

New Chicago Council Report Finds Agriculture Innovations and Investments Critical to Meeting Future Food Demand

April 24, 2013 CHICAGO - The Chicago Council on Global Affairs today released a report that examines the implications of the increasingly influential roles of global business, Brazil, China, and India in agricultural research and the limited national research capacity of developing countries. It makes the case that greater international collaboration and investment in research is needed to safeguard productivity gains made over the past half century and meet future food demand.

The independent study, [*Agricultural Innovation: The United States in a Changing Global Reality*](#), is authored by University of Minnesota researchers, Philip G. Pardey and Jason M. Beddow. It concludes that most Sub-Saharan African countries could potentially access at least 25 times their locally produced agricultural knowledge by adapting and adopting scientific breakthroughs produced in other countries.

"A new way of thinking about agricultural investments and innovation must be embraced to take advantage of such opportunities to increase agricultural production and increase the efficiencies of investment at all levels, from the local to the international level," said Pardey. "A more international approach is urgently needed, as the lag between research investments and commercial adoption is extremely lengthy."

Pardey and Beddow present new measures of accumulated knowledge stocks by country and the potential for this knowledge to "spill over" and benefit other countries. These new measures of global spillover potential can help guide research and development decisions in the United States and globally.

"The current system does not adequately take advantage of the vast stocks of knowledge that exist around the world that could be adapted to local environments elsewhere," said Beddow.

History has shown that agricultural research and innovation is pivotal to increasing productivity, but the share of R&D investments made by traditional high-income countries, especially the United States, has dropped. Investments in agricultural research in emerging economies such as Brazil, China, India, and South Africa are growing. Business investments in research are playing an increasingly important role. Investments have also shifted away from a focus on productivity improvements in staple crops and been spread across a wide variety of other interests.

"The Chicago Council commissioned this report to assess how to better leverage scientific breakthroughs to benefit agriculture in low-income countries and get the most out of R&D dollars and activities," said Marshall M. Bouton, president of The Chicago Council on Global Affairs. "Taking stock of international agricultural R&D efforts is critical given the important role science will play in empowering the agriculture and food system to meet future food demand."

The study takes into account that the global agriculture and food system will be asked to increase production by 60 percent by 2050. It acknowledges that research and development will play a critical role in meeting this challenge given that production increases will occur in the face of rising temperatures, resource scarcity, and the increased frequency of extreme climatic events.

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New measures for global spillover potential presented in the report include:

- Agro-technological distances – identifying global similarities in agro ecologies and global similarities in agricultural production
- Cumulative home-grown knowledge stocks, by region and country
- Potential spill-in leverage versus world share of knowledge stock, by country

The following datasets contributed to this analysis:

- Developed countries' contributions to agricultural R&D
- Global productivity growth trends (how much of R&D is going towards productivity growth, and how much is dedicated to other areas)
- Public and private contributions to global R&D and productivity growth
- Total spending on science-related R&D (looking beyond just agricultural R&D to other sciences, in recognition that there are spillovers from other types of R&D investments)

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