

Applied Bioeconomy Research to Strengthen National Innovation Systems in Latin America

Ruben G. Echeverría

Sr. Research Fellow, International Food Policy Research Institute

Director General Emeritus, International Center for Tropical Agriculture

Integrating bioeconomy related agricultural research into public sector R&D

An opportunity to update research priorities and strengthen national innovation systems in the region

*Big challenges to
update public
research portfolios!*



Too little investments in national, regional and global public agricultural research for development



Too many uncoordinated efforts

Regional trends shaping the agricultural sector



FUNDING
SHIFT



DIGITAL &
MOBILE



RURAL
TRANSFORMATION



FOOD
MARKETS



FOOD SAFETY



ENVIRONMENTAL
SERVICES



NEW
PRIORITIES



INNOVATION



FOOD
EXPORTER



URBANIZED
REGION

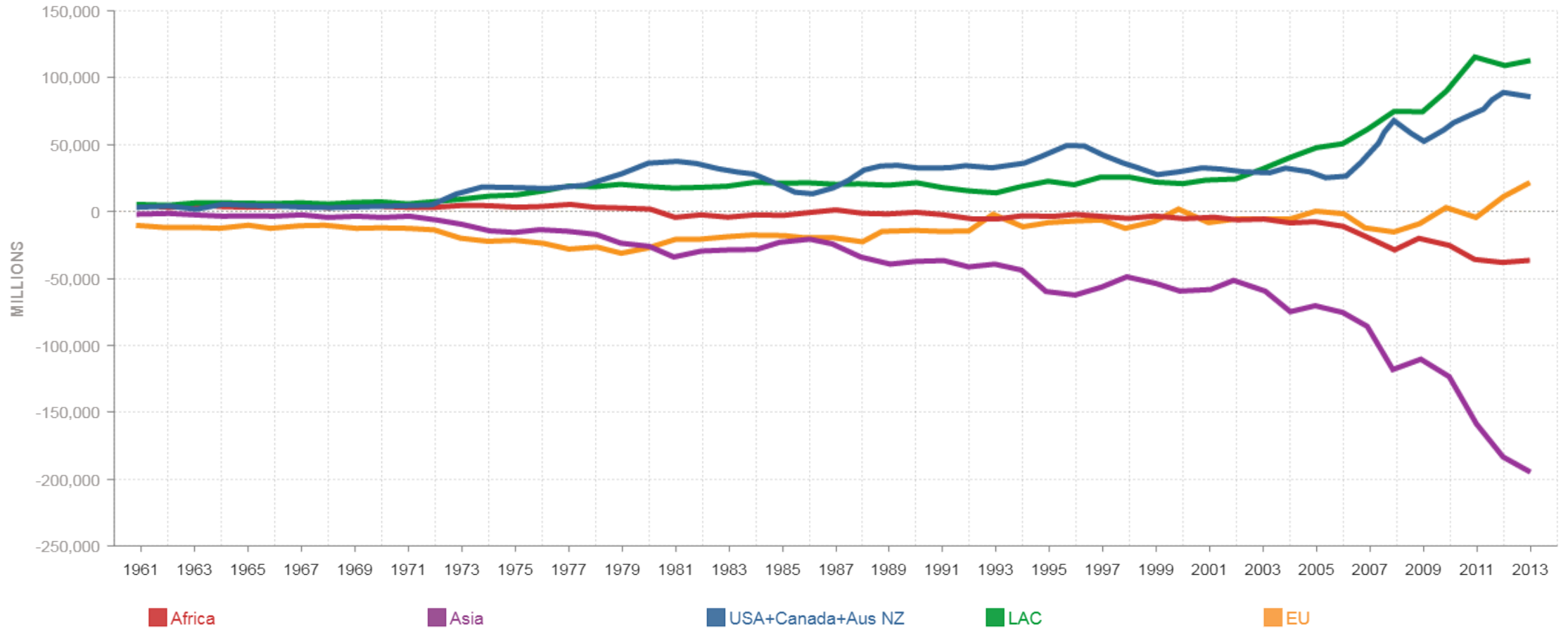


CLIMATE
CHANGE



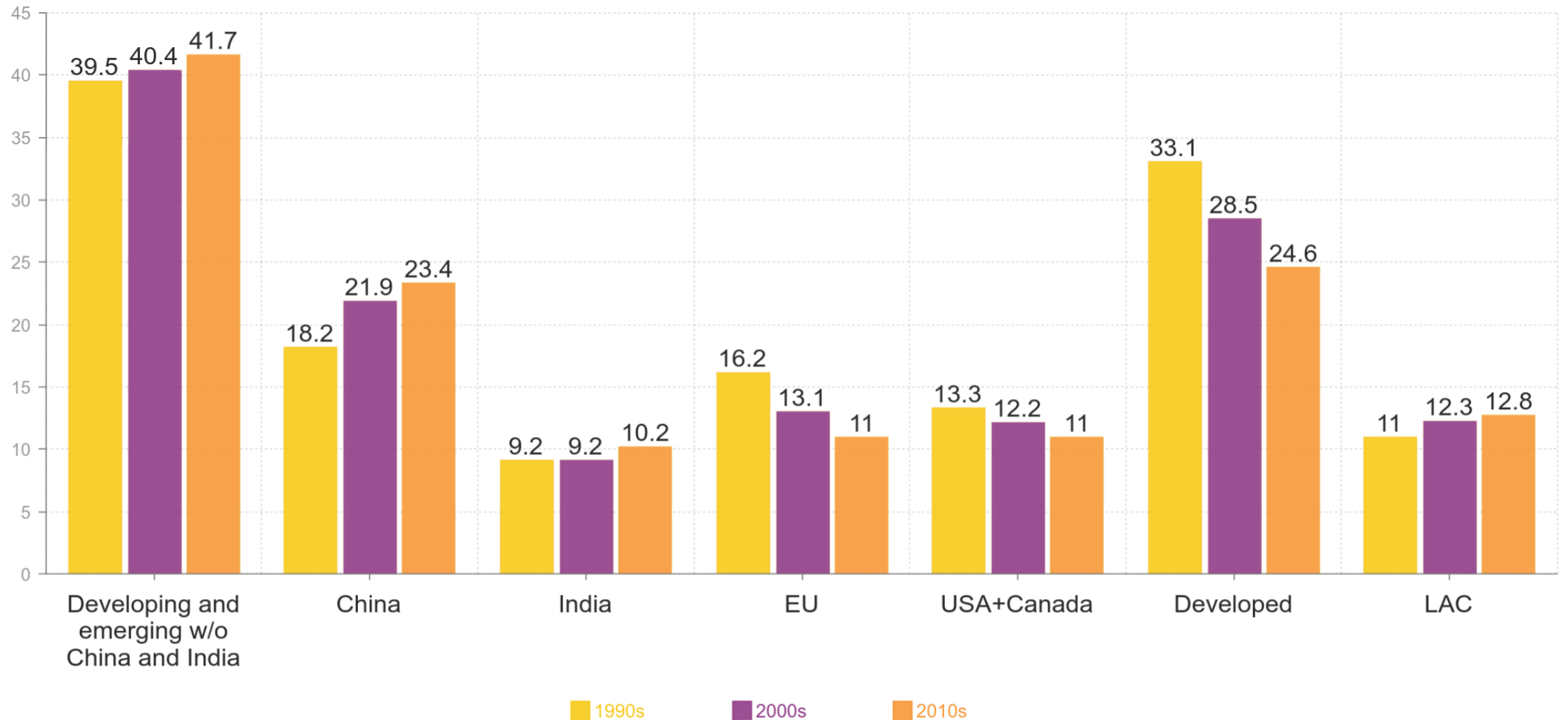
INEQUALITY

Latin America: the largest ag exporter (net trade U\$M)



