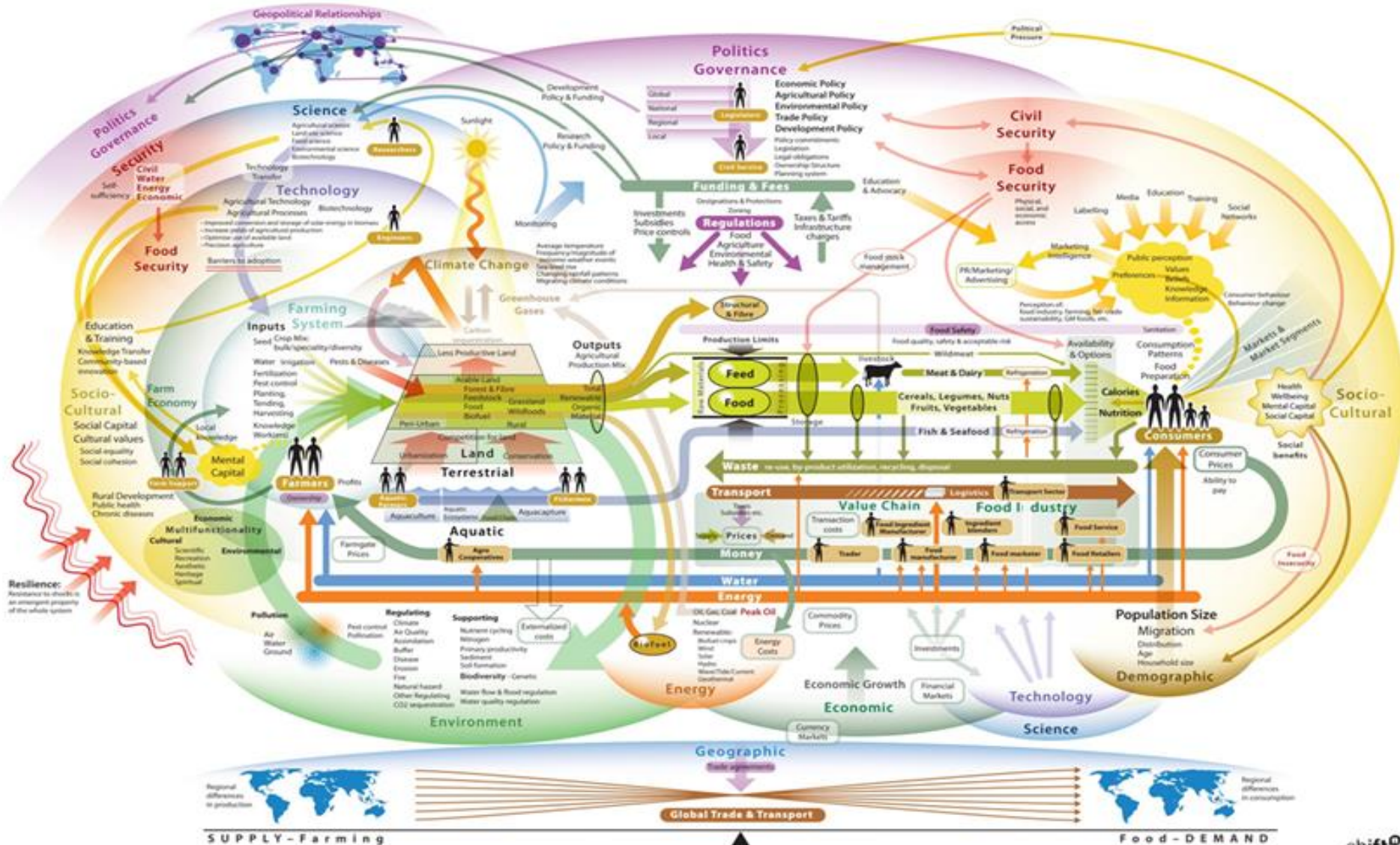
*Livestock has a
major impact on all
three challenges!*

Pricing natural resources versus farm incomes
Paying for public goods

Those interactions are complex, and resolving trade-offs depends on social values: all of which makes food policy contentious



The food system is complex!





