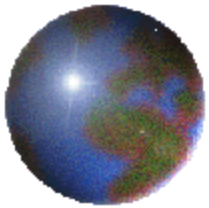
Farm Productivity Growth in Emerging Economies, and Australia's Trade



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University of Adelaide and ANU

Forum on FACING THE GLOBAL FOOD CRISIS: The Role of Research, Training and South Australian Expertise

Waite Campus, Adelaide, 21 November 2014

Crawford Fund launch of Task Force Report on *Doing Well By Doing Good*

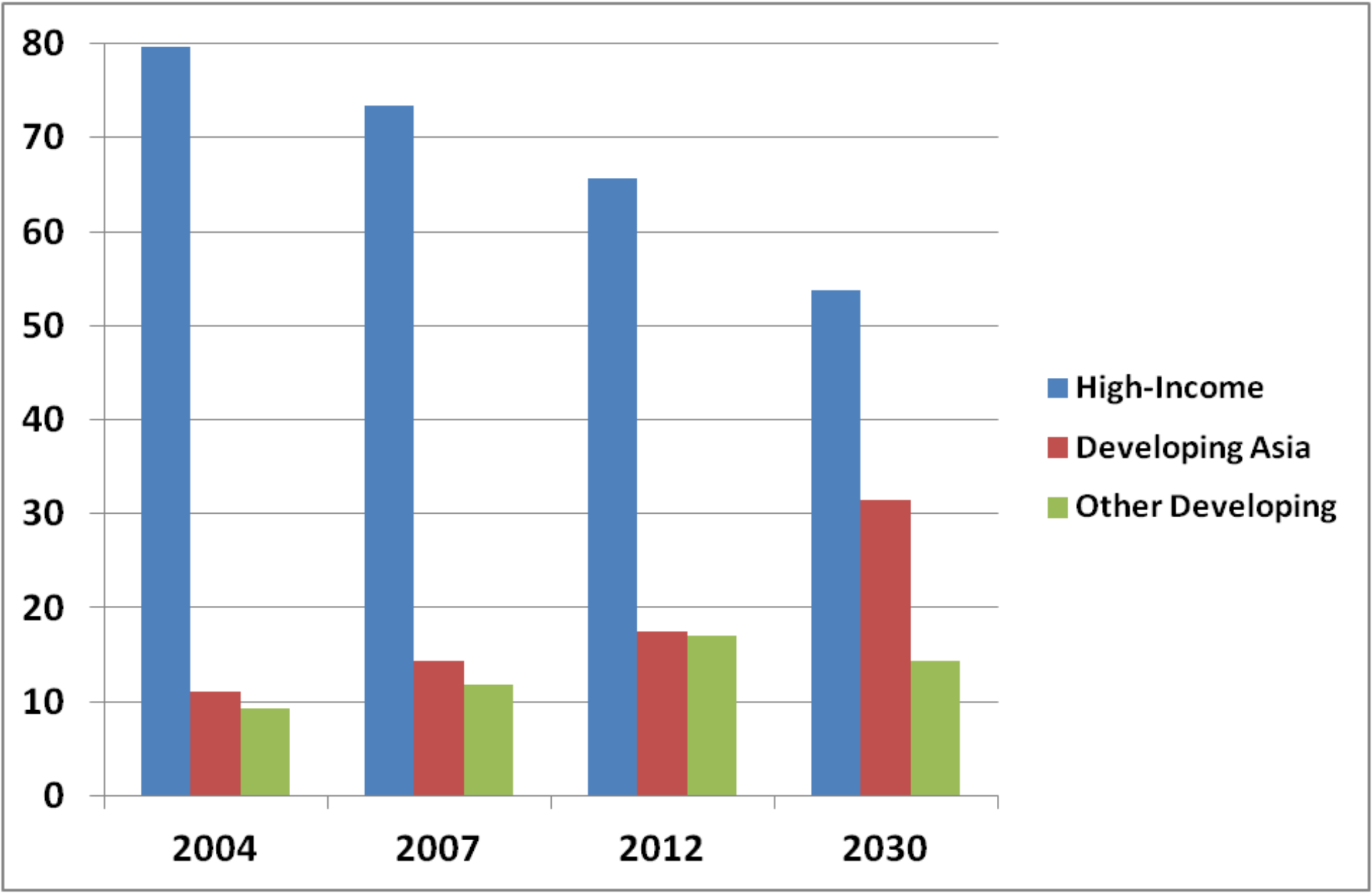
Key questions

- What are the implications for agricultural and other primary product markets of growth in (esp. Asia's) emerging economies?
  - … and of recent and prospective trade agreements?
- How does ACIAR funding of agric growth in emerging economies benefit Australian agric?