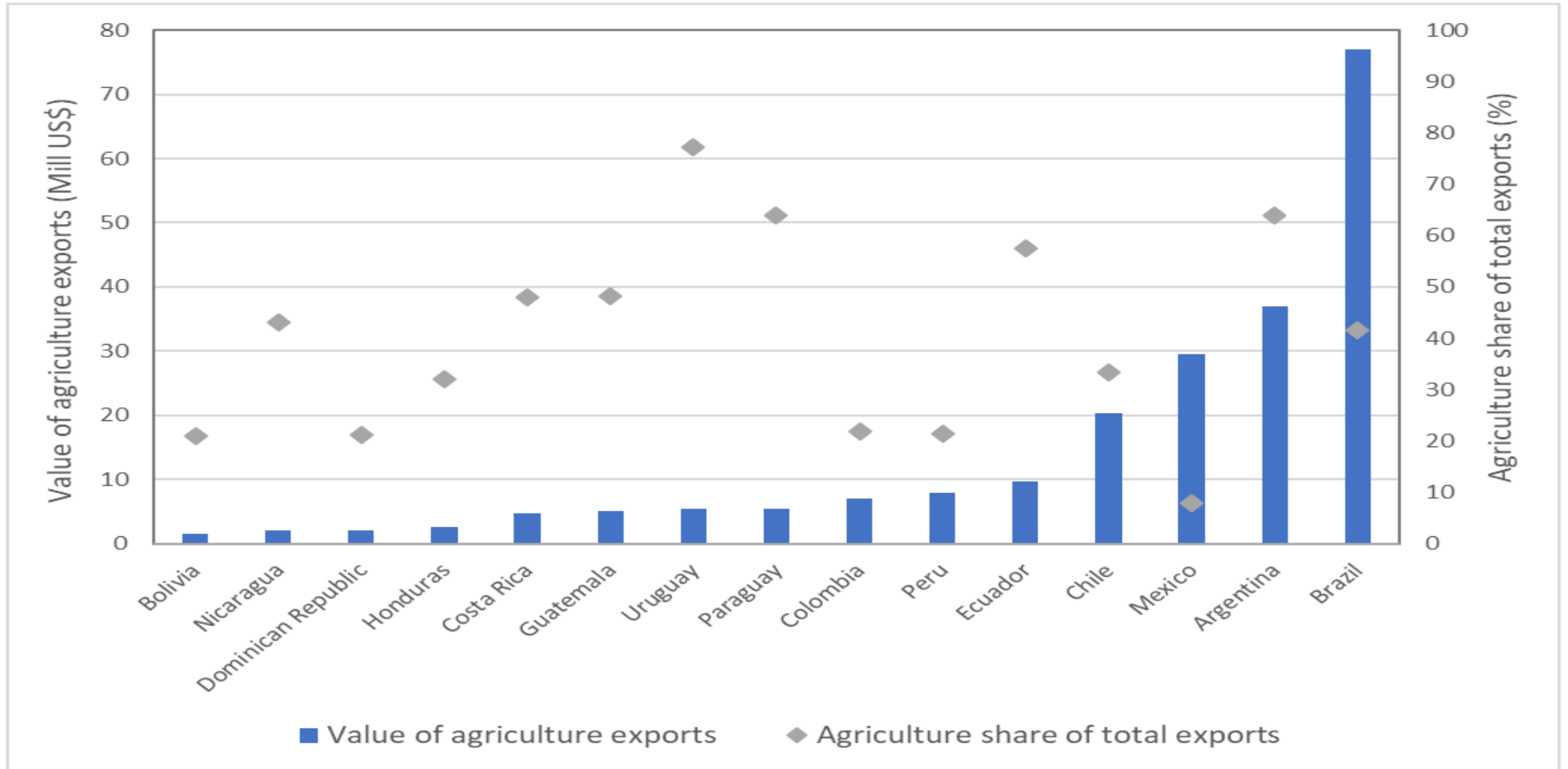
Share of World Agricultural Production

(Eugenio Diaz-Bonilla, IFPRI | Percentages | PPP U\$ 2004-2006)