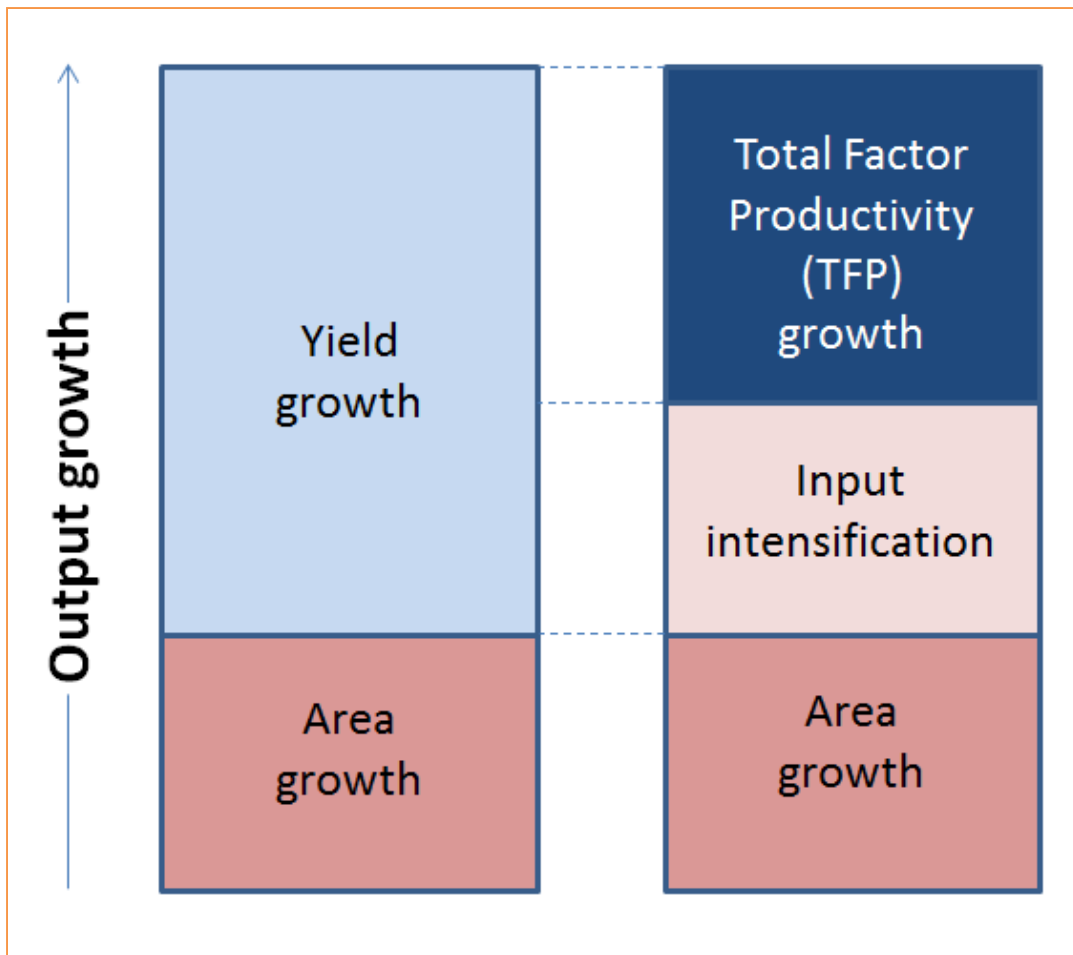
How can we navigate such complexity?

- Some priorities can be pursued independently
- A food systems approach becomes important when there are major spill-overs across policy areas
- What does it involve?
 - **Calibration** of policies (e.g. “sustainable diets”)
 - **Mediation** of policy-trade offs (e.g. livestock livelihoods vs GHG emissions)



Production growth will need to come from improved productivity

Limited scope to increase area sustainably, while many regions apply environmentally harmful levels of inputs



Plant breeding and improved seed
Better farm management practices
Digital technologies