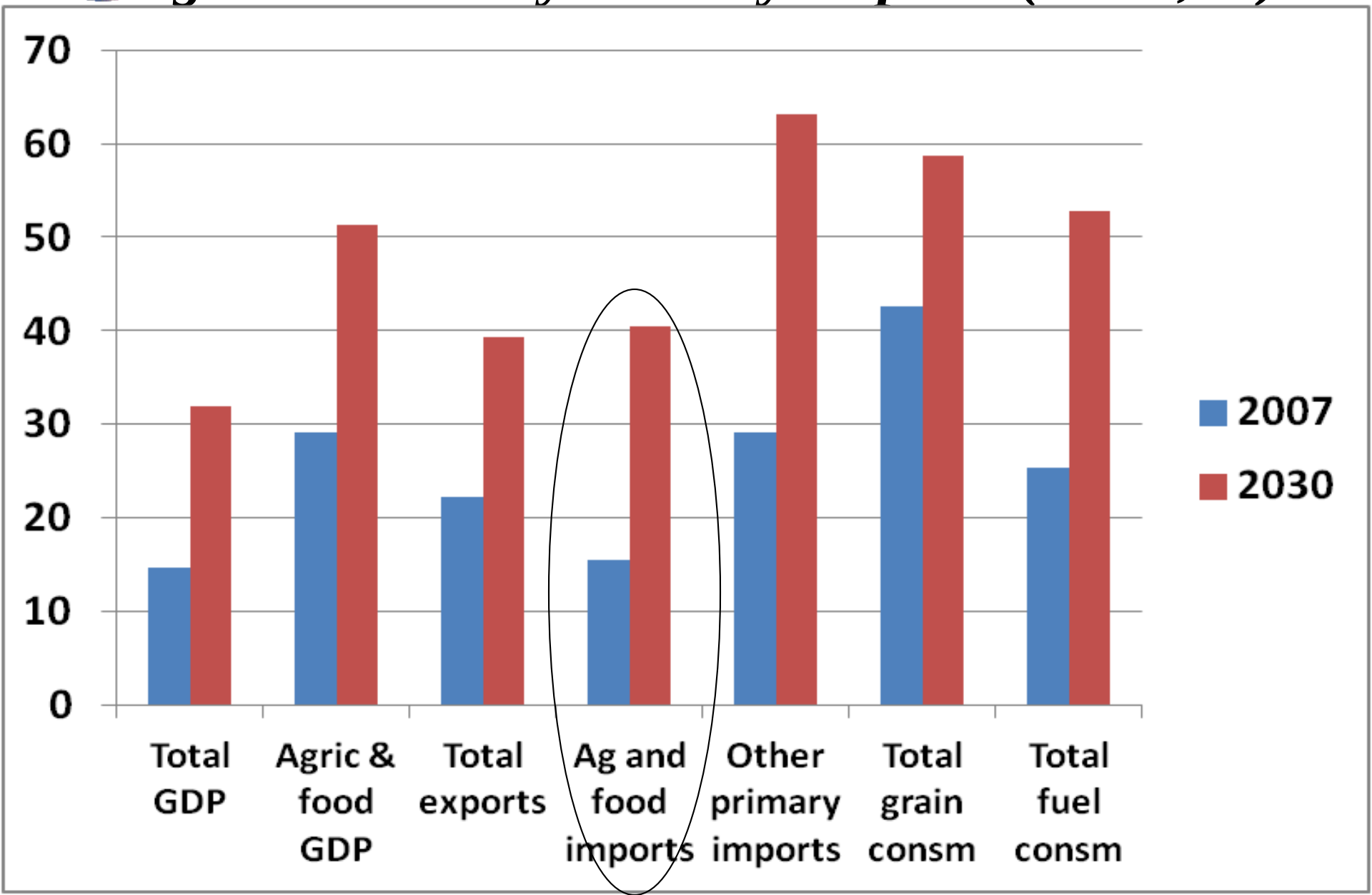
Our foresight results, using GTAP model

- Economic growth in Asia's latest generation of emerging economies is far more important than growth of Japan and NE Asian NICs in 1950s-1980s
  - because **10 x as many people**
- Asian DCs will nearly double their share of the global economy by 2030
  - … and **their imports of farm products will <u>more than double</u>**

Regional shares of global GDP, %



Developing Asia to become a far larger part of global economy in many respects (share, %)



Nature of trade growth of Asia's latest emerging economies

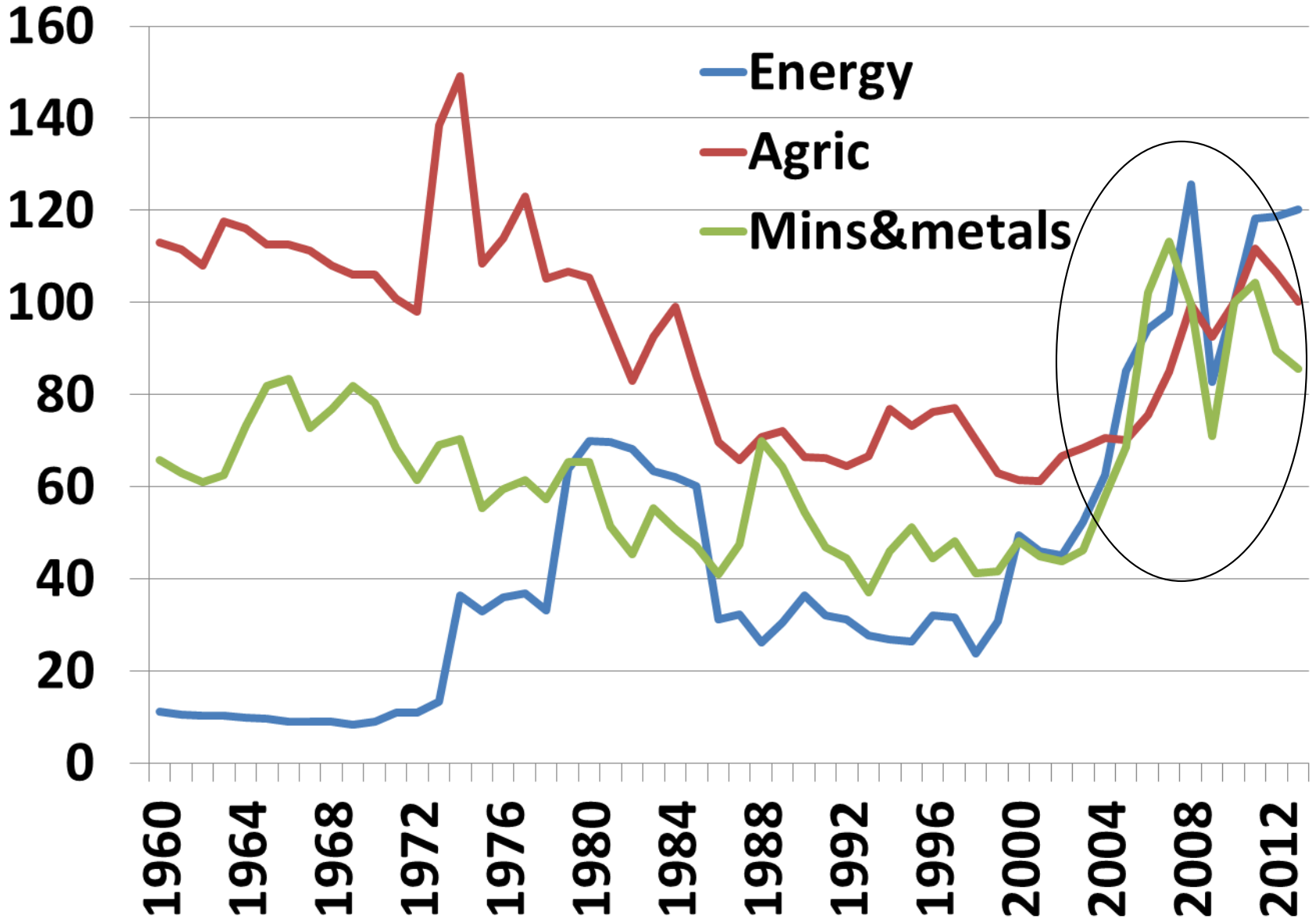
- Like Japan and NE Asian NICs, Asia's DCs too are mostly densely populated, natural **resource-poor economies**
  - Hence they are increasingly importing primary products & exporting labour-intensive manufactures and services
    - Great news for **primary-exporting countries,** whose terms of trade improve as Asia grows

Dev. Asia is boosting its global shares of manuf. exports, and of primary product imports

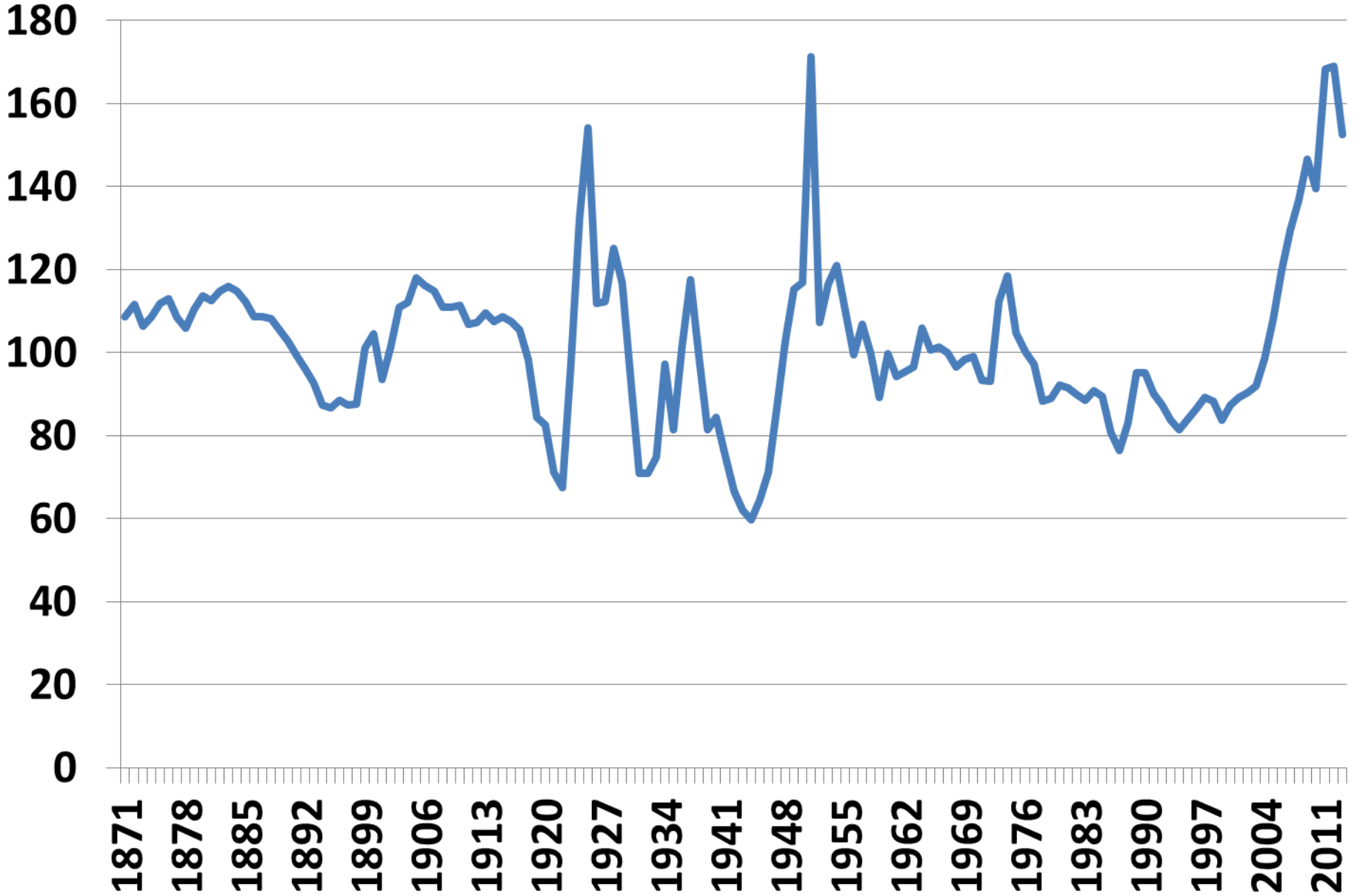
	Primary goods (%)		Manuf. goods (%)		Services (%)	
	2007	*2030*	*2007*	*2030*	*2007*	*2030*
World trade	**16**	**19**	**66**	**63**	**18**	**18**
of which:						
Dev. Asia exports	*2*	*2*	***17***	***32***	*3*	*5*
Dev. Asia imports	***4***	***10***	*12*	*18*	*3*	*4*

