

Shifting Winds in International Agricultural Development:

What's Behind Africa's Turnaround?

William A. Masters

Professor and Chair, Department of Food and Nutrition Policy,
Friedman School of Nutrition Science and Policy, Tufts University
nutrition.tufts.edu | sites.tufts.edu/willmasters

Hill Seminar Series, 19 May 2014

Council on Food, Agricultural and Resource Economics (C-FARE)
National Coalition for Food and Agricultural Research (NCFAR) and Tufts University



NATIONAL COALITION FOR FOOD AND AGRICULTURAL RESEARCH



Cecilia J. and Charles R.
Friedman School of
Nutrition Science and Policy

Africa has some of the world's fastest economic growth rates

BBC NEWS

15 April 2013

World Bank: Africa's economic growth to outpace average

Economic growth in sub-Saharan Africa should significantly outpace the global average over the next three years, according to the World Bank.

Higher commodities, increasing investment and a general pick-up in the world economy should all boost the continent's growth to more than 5%.



Bloomberg

Sub-Saharan Africa Economy to Grow

By David Malingha Doya -- Apr 7, 2014
Economic growth in sub-Saharan Africa is forecast to accelerate to 5.2 percent this year...

THE GLOBE AND MAIL

PORTFOLIO STRATEGY

For rapid growth, Africa is the new China

ROB CARRICK

The Globe and Mail

Published Friday, Apr. 18 2014, 5:13 PM EDT

The Washington Post

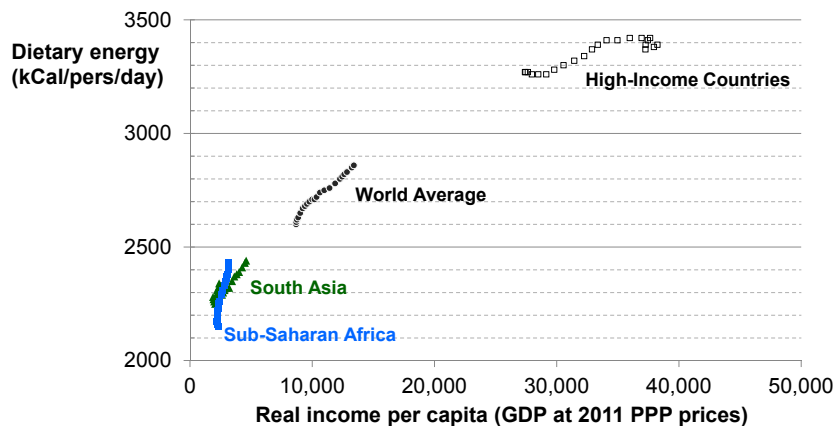
Africa's emergence poses choice for US ties

Associated Press, May 6th 2014

...So far, the U.S. is lagging in the worldwide race to reap economic benefits in Africa...

Africa is catching up, but still has far to go

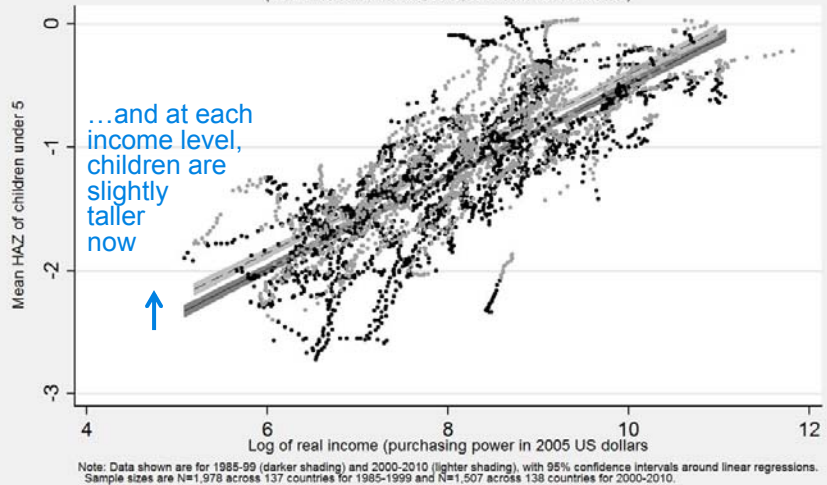
Food supply and real income by region, 1990-2012



Source: Author's calculations, May 2014. Real income is from World Bank, World Development Indicators (April 2014), downloaded from <http://data.worldbank.org>. Food supply is from FAO, Food Security Indicators (December 2013), downloaded from <http://www.fao.org/economic/less/less-fs>. Each point is a 3-year average, from 1990-92 to 2010-12.

With higher incomes, children grow taller

Figure 1. Child height and real income, 1985-99 and 2000-10
(Ezzati et al. estimates, N=3,485 from 137 countries)



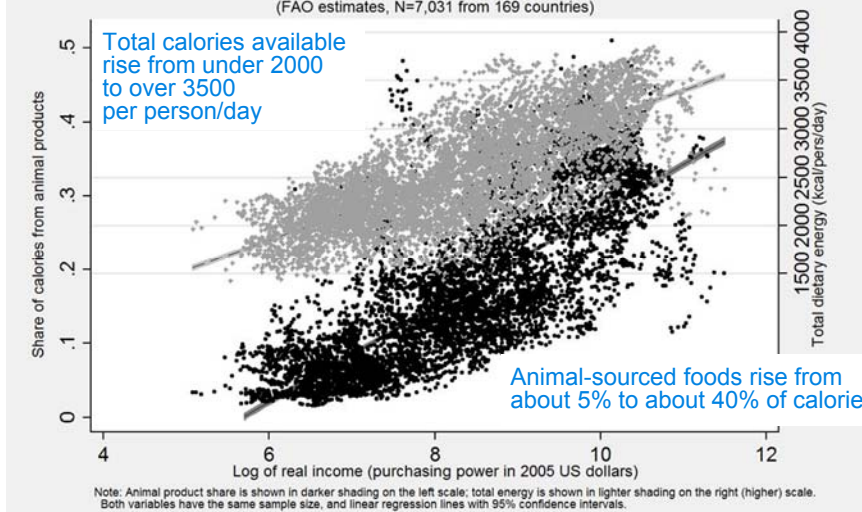
Note: Data shown are for 1985-99 (darker shading) and 2000-2010 (lighter shading), with 95% confidence intervals around linear regressions. Sample sizes are N=1,978 across 137 countries for 1985-1999 and N=1,507 across 138 countries for 2000-2010.

Source: W.A. Masters, 2013. "Child Nutrition and Economic Development", *Nutrition in Pediatrics*, 5th ed. (chapter 44), edited by C.P. Duggan, J.B. Watkins, B. Koletzko and W.A. Walke, Shelton, CT: PMPH-USA.

Higher income changes diet quality as well as quantity

Share of calories from animal sources, total food supply and income, 1961-2009

(FAO estimates, N=7,031 from 169 countries)

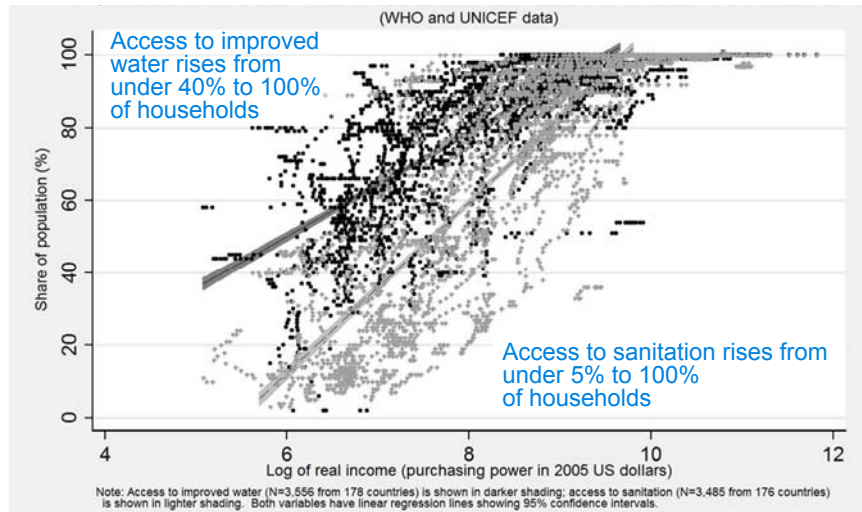


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Higher income also buys sanitation and clean water (among other things)

Access to sanitation, improved water and income, 1990-2010

(WHO and UNICEF data)



Source: W.A. Masters, 2013. "Child Nutrition and Economic Development", *Nutrition in Pediatrics*, 5th ed. (chapter 44), edited by C.P. Duggan, J.B. Watkins, B. Koletzko and W.A. Walke, Shelton, CT: PMPH-USA.

What drives income growth?