Capital: machinery
Variable inputs: fertiliser, pesticides

Land use change
Double cropping

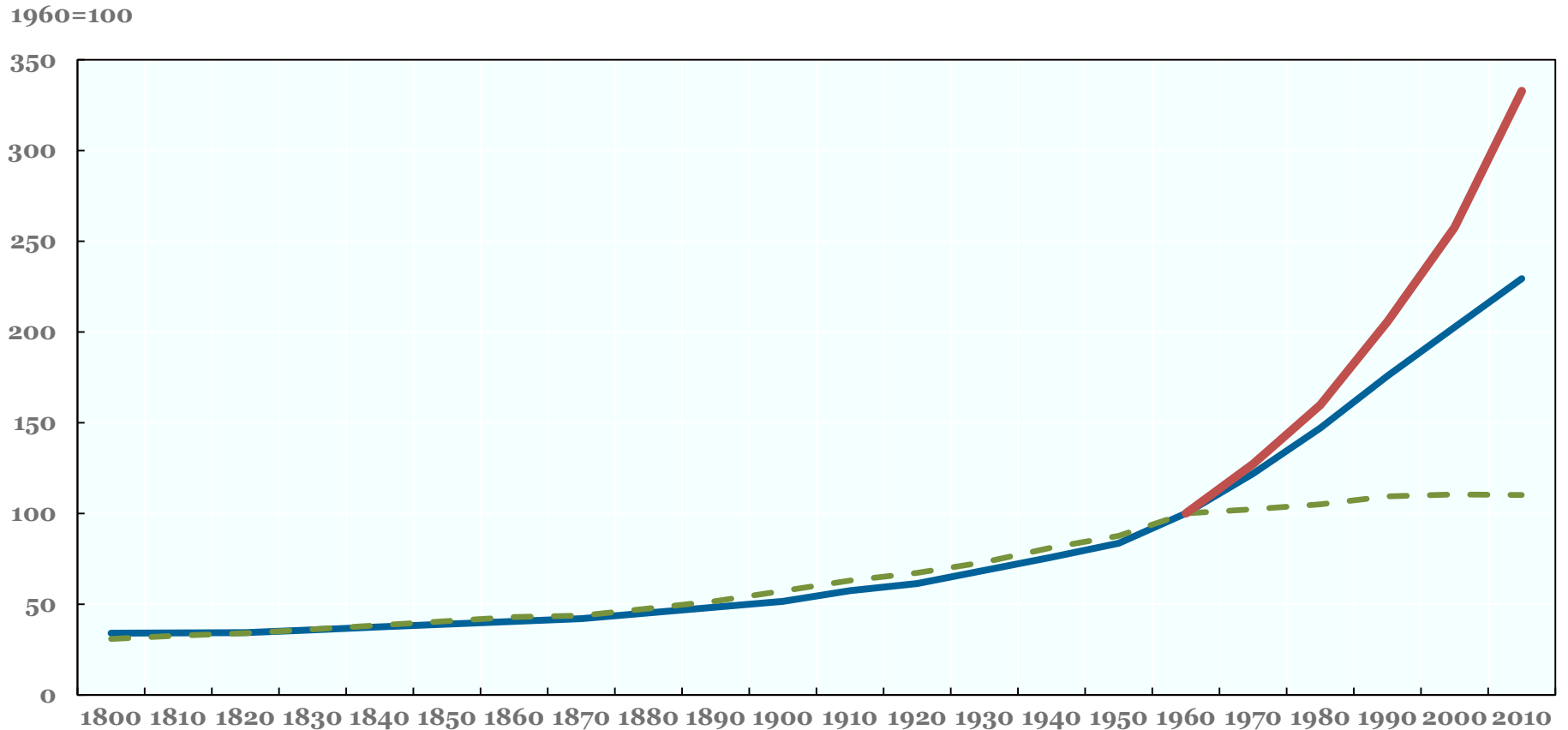


Imagine what would have happened to land use if productivity had not increased!

Population

Total agricultural land

Global food production



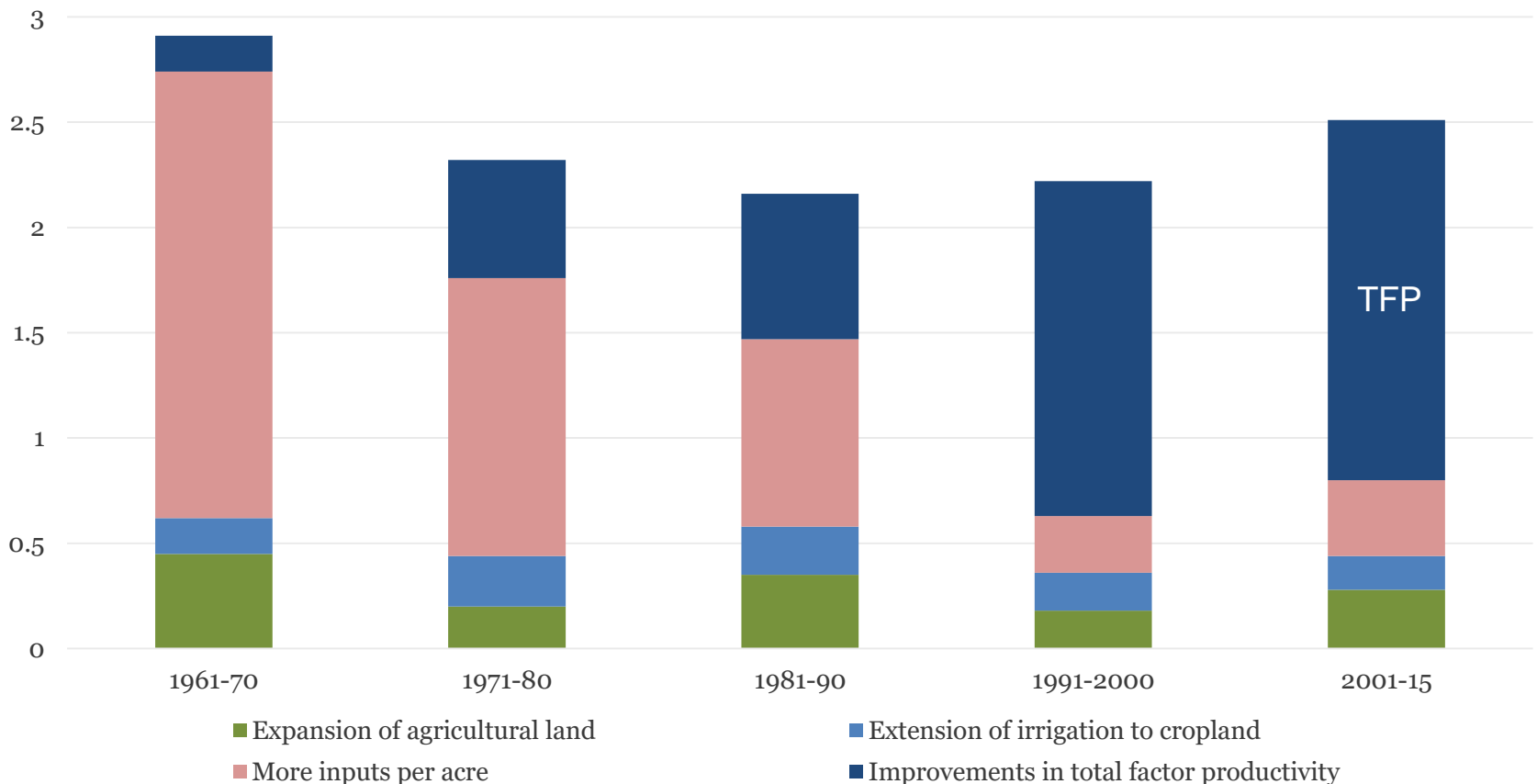
Source: Population data from Maddison's historical statistics for 1820-1940; UN Population Division for 1950-2030; 1800 and 1810 extrapolated from Maddison. Agricultural (crops and pasture) land data for 1800-2010 from the History Database of the Global Environment (HYDE 3.2), Klein Goldewijk et al. (2017). Global agricultural production data for 1960-2010 from FAOSTAT (Net Agricultural Production Index).