Huge real int'l price changes since 2001

(World Bank, 2005 = 100)



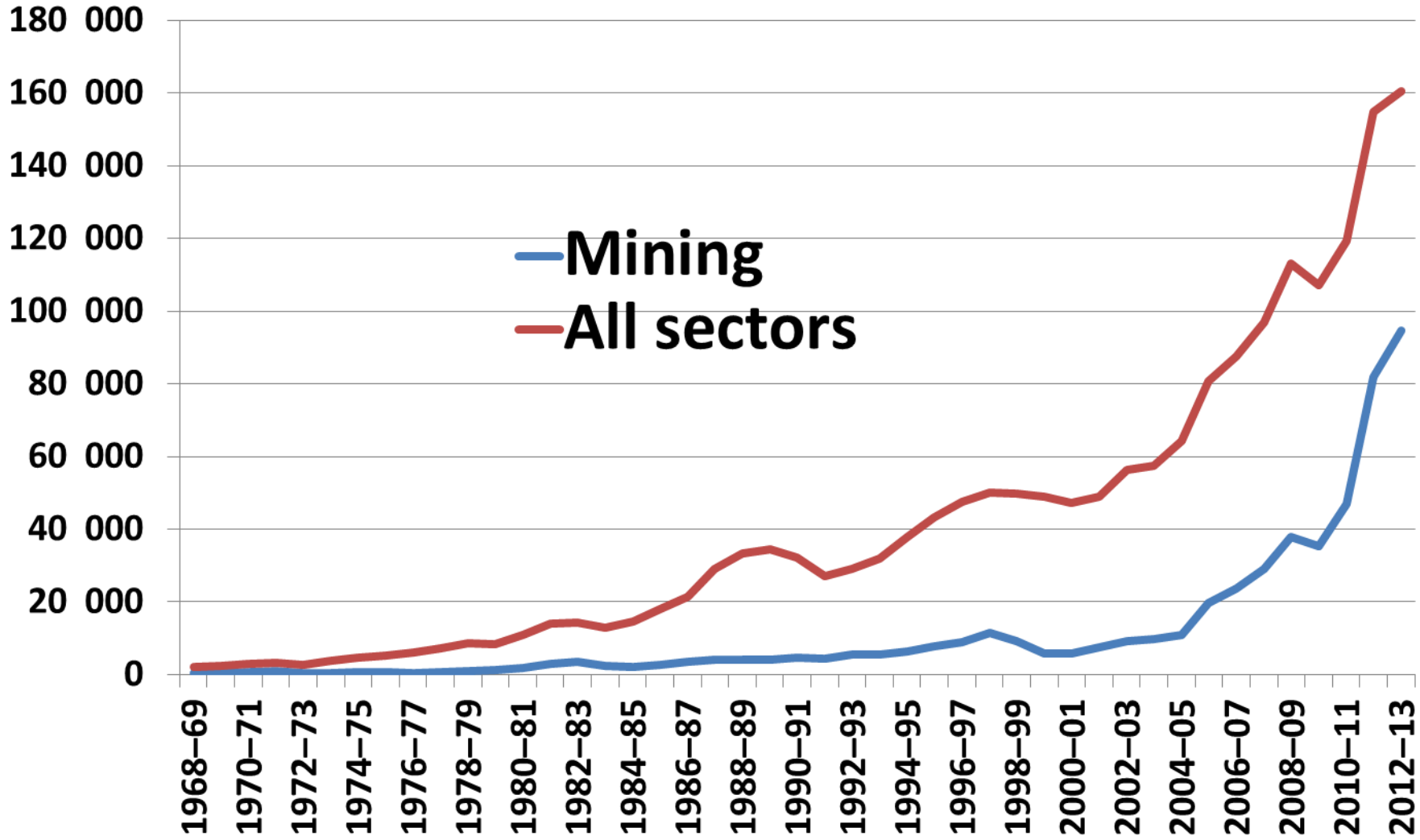
Australia's terms of trade, 1871-2013



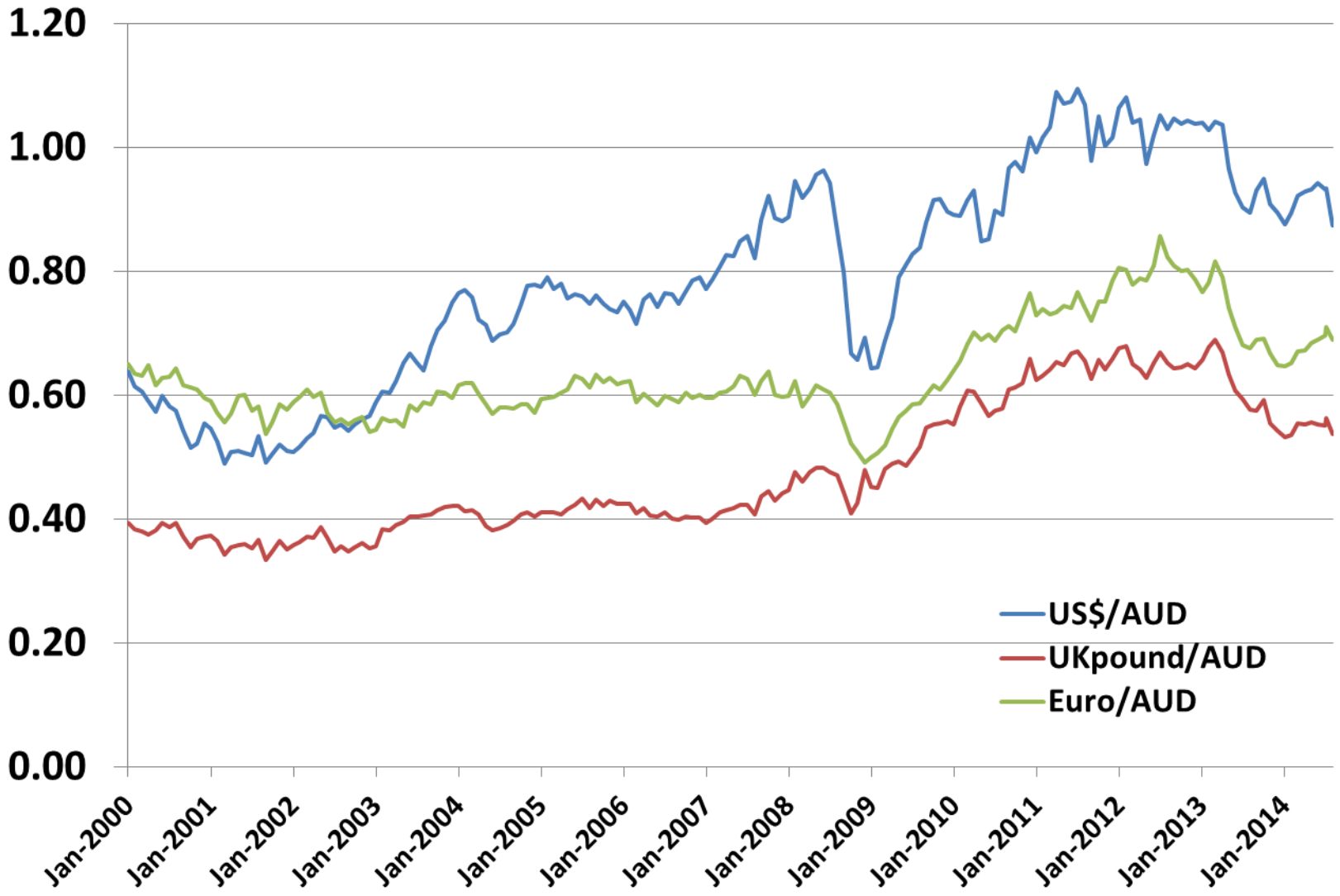
Australian farmers face two sets of competitive pressures though

- (i) In its initial investment phase, **mining boom** in Aust is squeezing producers of other tradables, including agriculture, via **real exchange rate appreciation**

Mining dominated growth in Australian capital expenditure in past decade ($m)



Australian dollar, nominal, 2000 to 09/2014



Australia's sectoral shares (%)

	GDP		Empl't		Export (merch.)	
	Rural	Mining	Rural	Mining	Rural	Mining
1901	24	9	21	6	55	40
1951	24	2	16	2	89	4
1970	7	3	8	1	54	32
1990	4	4	6	1	32	51
2002	**4**	**5**	**5**	**1**	**29**	**46**
2013	**2**	**8**	**2.8**	**2.3**	**17**	**69**

Australian farmers face two sets of competitive pressures though

- (i) In its initial investment phase, mining boom in Aust is squeezing producers of other tradables, incl. agric., via real exchange rate appreciation
- (ii) Other PP exporters also are responding to rise in relative price of primary products

Implications for agricultural trade, assuming no policy changes

- Dev. Asia's share of **global ag and food imports** rises from 15% in 2007 to 39% in 2030
  - mainly due to China (goes from 4% to 27%)
  - **to the benefit of farmers in Australia** and other land-abundant countries

Agric+food self sufficiency (%)

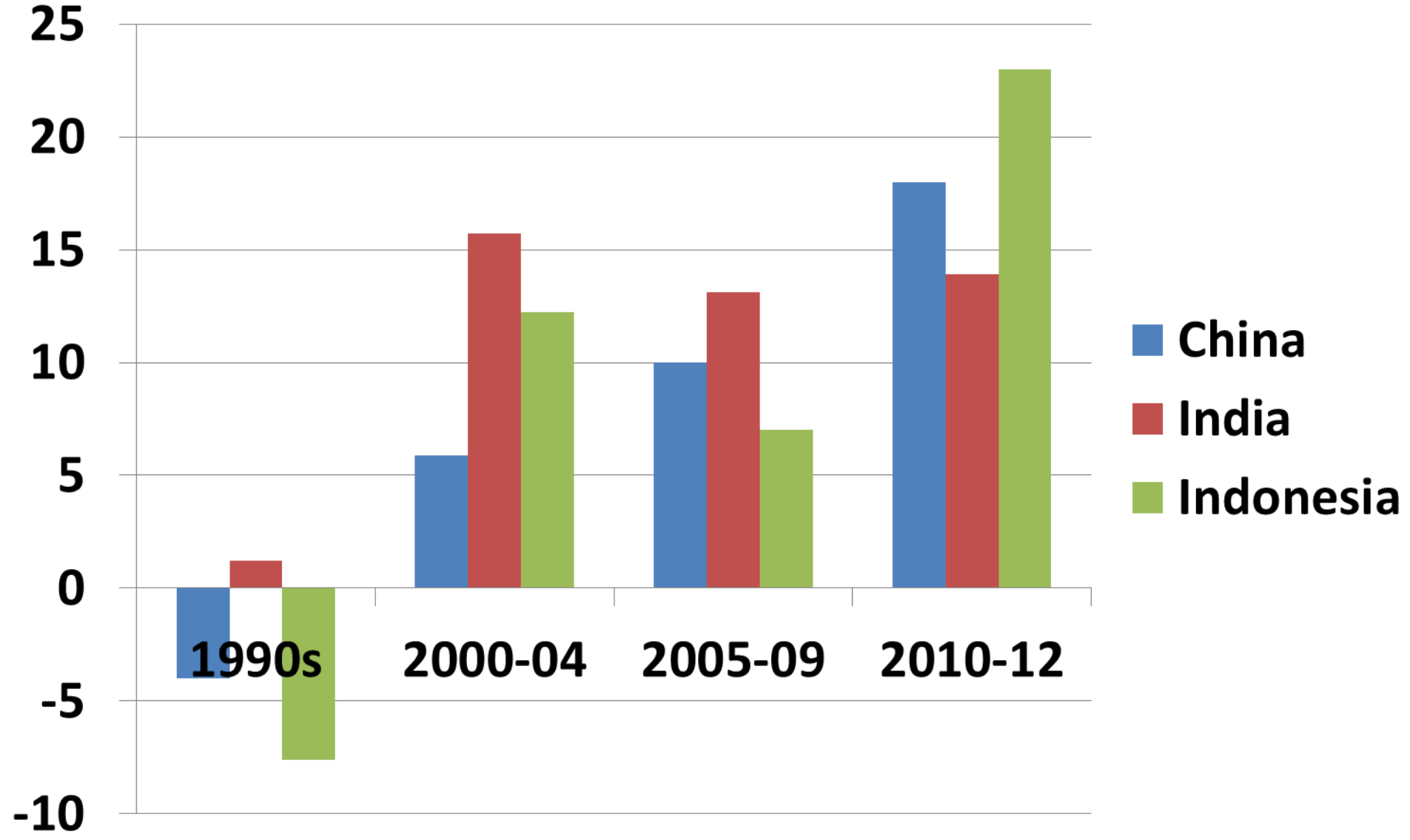
	2007 base	2030 core projection
China	97	87
South Asia	100	95
Other E Asia	93	100
SS Africa	100	103
Latin America	116	127
Australia + NZ	131	138

Implications for agricultural trade, if policies *do* change

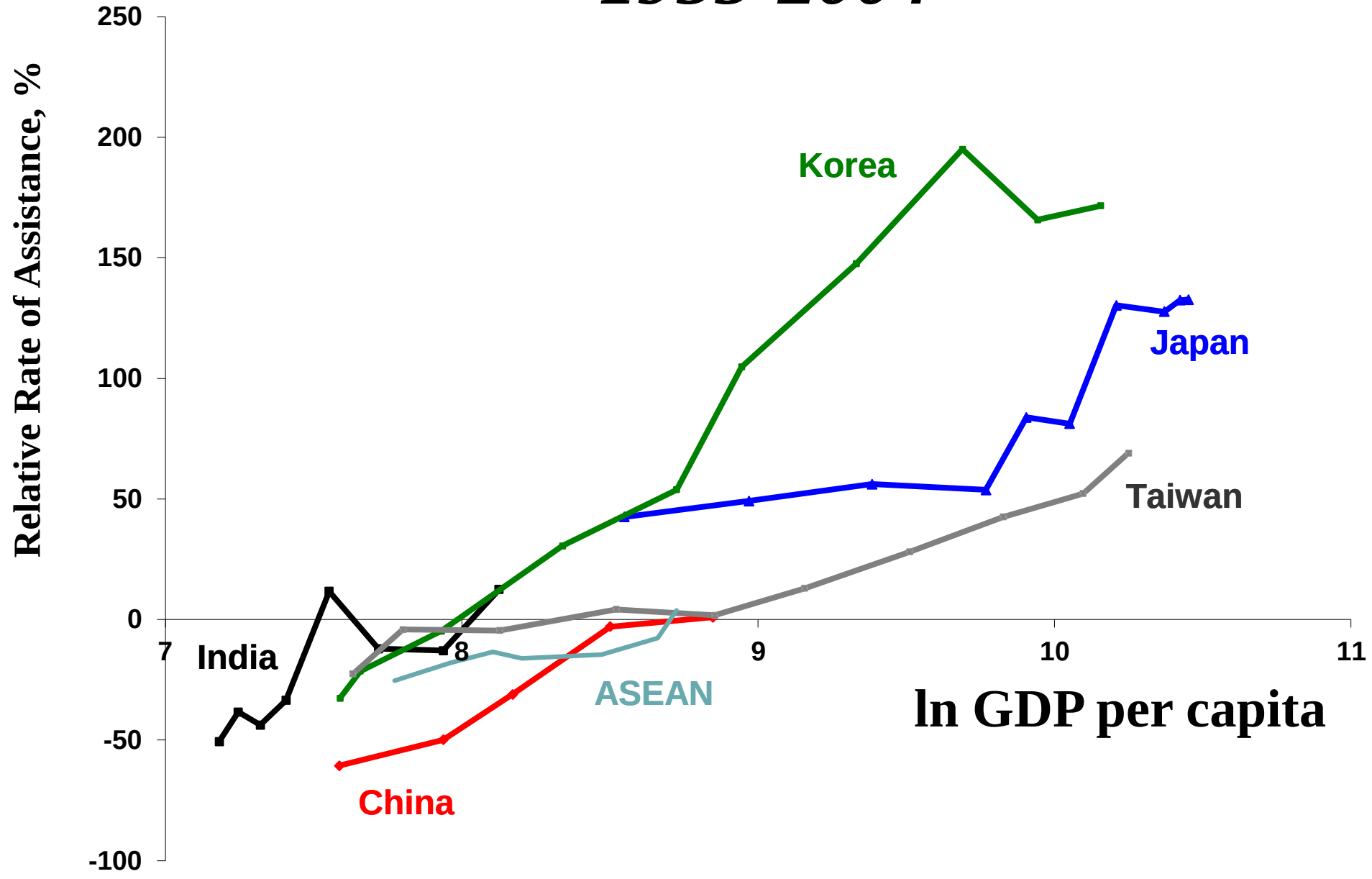
- **Aust FTAs** (Korea, Japan, China; India?)
  - Will boost Aust exports to Asia even more, both agric and mineral
- A comprehensive **WTO Doha agreement**
  - Would boost Aust agric exports even more
    - … not least because, without such an agreement, Asian DCs may follow Japan/NICs' agric protection growth pathway

Asian agric protection growth

(Nominal Rate of Assistance, %)



East Asia's agric protection growth, 1955-2004



What if Asian econ growth slows?

- Our modelling is consistent with World Bank's econ growth and relative price projections
  - Int'l prices of primary goods relative to manufactures by 2030 are similar to 2007
- Alternatives we consider are:
  - Slower econ growth (by 1/4th) in China and India:
    - would cause real primary product prices to ***fall*** somewhat,
    - **But,** if that slows primary sector TFP growth globally by 1%, **real primary product prices would instead *rise,* relative to 2007**

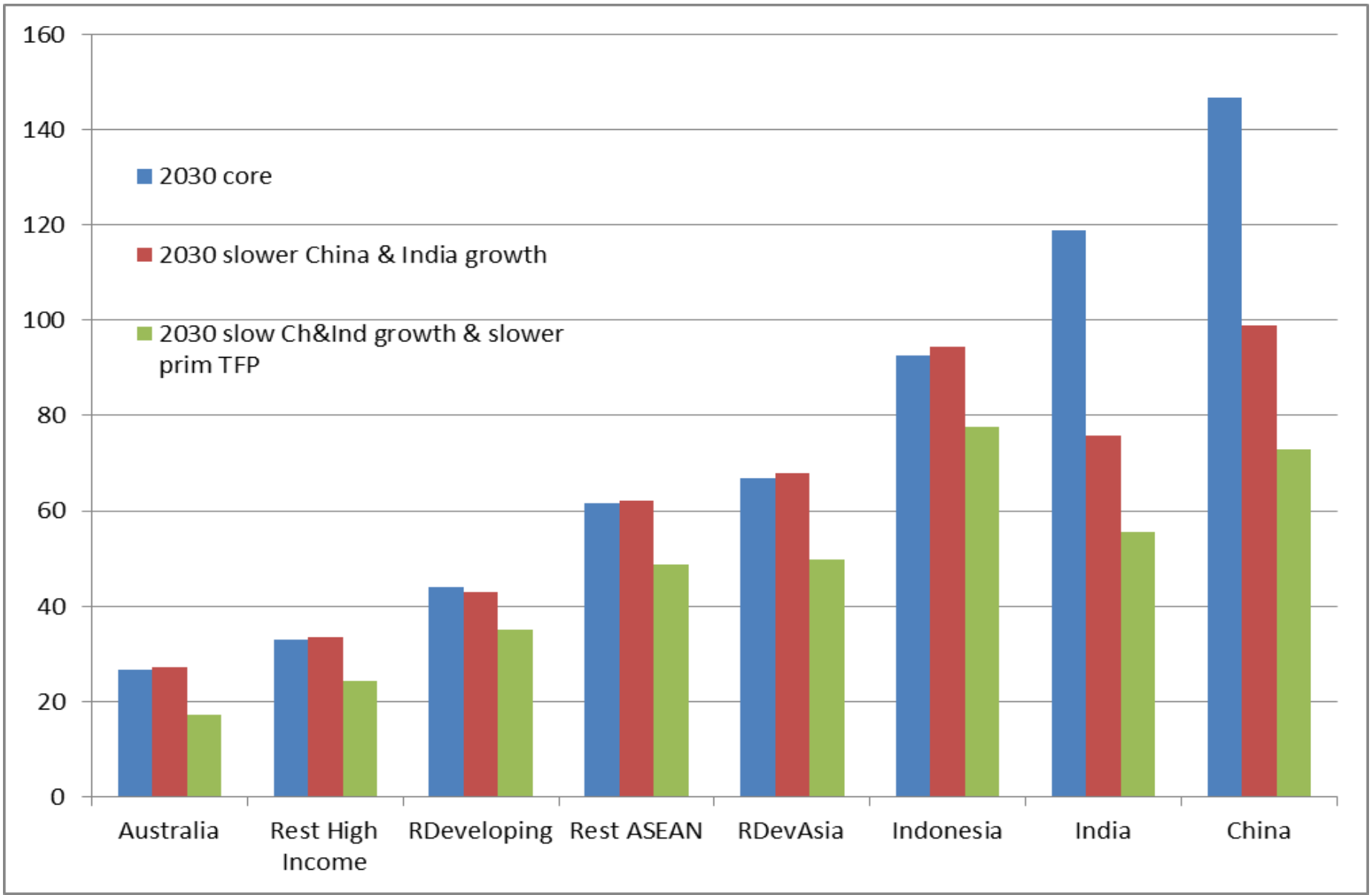
What does this imply about food trade, & food access for consumers?

- Impacts on **food self-sufficiency**
- Our model's indicator of access to food is **real household food consumption per capita** (i.e., at constant prices)

Agric+food self sufficiency (%)

	2007 base	2030 core	2030 slower growth in Ch/In and in primary TFP
China	97	87	88
South Asia	100	95	94
Other E Asia	93	100	95
SS Africa	100	103	100
Latin America	116	127	122
Australia+NZ	131	138	132

Cumulative growth in real household agric and food cons'm per capita, 2007 to 2030 (%)



ACIAR funding could boost Asian ag prod'n, but wouldn't that harm Aust agric competitiveness?

- It would **raise agric TFP growth** not only in Asia but **also in Aust** (tech 'spill-ins')
- It would **boost Asian incomes** & hence industrial and urban growth & thus demand for high-quality food, including via **imports**
  - **Rise of middle class** => rise in demand for more protein; & for food quality, variety, safety
- It could reduce risk of Asian DCs going down agric protection path of Japan/NICs
  - hence also risk to consumers' access to food

Three take-away messages

- By 2030, Developing Asia will consume more than **half the world's grain** (and fossil fuel, and 3/4^{ths} of its other minerals), paid for by expanding exports of manufactures

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  - (i) the slower agric TFP growth is in Australia relative to other food-exporting countries, and
  - (ii) the more Asian DCs become agric protectionists

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- Australian farmers will benefit, although less so:
  - (i) the slower agric TFP growth is in Australia relative to other food-exporting countries, and
  - (ii) the more Asian DCs become agric protectionists
- ACIAR investments are able to:
  - boost incomes in Asia,
  - boost agric research & TFP growth in Australia ('spill-ins'),
  - & reduce risk of agric protection growth in Asian DCs

Thanks!

- Anderson, K. and A. Strutt, "Emerging Economies, Productivity Growth, and Trade with Resource-Rich Economies by 2030", *Australian Journal of Agricultural and Resource Economics* 58(4): 590-606, October 2014 https://crawford.anu.edu.au/acde/publications/publish/papers/wp2013/wp_econ_2013_17.pdf
- Anderson, K., A. Strutt, S. Nelgen and H.G. Jensen, "What is the Appropriate Counterfactual When Estimating Effects of Multilateral Trade Policy Reform?", Paper for GTAP Annual Conference, Dakar, Senegal, June 2014.
- Anderson, K., "Australia's Competitiveness in Contributing to Asia's Food Bowl and Food Security", Submission IP167 to PM&C's Agricultural Competitiveness White Paper, Canberra, April 2014 http://agriculturalcompetitiveness.dpmc.gov.au