

Global Agricultural Policy from a Farm Gate Perspective

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Projected Population Growth

Region	2012	2050	Change	Percent
World	7,058	9,624	+2,566	+ 36
High Income	1,243	1,338	+ 95	+ 8
Low Income	5,814	8,286	+2,472	+ 43
East & S.E. Asia	2,193	2,317	+ 124	+ 6
South Central Asia	1,823	2,565	+ 742	+ 41
Sub-Saharan Africa	902	2,092	+1,190	+132
Latin America/Carib	599	749	+ 150	+ 25
N. Africa & W. Asia	457	748	+ 291	+ 64

Source: Population Reference Bureau. [2012 World Population Data Sheet](#).

Projected World Food Demand

- World food demand to grow 70-80% by 2050
 - 40% increase from world population growth – from 7.0 to 9.6 billion – almost all in developing countries
 - 30-40% increase from broad-based economic growth and urbanization in low income countries
- How many presently low income consumers escape from poverty is the *most important* uncertainty re future global demand for food.
- Policies that accelerate broad-based economic growth in LDCs reduce hunger, but unleash rapid growth in demand for agricultural products.

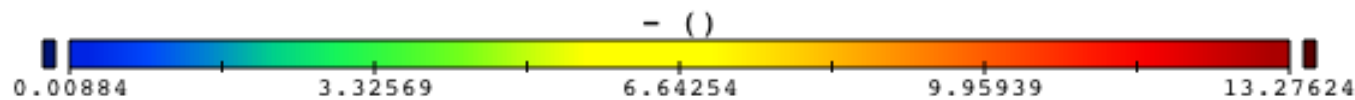
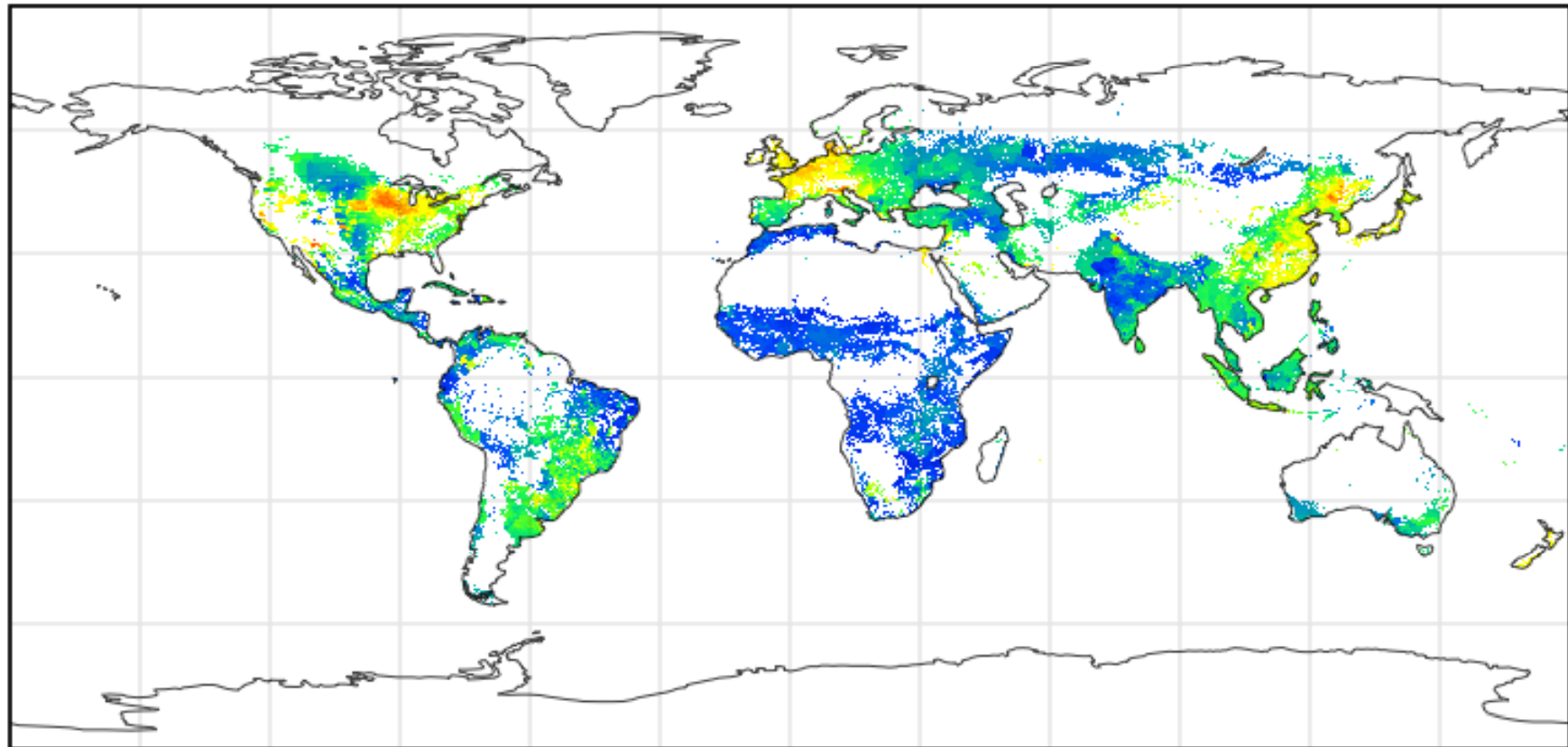
The Land Constraint

- There is at most 12% more arable land available that isn't presently forested or subject to erosion or desertification on which to produce almost twice as much food..
 - And degradation of many soils continues.
- The area of land in farm production could be doubled...
 - But only by massive destruction of forests and loss of wildlife habitat, biodiversity and carbon sequestration capacity.
- The only environmentally sustainable alternative is to almost double productivity on the fertile, non-erodible soils already in crop production.

Water--A Growing Constraint

- Farmers account for 70% of the world's fresh water use.
- With the rapid urbanization underway, cities will outbid agriculture for available fresh water.
- The world's farmers, who are being called on to double food production, will have to do it using less fresh water than they are using today.
 - i.e., they will have to more than double the “crop per drop,” the average productivity of the water they use.
- This will require public policies and investments in research that increase the water use efficiency of agriculture.

Grain Yields Around the World



Equirectangular projection centered on 0.0°E

Data Min = 0.00884, Max = 13.27624

Interpretation: Grain yields (in metric tons per hectare) rise from lowest (dark blue) to highest (dark red)

Source: Center for Sustainability and the Global Environment (SAGE), University of Wisconsin.

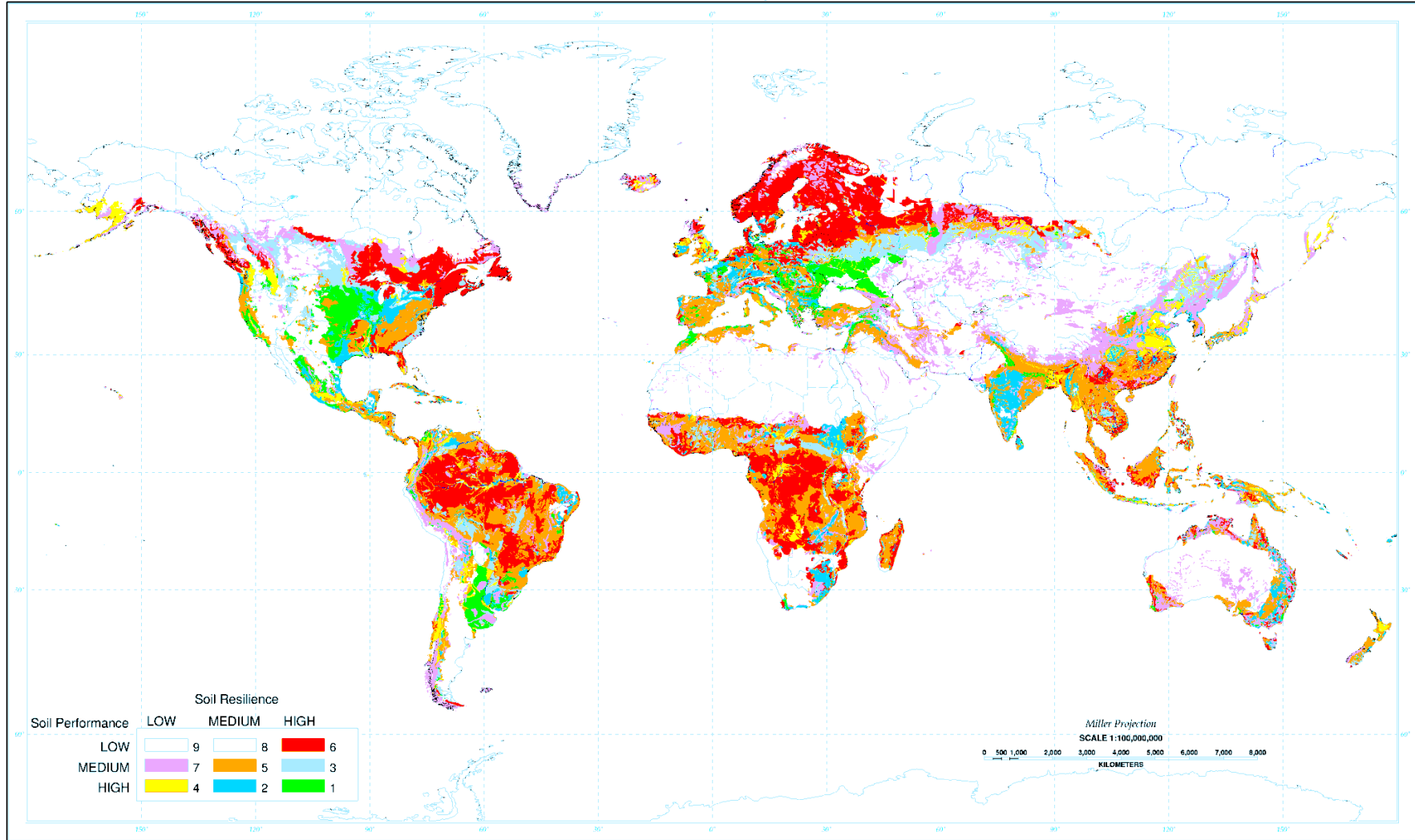
Sources of Observed Differences in Crop Yields in Different Locations

- Genetic potential embodied in the seeds of the crop being grown.
- Quality of soil (fertility, water holding capacity; resilience)

Inherent Land Quality

U.S. Dept. of Agriculture
Natural Resources Conservation Service
Soil Survey Division
World Soil Resources

Inherent Land Quality Assessment



Country boundaries are not authoritative.

Washington DC, 1998

Sources of Observed Differences in Crop Yields in Different Locations

- Genetic potential embodied in the seeds of the crop being grown.
- Quality of soil (fertility, water holding capacity; resilience)
- Climatic conditions (level and variation in temperature and precipitation)

Climate Constraints

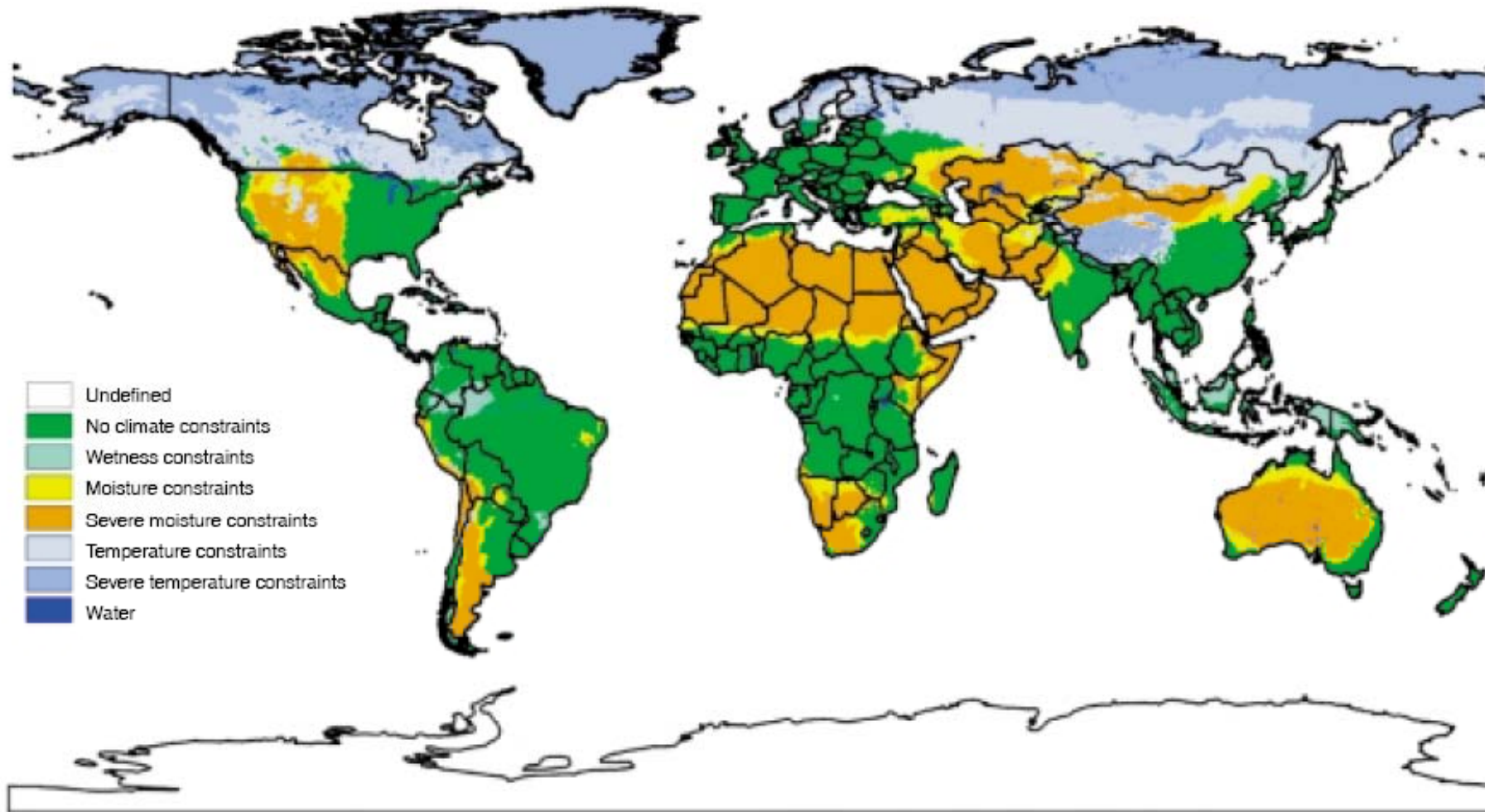


Plate E. Climate constraints.

Source: International Institute for Applied Systems Analysis

Adaptations Will be Required Due to Global Climate Change

- As all agro-ecosystems shift with climate change, need larger public and private investments in adaptive plant and animal breeding just to sustain present productivity levels.
 - e.g. introduce more drought or heat tolerance.
- Change the mix of what crops are produced in a some geographic locations.
- Rely more on international trade.

Sources of Observed Differences in Crop Yields in Different Locations

- Genetic potential embodied in the seeds of the crop being grown.
- Climatic conditions (level and variation in temperature and precipitation)
- Quality of soil (fertility, water holding capacity; resilience)
- Supplementation of soil fertility and precipitation with fertilizer and irrigation.
- Losses of yield potential from disease and insect infestations and competition from weeds.

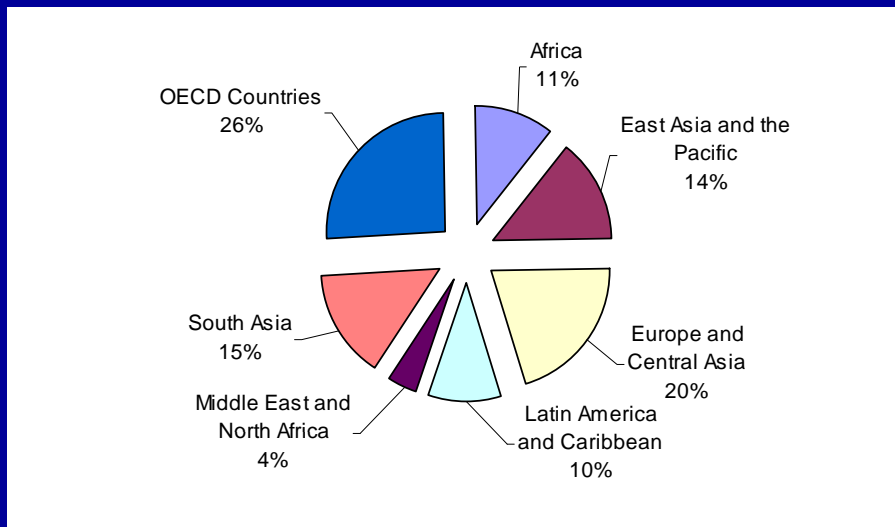
More Sources of Observed Differences in Grain Yield in Different Locations

- Existence of markets to supply farmers inputs that embody improved technologies (and available credit) and buy their outputs
 - Requires a business friendly investment climate
- Remunerative input and output prices
 - Reflect public policy and state of transport and communications infrastructure.
- Knowledge and skill of farmers.

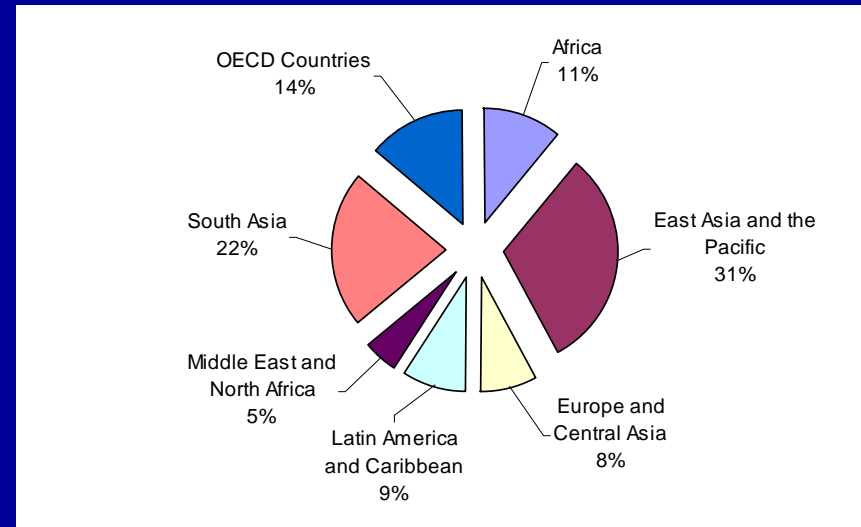
LDC Agriculture Underperforming

- The agricultural sector in most low income countries is underperforming relative to its potential that would be consistent with both economic efficiency and environmental sustainability.
- It produces less food and cash income for farm households and contributes less output to their national food supply.

Larger Fraction of Ag Production to Move Through Trade



Distribution of Arable Land



Distribution of World Population

- With population growth, urbanization and broad-based economic development, many low-income countries' food consumption will outstrip their production capacity, and they will become larger net importers.

“Global” Agricultural Policy?

- Globalization of agriculture is occurring:
 - Fraction of world agricultural production that moves through trade is growing rapidly.
 - Fraction that flows in value-added form is increasing faster than bulk commodities.
 - Global supply chains mean that more trade is occurring within firms.
- The only “global” rules are in the WTO Uruguay Round Agreement on Agriculture.

WTO Agricultural Support Rules

- Domestic supports linked to current production and/or prices of specific commodities are capped.
- No limit on direct, decoupled income transfers.
- No limit on investments in rural public goods, e.g. infrastructure; research & extension.

WTO Agricultural Trade Rules

- Minimum market access.
- Export subsidies are capped.
- Import tariff rates on each good are capped (“bound”).
- Non-tariff barriers:
 - If a country restricts imports of a good, it should use tariffs, not quotas.
 - Sanitary and phytosanitary (SPS) barriers to trade require a scientific basis.

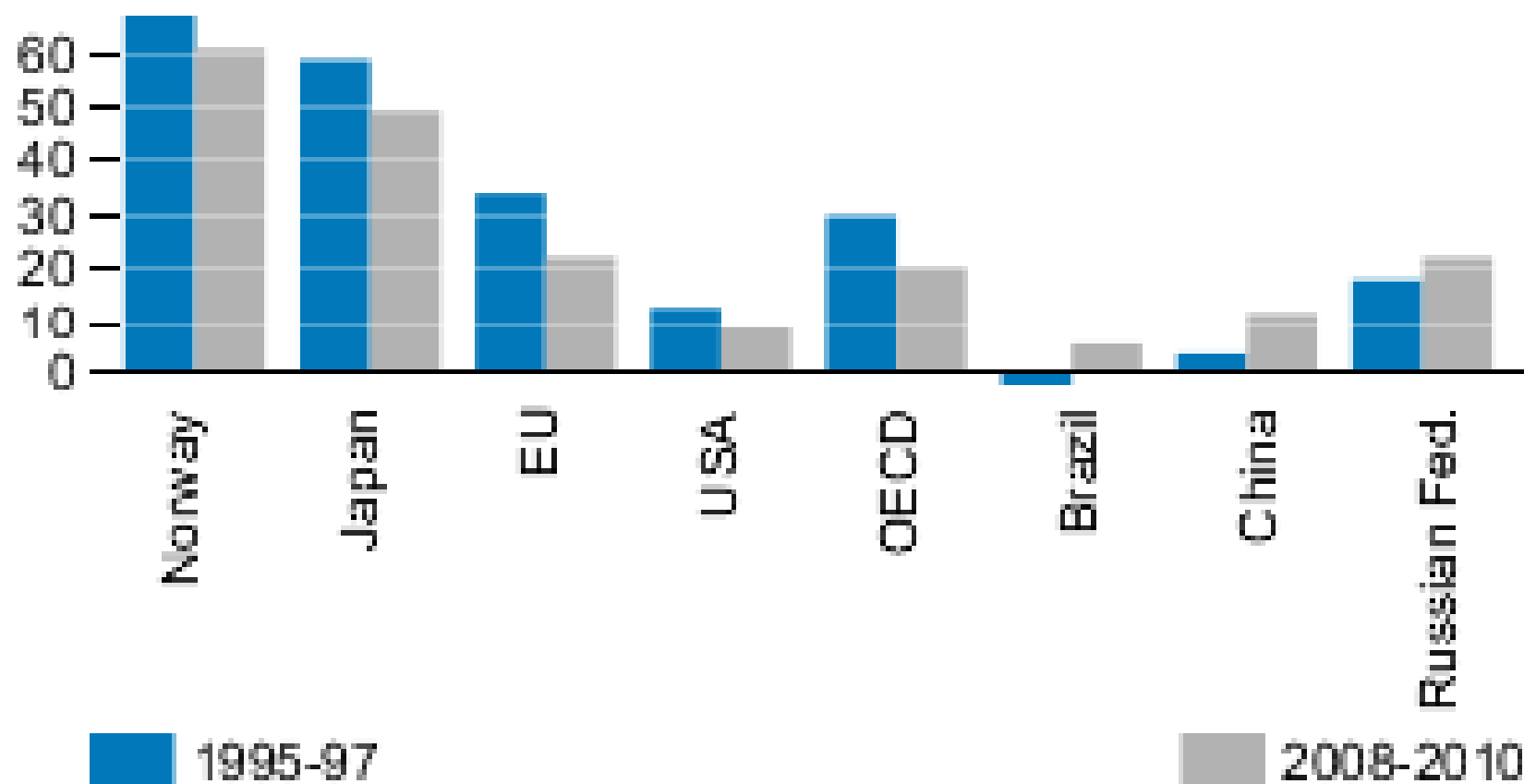
World Agriculture in Disarray*

- In most high income countries, farmers are few in number, but have large political clout
 - Subsidize agriculture, distorting relative returns to various outputs and induce larger total investment in agriculture relative to other sectors.
- In many low income countries the political clout is in the cities, and the numerically larger group of farmers has little political clout
 - Food policies have in many cases turned the terms of trade against agriculture to keep urban food prices low, reducing the incentive to invest; agriculture underperforms relative to its potential.

*Title of an excellent study by D. Gale Johnson.

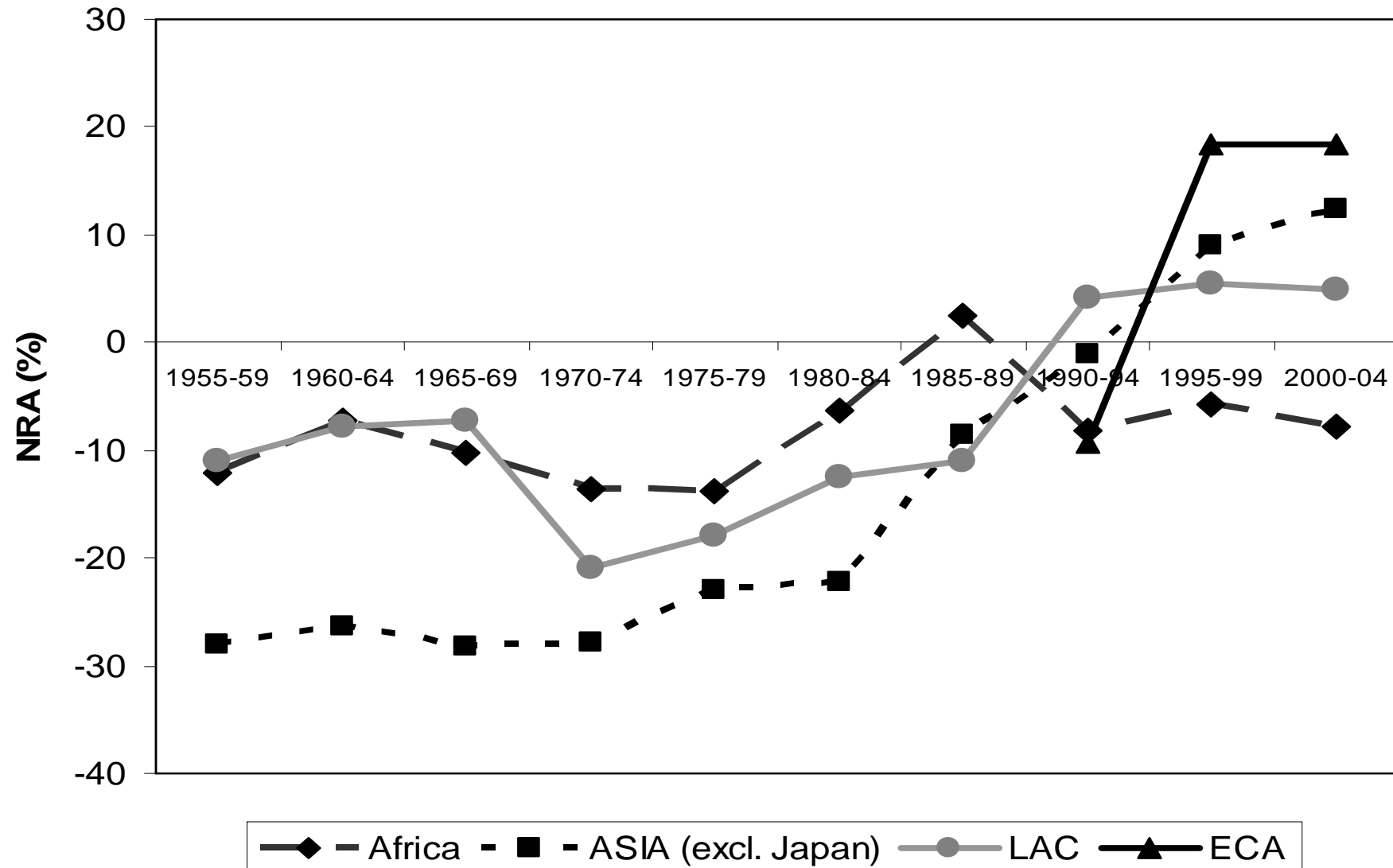
Trends in global farm support

% of gross farm receipts



Source: OECD, Producer Support Estimates (PSE)

Anti-Agricultural Bias Dropping in Developing Countries -- Except in Africa (and Argentina)



Developing Countries' Policies Have Impeded Their Ag Development

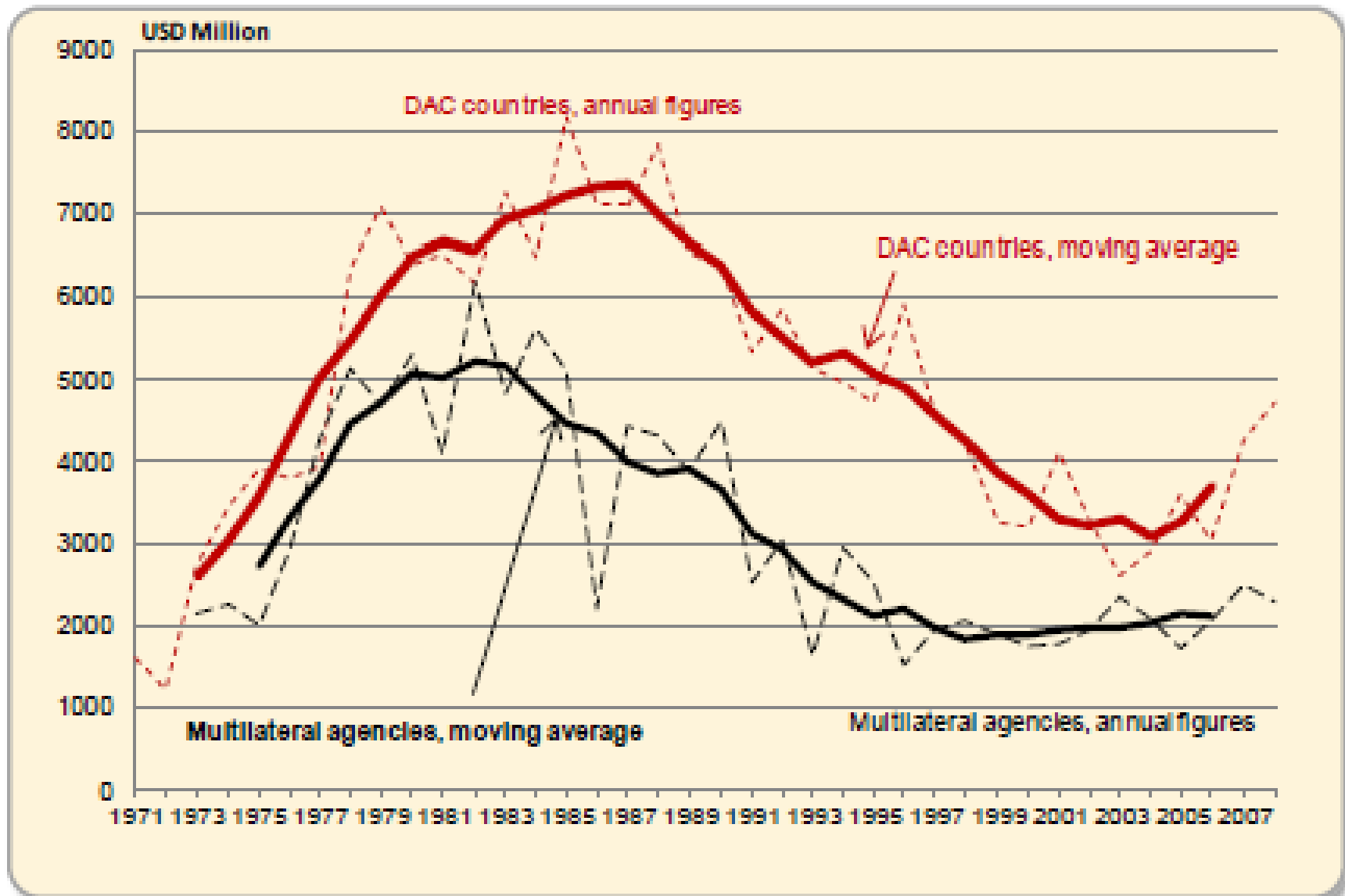
- Corruption and/or macroeconomic instability
- Lack of definition or enforcement of property rights and contract sanctity
- Underinvestment in public goods, such as rural infrastructure, education and R&D.
- Cheap food policies to keep urban consumers quiescent – often reinforced by food aid or subsidized exports from OECD
- