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# Competing Narratives for Sustainability: Is Less More or Must We Do More With Less?

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USDA Agricultural Outlook Forum  
Can Sustainable Agricultural Intensification Feed  
the World?  
February 23, 2012

# The Problem

- The Sufficiency Narrative: Less is More
  - world population 9.2 billion people in 2050
  - dramatic environmental problems
  - consumption outstrips Earth's capacity
  - current food systems produce waste and overconsumption => health problems
  - destruction of important ecosystems will have dramatic feedback effects that undermine the foundations of our food systems => more poverty and conflict.
- The Productivity Narrative: Doing more with less.
  - world population 9.2 billion in 2050
  - agricultural productivity slowing down
  - rising income levels shift diets to more protein rich food and will increase energy demand
  - serious threat that food demand will not be met => hunger and political instability
  - resource constraints and climate change limit the world's capacity to expand food production.

Based on: Sustainable Food Consumption and Production in a Resource-Constrained World, Erik Mathijs, K.U.Leuven OECD, Paris, 12 September 2011

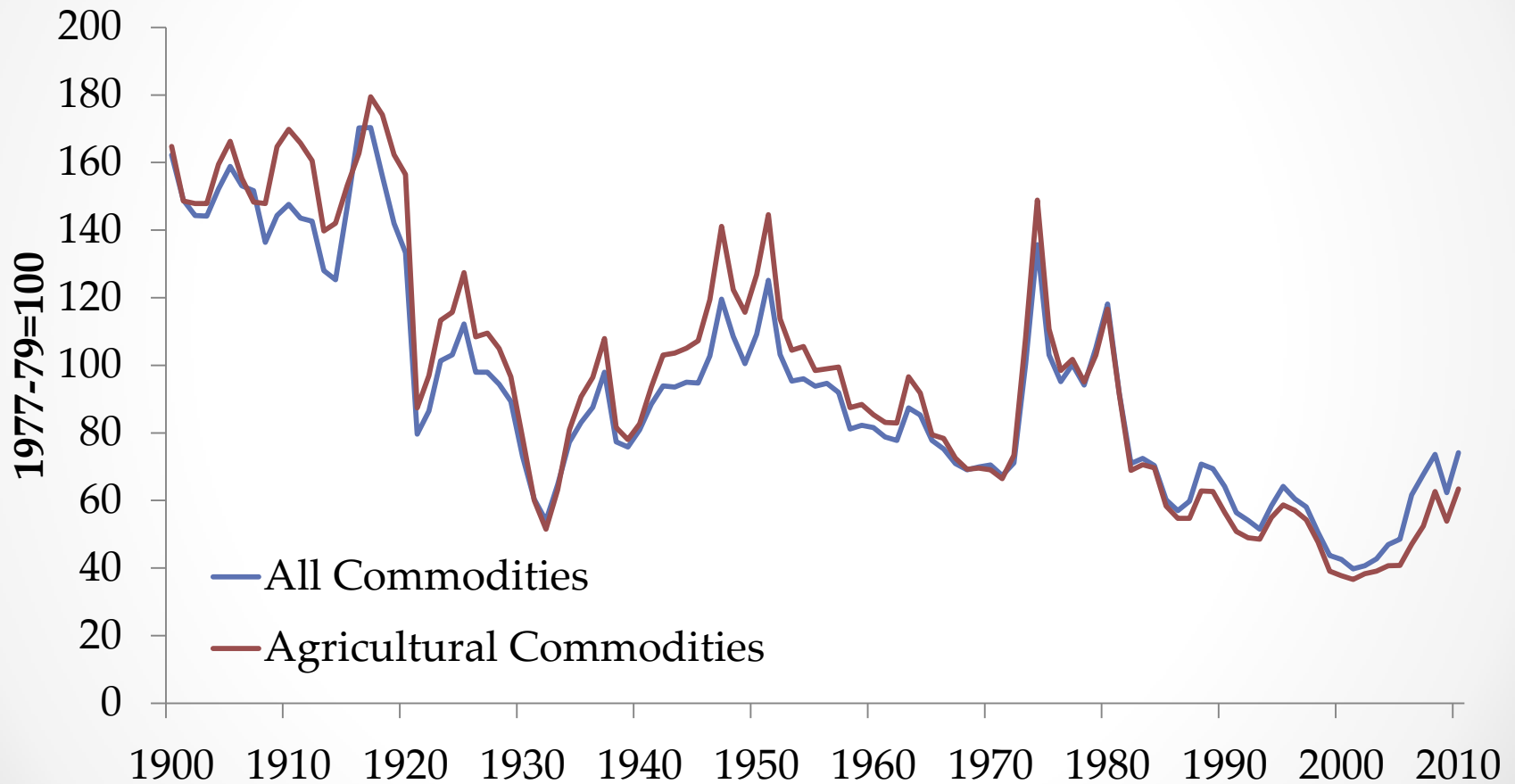
# The Solutions

- Less is More: The Sufficiency Narrative
  - demand increases need to be mitigated through behavioral change
  - scientific advances have the potential to bring forward agro-ecosystems that are both productive, respectful of ecosystems and resource saving
  - environmental externalities need to be internalized in markets - appropriate governance structures that address disruptive effect of trade.
- Doing More With Less: The Productivity Narrative
  - scientific advances have the potential to bring forward technologies that boost productivity and take into account both resource scarcities and environmental problems
  - massive investments in both public and private R&D
  - removal of barriers to technology adoption by farmers, such as infrastructure, trade barriers and access to markets.

# Common Ground?

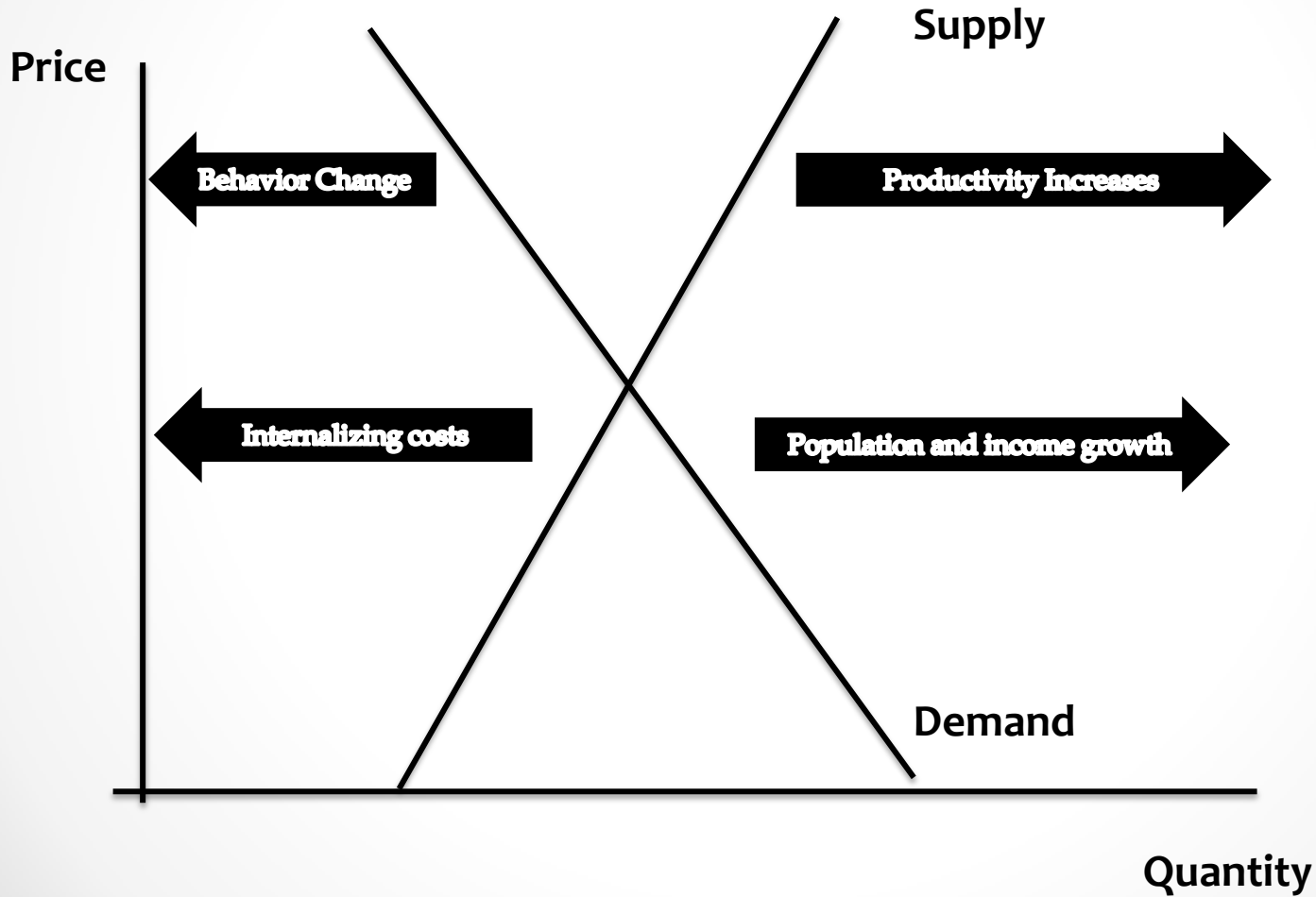
- The Problem
  - population growth
  - resource constraints
  - poverty, hunger and instability
- The Solution
  - need to increase productivity
  - a role for science
  - institutional and policy change