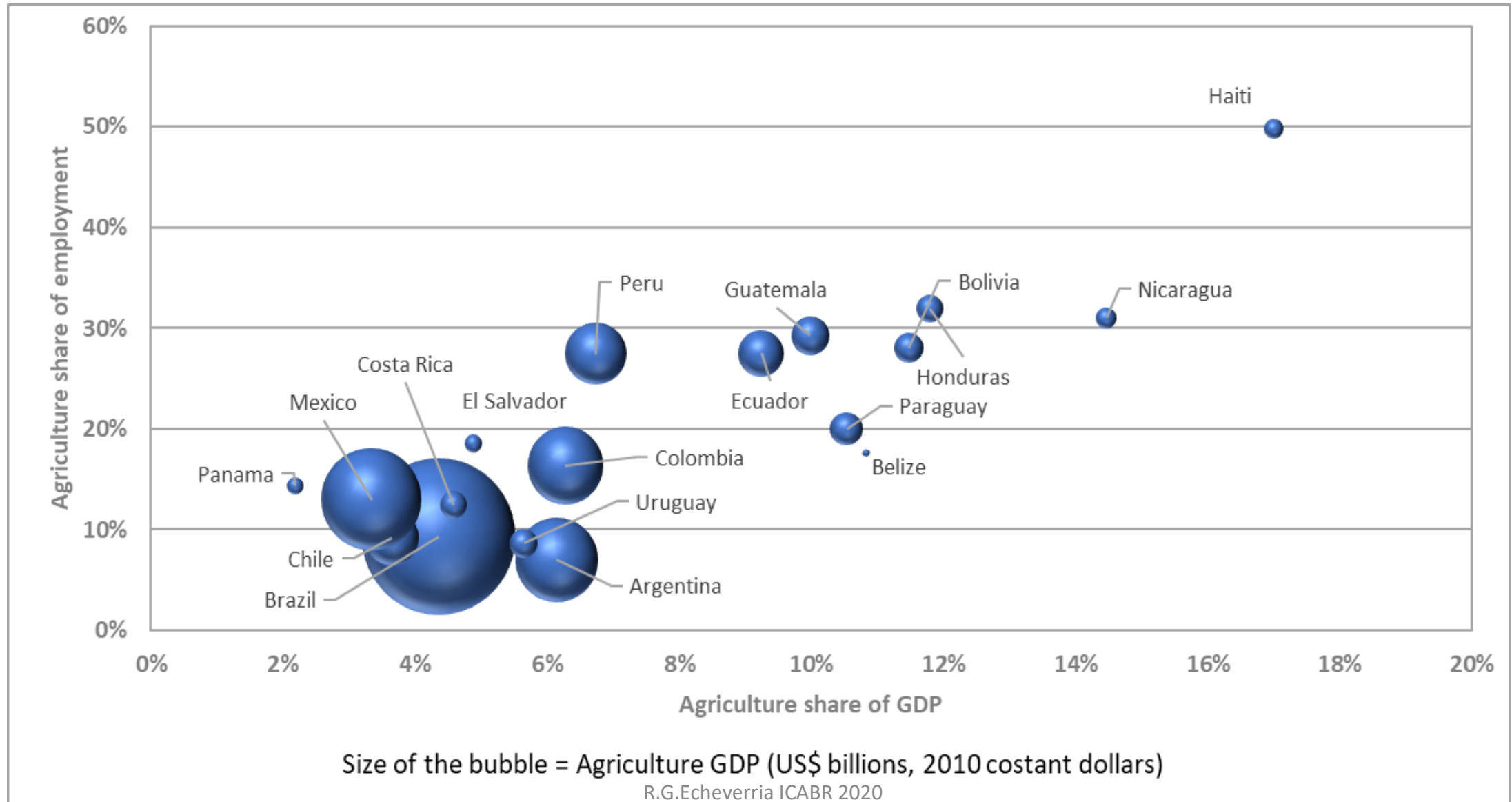
Agriculture share of total exports, LAC 2016

(World Bank 2020, from WTO Global Trade Database)



Agriculture share of GDP and employment in LAC

(World Bank 2020, from WB Indicators 2018)



Global Spending on Food & Ag R&D

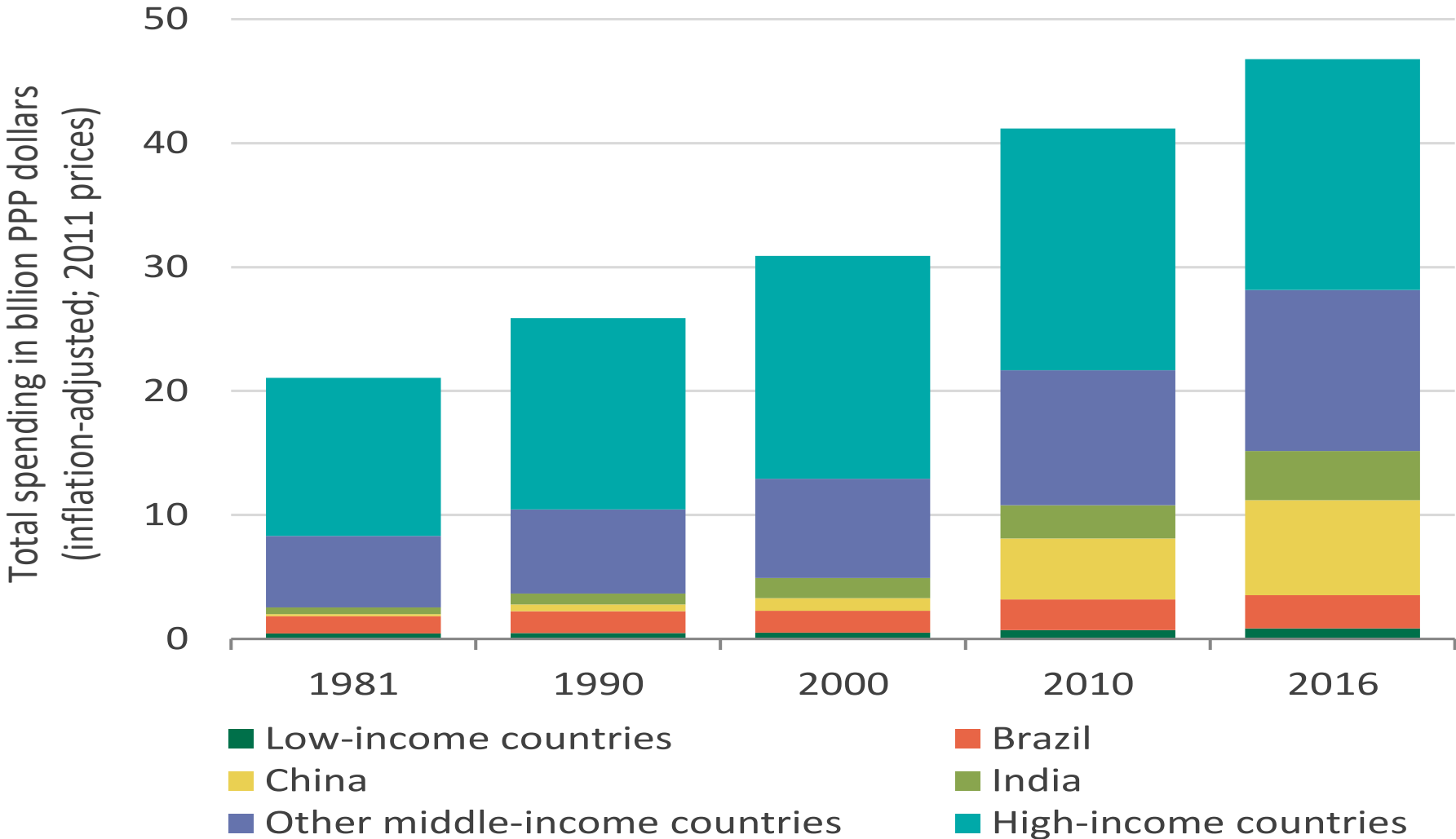
Public Ag Research in MIC > HIC

Private Ag Research in HIC > MIC

A huge gap :::: Investment per
capita HIC U\$ 17.7 >>> LIC U\$ 1.5

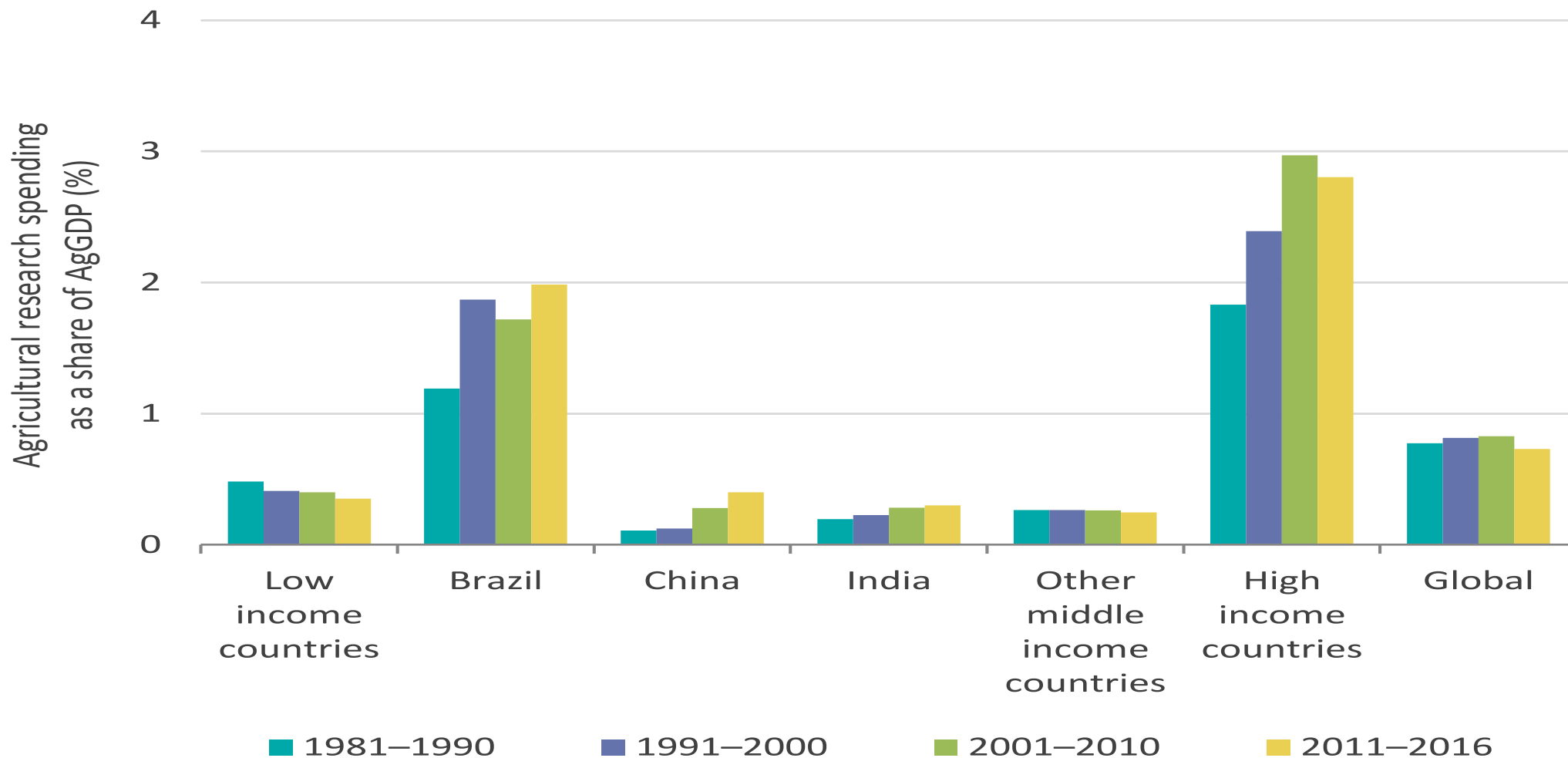
Ag. Research Investment Trends, 1981–2016

Beintema & Echeverria (2020, www.asti.cgiar.org/global)



Ag. Research Investment Intensity, 1981–2016

Beintema & Echeverria (2020, www.asti.cgiar.org/global)