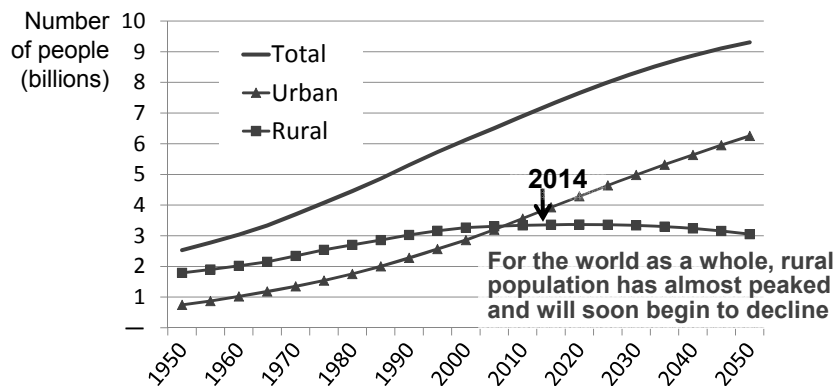
- Most of the poorest people are in rural areas
 - they rely on agriculture for economic opportunity
 - and move to off-farm work as soon as they can



*Amai Nickson and family at Chakuma Village, Zimbabwe
25 years after I taught in the classroom at right (with Tadius Shumba)*

Urbanization and off-farm work can eventually employ all the children of farmers

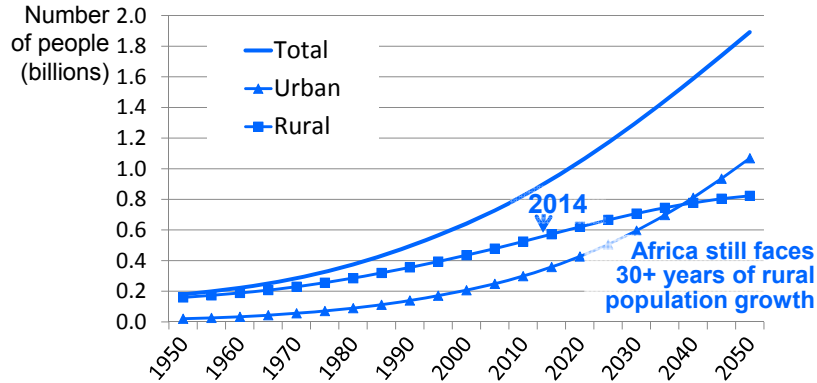
World population by principal residence, 1950-2050



Source: Calculated from UN World Urbanization Prospects, 2011 Revision, released October 2012 at <http://esa.un.org/unpd/wup>. Downloaded 18 April 2013.

Urbanization and off-farm work can eventually employ all the children of farmers

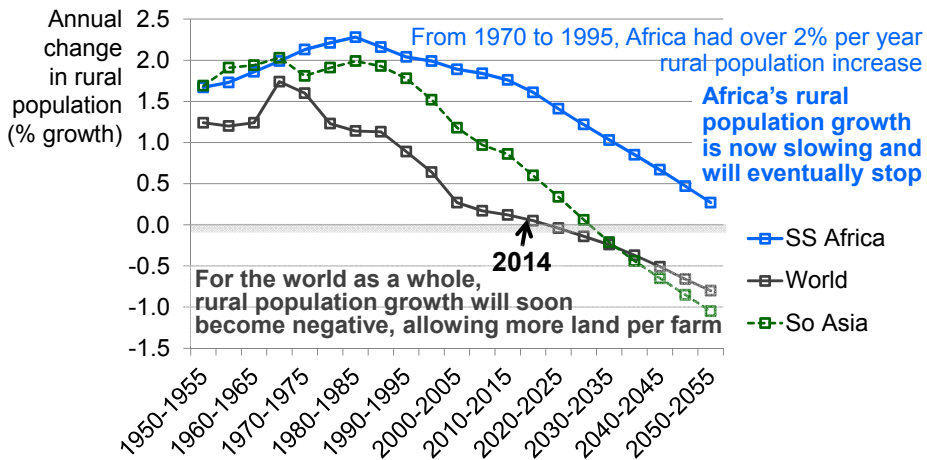
Sub-Saharan Africa population by principal residence, 1950-2050



Source: Calculated from UN World Urbanization Prospects, 2011 Revision, released October 2012 at <http://esa.un.org/unpd/wup>. Downloaded 18 April 2013.

Africa's year-to-year rural population increase has been fast but is now slowing

Rural population increase in Africa, South Asia and Worldwide, 1950-2050



Source: Calculated from UN Population Division, World Population Projections (<http://esa.un.org/unpd/wpp>), accessed 11 Aug 2012, based on UN Population Prospects: The 2010 Revision and World Urbanization Prospects: The 2011 Revision.

Adapting to higher rural population density calls for difficult, surprising innovations

Traditional planting



"Zai" pits



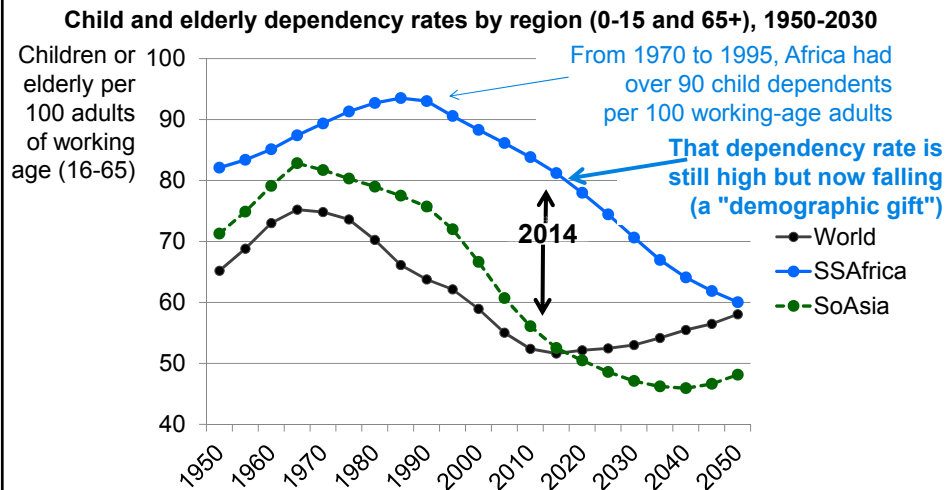
Burkina Faso, 1997

Digging zai pits concentrates moisture and nutrients, making it worthwhile to use more fertilizer and new seed varieties

Interventions to improve agriculture and nutrition can start a cycle of success



Africa's population increase also imposed a heavy burden of child dependency



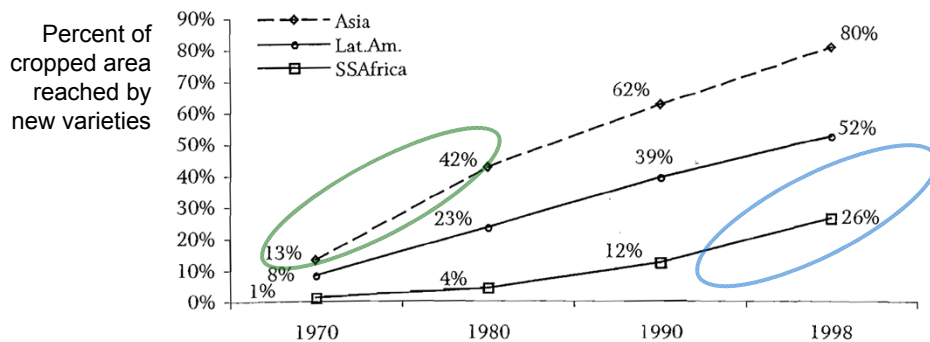
Source: Calculated from UN Population Division, World Population Projections (<http://esa.un.org/unpd/wpp>), accessed 11 Aug 2012, based on UN Population Prospects: The 2010 Revision (April 2011).

Africa is in the last stage of demographic transition from large to small families



Two families involved in USAID-Heifer International projects in Nakasongola and Luweero districts, Uganda (2011)

Africa has a long way to catch up: Africa's ag R&D is 25 years behind Asia's



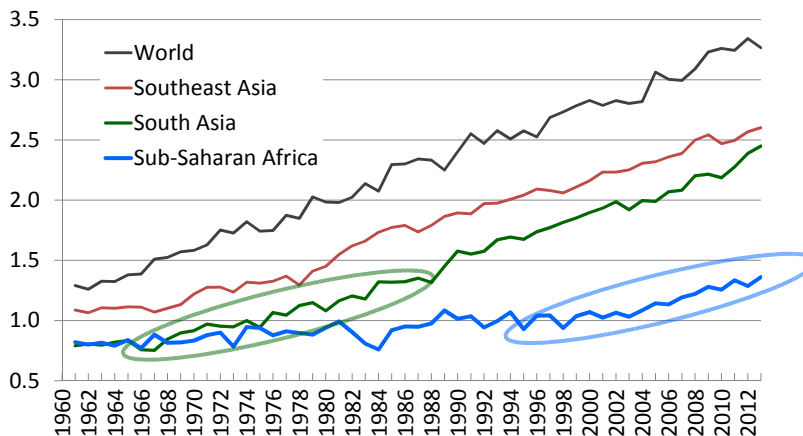
Source: Calculated from data in R. E. Evenson and D. Gollin, *Crop Variety Improvement and its Effect on Productivity*, (Cambridge, MA: CABI, 2003).

Figure 16. Adoption of new varieties (percentage of cropped area).

Source: Reprinted from W.A. Masters, "Paying for Prosperity: How and Why to Invest in Agricultural Research and Development in Africa" (2005), *Journal of International Affairs*, 58(2): 35-64.

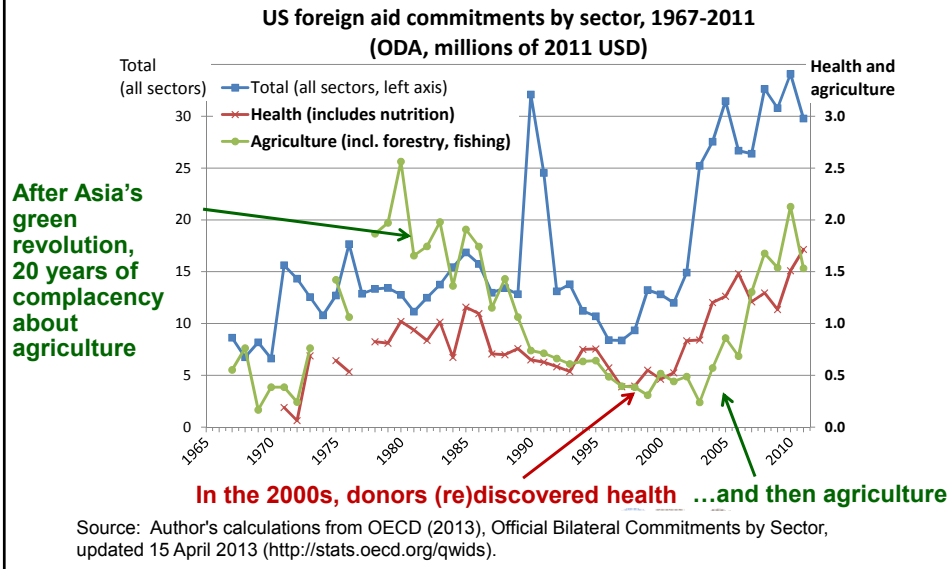
Africa's green revolution has now started, 25 years after Asia's

USDA estimates of average cereal grain yields (mt/ha), 1961-2013

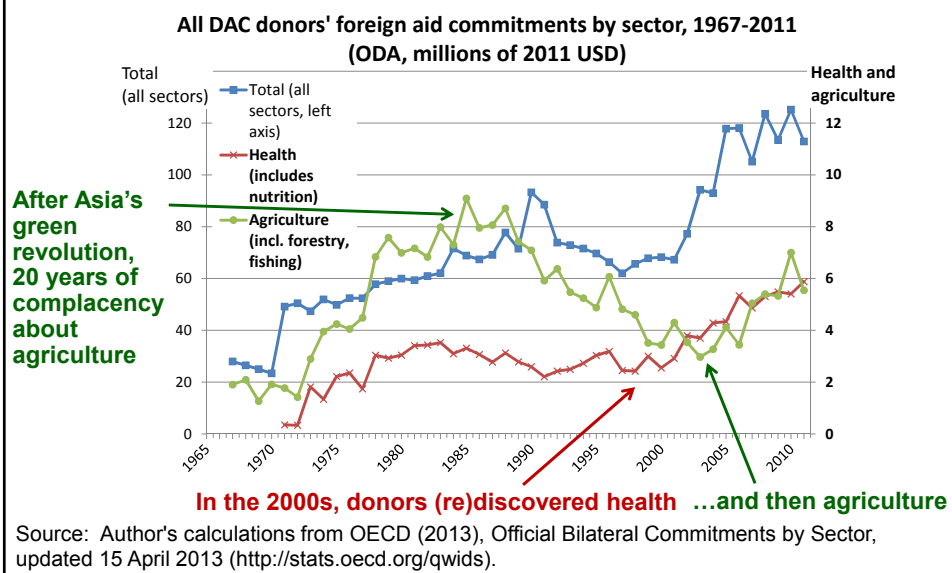


Source: Calculated from USDA, PS&D data (www.fas.usda.gov/psdonline), downloaded 2 August 2013. Results shown are each region's total production per harvested area in barley, corn, millet, mixed grains, oats, rice, rye, sorghum and wheat.

U.S. aid for agriculture has just begun to recover after being sharply cut in 1980-99

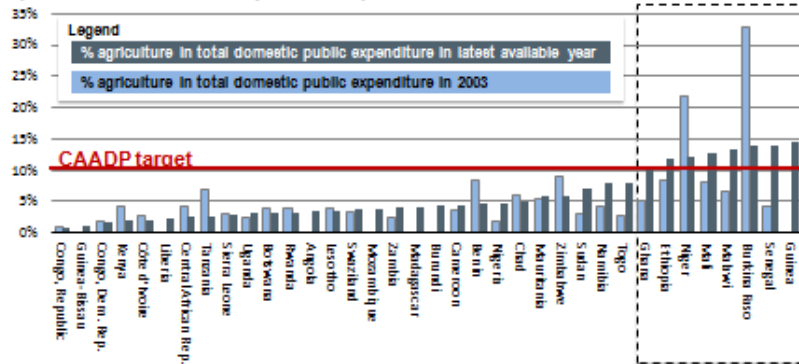


Global aid trends have been similar to the U.S. trends, magnified times four



Many African governments are now focusing more on agriculture

Domestic public expenditure on agriculture in selected countries
(% of total domestic expenditure)



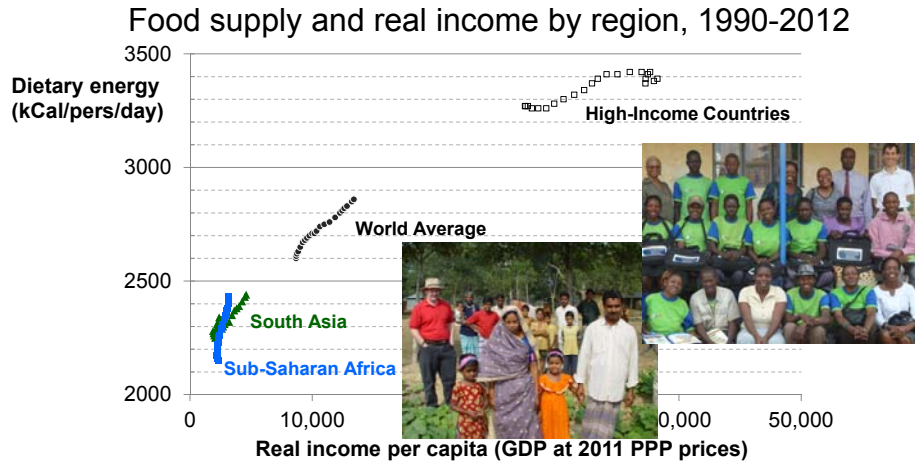
- Source: ReSAKSS, 2010, CEPA analysis
- No data available after 2006 for some countries including Ghana, Rwanda and Sierra Leone
- Similarly, no 2003 data available for some countries including Mozambique, Liberia, Angola and Burundi

Slide is courtesy of Prabhu Pingali, Greg Traxler and Tuu-Van Nguyen (2011), "Changing Trends in the Demand and Supply of Aid for Agriculture Development and the Quest for Coordination," at the AAEA, July 24–26, 2011.

Long-term trends are slowly shifting to favor agricultural development in Africa

- From the 1970s through the 1990s, Africa faced the world's heaviest demographic headwinds:
 - Rural population growth rates rose to over 2% per year
 - Child dependency rates rose to over 90 children per 100 adults
- Africa is now catching up with Asia's demographic transition and agricultural revolution, creating economic opportunity
 - New farming techniques and crop varieties are finally arriving
 - Many interventions help drive agricultural and nutrition improvements
- "Africa" is 55 countries with many diverse challenges
 - ...but the odds of success are improving, with high payoffs to intervention

To conclude, back to our first slide:
Africa and Asia both still have far to go,
offering big opportunities for rapid growth



Source: Author's calculations, May 2014. Real income is from World Bank, World Development Indicators (April 2014), downloaded from <http://data.worldbank.org>. Food supply is from FAO, Food Security Indicators (December 2013), downloaded from <http://www.fao.org/economic/ess/ess-fs>. Each point is a 3-year average, from 1990-92 to 2010-12.

Thank you!

For research findings behind this talk, see
<http://sites.tufts.edu/willmasters>

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