# Is the Era of Declining Real Agricultural Prices at an End?

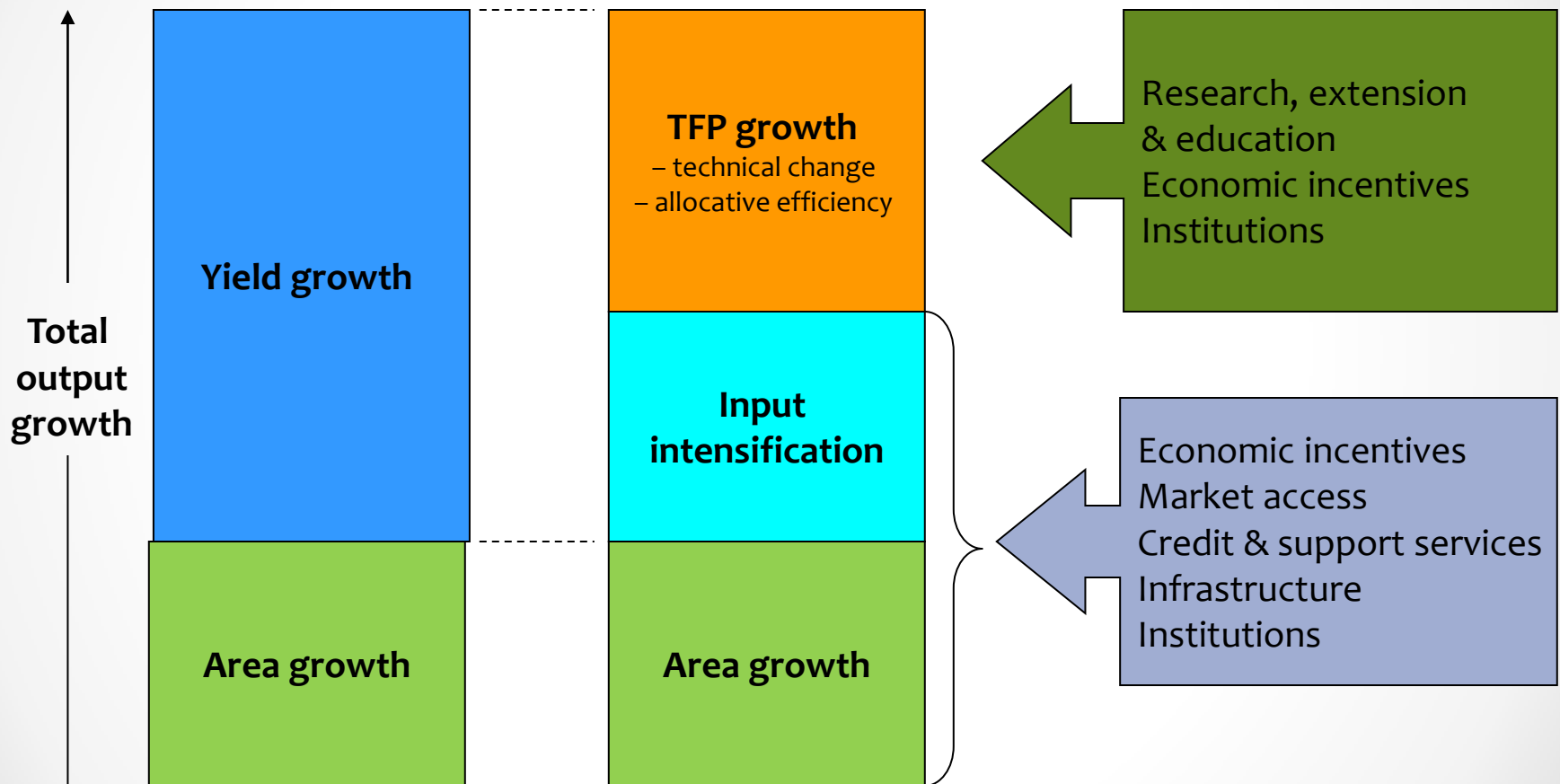


Original source: Grilli, Enzo, and Maw Cheng Yang (1988). "Primary Commodity Prices, Manufactured Goods Prices, and the Terms of Trade of Developing Countries: What the Long Run Shows." *World Bank Economic Review* 2, 1: 1-47  
Updated data, data sources and series descriptions are in S.Pfaffenzeller, P. Newbold, and A. Rayner (2007) "A Short Note on Updating the Grilli and Yang Commodity Price index," *World Bank Economic Review* 21, 1: 151-163.

# Direction of Prices?



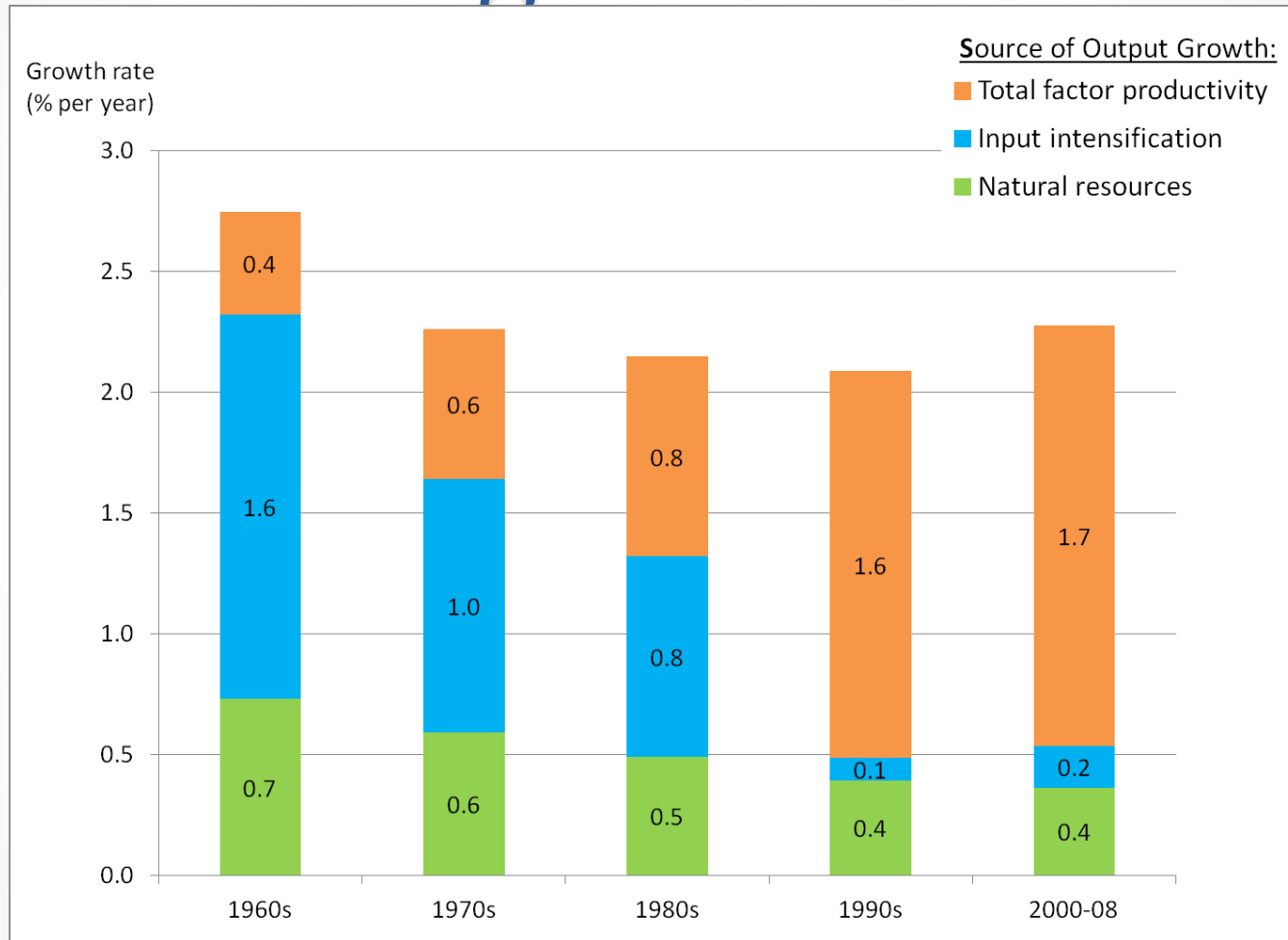
# Understanding Total Factor Productivity



Source: Fuglie, Keith O. (2012). Productivity Growth and Technology Capital in the Global Agricultural Economy. In, Productivity Growth in Agriculture: An International Perspective (Keith O. Fuglie, Sun Ling Wang and V. Eldon Ball, eds.) Oxfordshire, UK: CAB International (forthcoming).



# TFP Replaces Input Intensification as the Engine of Growth



Source: Fuglie, Keith O. (2012). Productivity Growth and Technology Capital in the Global Agricultural Economy. In, Productivity Growth in Agriculture: An International Perspective (Keith O. Fuglie, Sun Ling Wang and V. Eldon Ball, eds.) Oxfordshire, UK: CAB International (forthcoming).