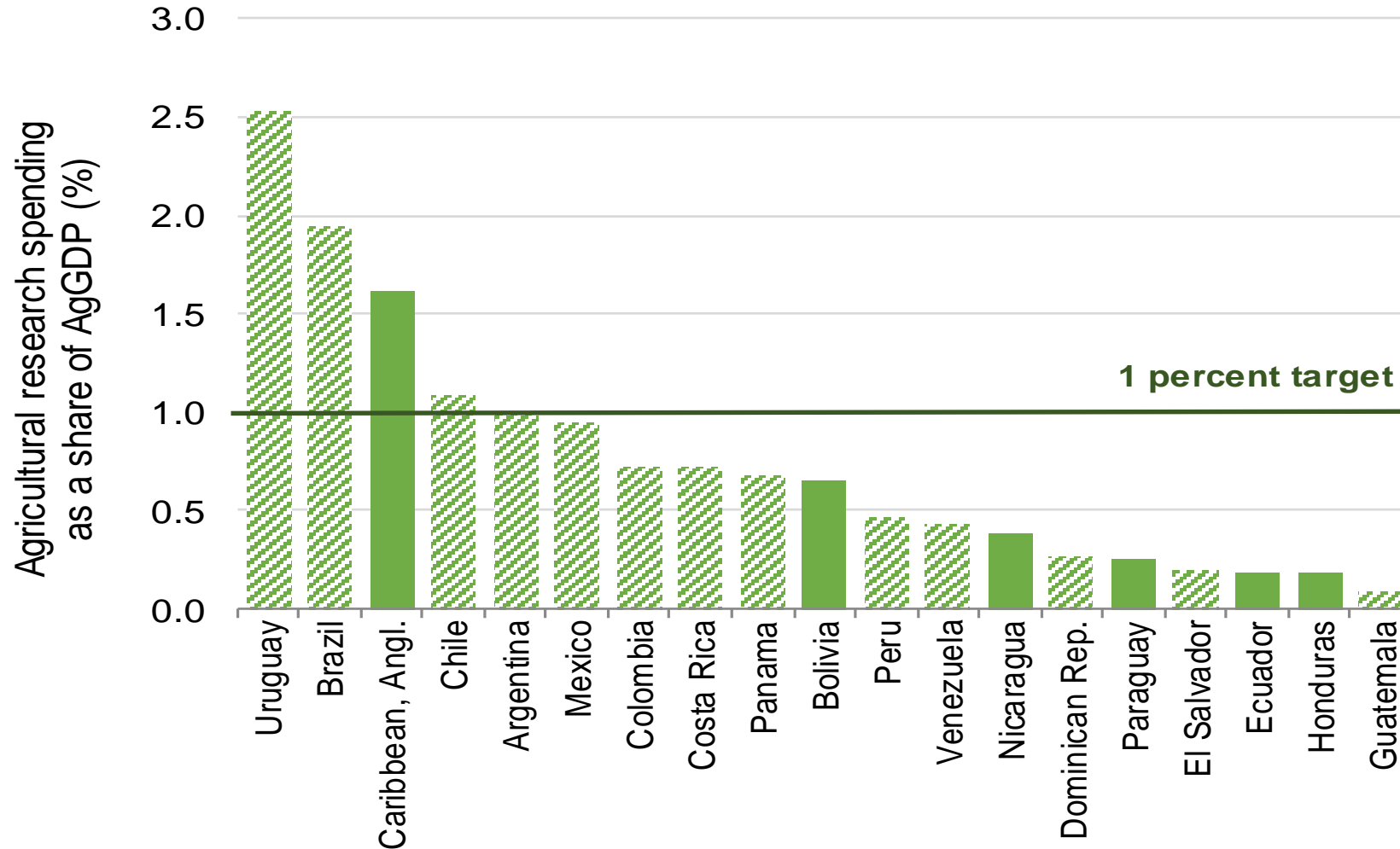


The background of the slide is a collage of various Colombian Pesos banknotes, including 500, 1000, and 20000 denominations, scattered across the frame. The text is overlaid on this background in a large, white, sans-serif font.

**The region invests very little
in food & agriculture
related science, research
and innovation**

Very low ag. research investment intensity

ASTI, with data from OECD, RYCIT, EMBRAPA, World Bank (2012–2016)



The world has changed (a lot) since NARIs started in LAC in the 1950s!

- **Big changes in global, regional and national food & agriculture agendas, priorities and funding sources**
- Global private R&D investment now higher than public and a growing divide between countries scientifically rich and the rest...
- **New demands for public investments** (nutrition, biodiversity, climate change, bioeconomy, landscape restoration, ecosystem services, poverty reduction) with relatively less resources...
- Life science and digital technological revolutions
- **Little institutional change and of policies linked to financing public food and agriculture research!**

Post Covid-19: an opportunity to rethink?

Before Covid-19

- Much more emphasis on technical change than on institutional change to update research portfolios to new public priorities and achieve efficiencies
- **Investing only 1% of Ag GDP we will lag behind. New public-private consortia, new regional cooperative research programs are needed**

After Covid-19

- Potential significant reduction in public financing should promote rethinking priorities, financing mechanisms and partnerships!
- New ideas, new proposals, new projects and programs. **Bioeconomy offers lots of potential as part of a renewed public sector research agenda**

Bioeconomy research agenda: food systems and the environment

- Genomics, plant breeding
- Biological inputs (pesticides, fertilizers, herbicides)
- Low-carbon food systems, carbon fixation, climate-smart production systems
- Biomass and biofuels production
- Environmental, water treatment, soil regeneration

Bioeconomy capacity development agenda: new public-private partnerships

- Training, regional infrastructure to accelerate the integration of genomics, genetic transformation technologies, and germplasm improvement and conservation
- Promoting innovative start-up activities
- Strengthening regulatory frameworks (bio-safety/bio-risk, access to genetic resources, property rights)

Gracias!

*Si queremos resultados diferentes ...
no deberíamos seguir haciendo lo mismo ...*