For the past 30 years, TFP growth has accounted for the majority of output growth

Sources of growth in global agricultural output, 1961-2015

Annual growth rate (%)

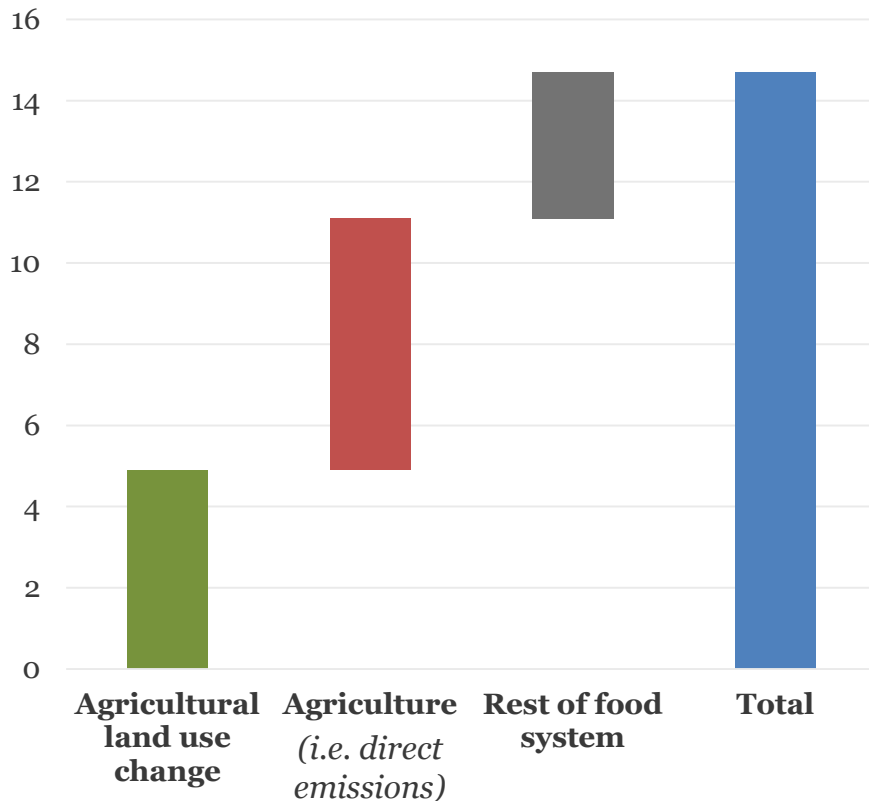




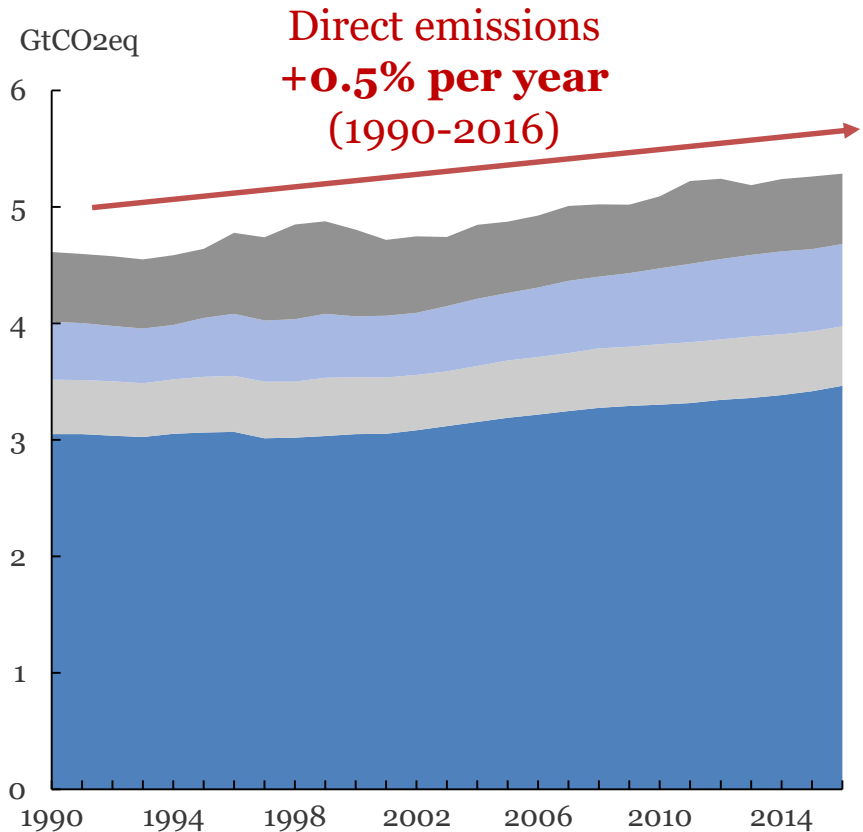
Agriculture and food will increasingly be expected to contribute to lower global GHG emissions

Food and agriculture is **21-37%** of total anthropogenic GHG emissions

Gigatonnes CO₂ equivalent per year, 2007-16



■ Livestock ■ Rice cultivation ■ Synthetic fertilizers ■ Other

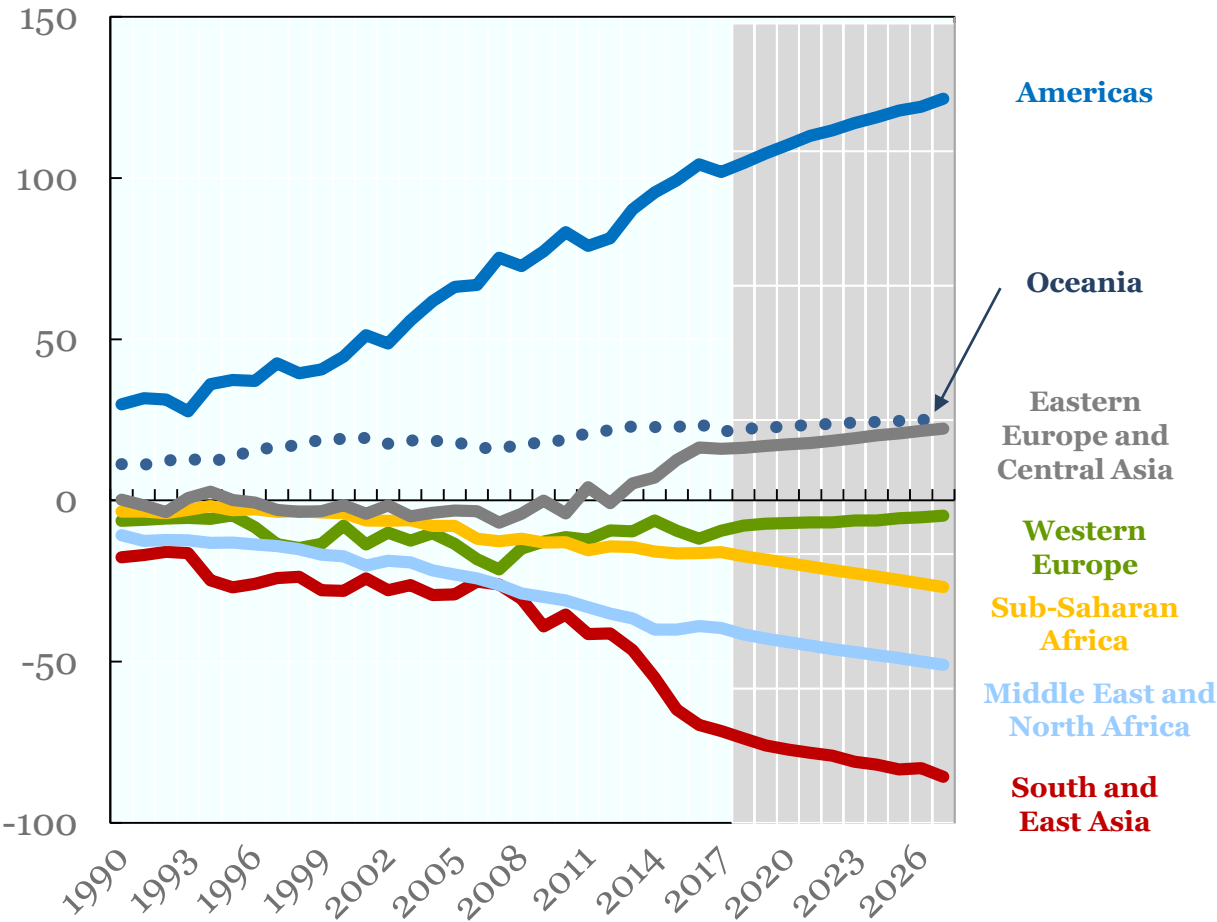


- Global crop production: **+2.5% per year**
- Global livestock production: **+1.9% per year**



Open markets will become more, not less, important for food security

Agricultural trade balances by region, 1990-2027
(in constant value, bln USD)



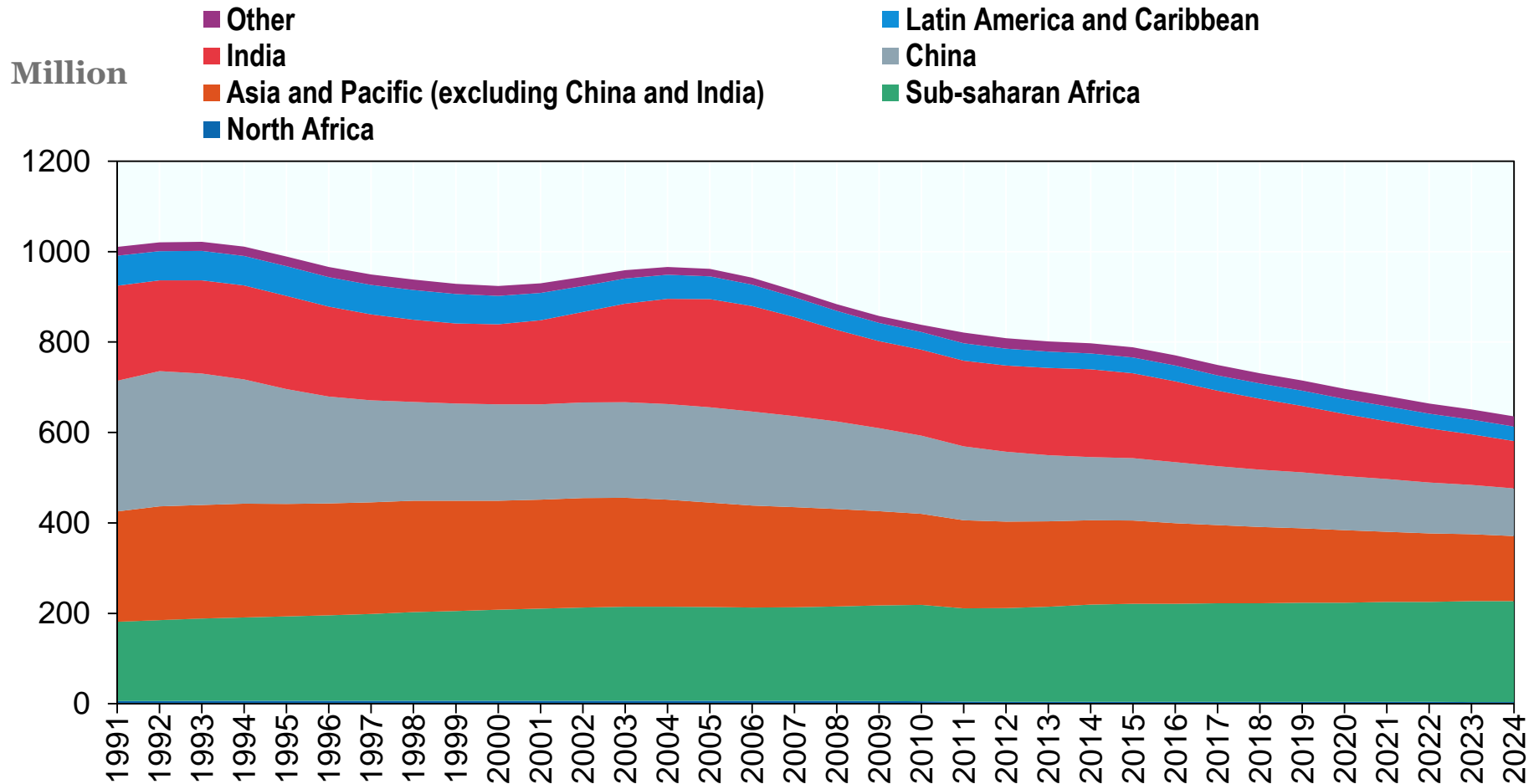
The regions experiencing population and demand growth are not those where supply can be increased sustainably

Trade buffers domestic shocks and – on balance – reduces price volatility



Increased food availability and low prices will not solve the chronic problem of lack of access

There were over 850 million undernourished when food prices were at all time lows





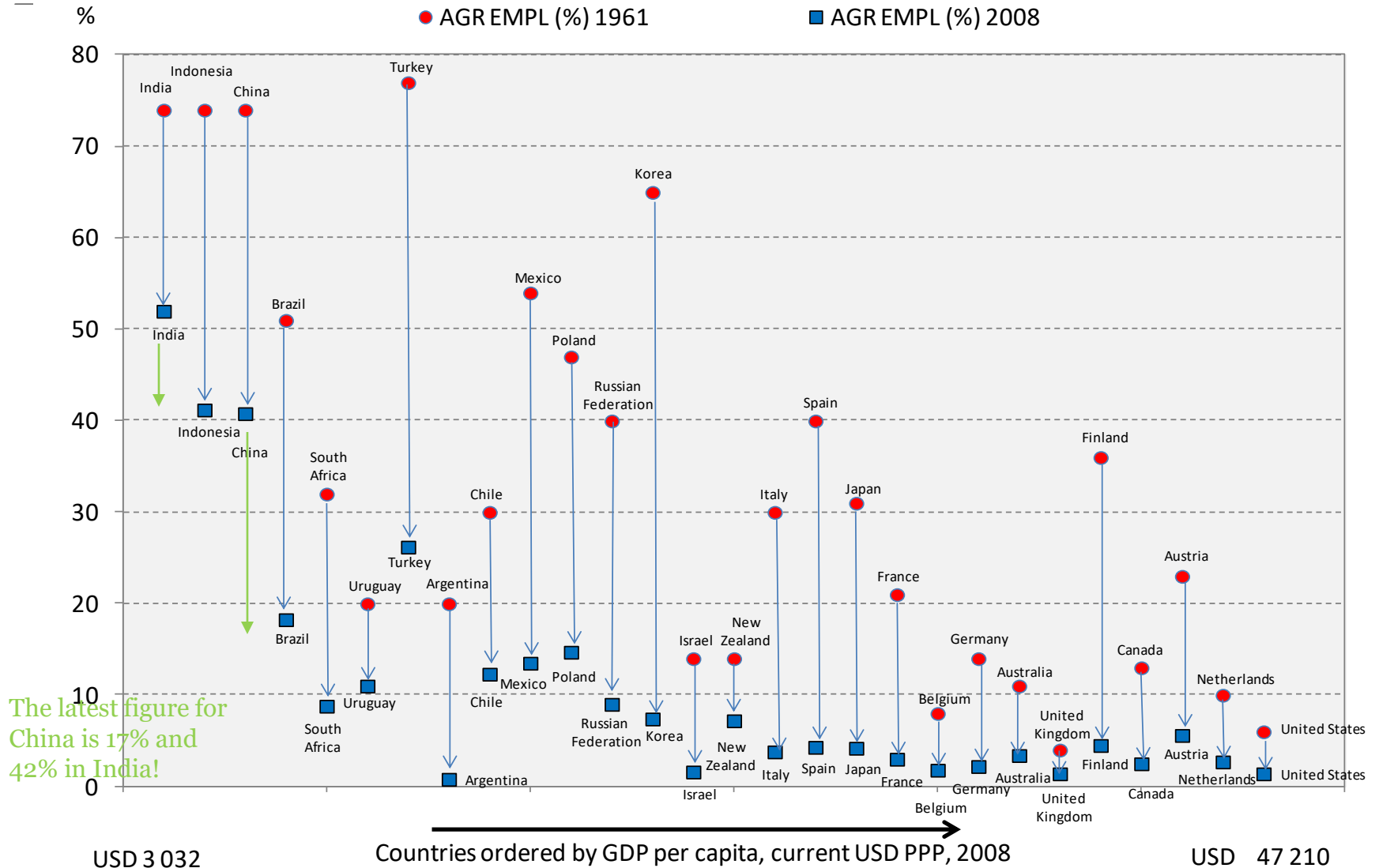
Poor nutrition won't be solved simply through access to healthy food

- A rising burden of overweight and obesity around the world – **NO country has succeeded in reversing this trend**
- A triple burden of under-nourishment, over-nourishment and micronutrient deficiencies in many developing countries
- Poor nutritional outcomes are not just about food: other causes are inadequate sanitation, poor maternal and child care, disease (e.g. HIV)
- A clear need for a multi-pronged approach to nutrition:
 - Education and advice; soft and hard regulatory measures (e.g. on product composition); arguably fiscal measures [OECD, 2019]



Programmes for livelihoods need to facilitate adjustment and generate opportunities beyond agriculture

Evolution of agriculture's share of employment OECD and Emerging Economies, 1961 & 2008





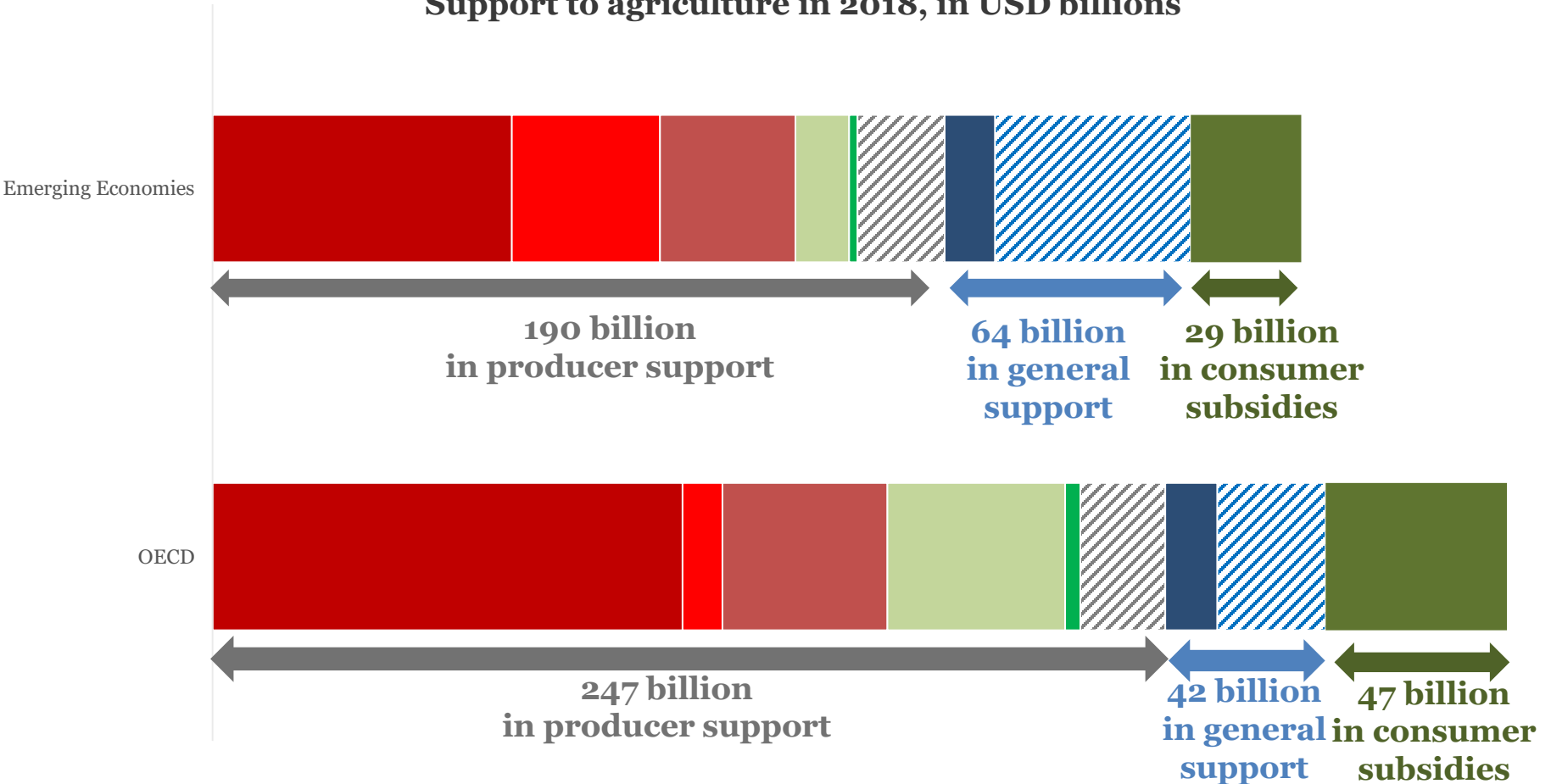
Policies have not kept up with rapid changes in the agro-food sector

1. Support policies have (on balance) stimulated production, but not in ways that have encouraged sustainable resource use
2. The global record on incomes and food access is mixed – good in much of Asia, still weak in Africa and conflict afflicted countries
3. Nearly all countries – rich and poor – face major challenges in terms of nutrition
4. Policies to support livelihoods have focused on farmers
5. Uneven commitments to climate change mitigation



Support to farmers is still provided in ways that stress the resource base and increase emissions

Support to agriculture in 2018, in USD billions



■ Support based on commodity output

■ Payments based on variable input use

■ Payments based on area, animals, ...

■ Fully decoupled payments

■ Payments based on non-commodity criteria

■ Other

■ Agricultural knowledge and innovation system

■ Other

■ Consumer subsidies



Why have policies not kept up?

- **Spill-overs**: a failure to exploit synergies and mediate trade-offs
- **Coordination difficulties**: bridging across policy communities
- **Political economy**: the power of vested interests
- **Myths**: gaps between perceptions and the evidence base



How to improve coherence?

Substance

- Targeting specific objectives
- Calibration to account for spill-overs
- Re-directing subsidies

Process

Finding ways to:

- (i) redress gaps between beliefs and the evidence base;
- (ii) provide coordination across different policy communities;
- (iii) achieving social acceptance for the policies that prioritise one objective over another



Food Chain Analysis Network

<https://www.oecd.org/agriculture/topics/food-chain-analysis-network/>

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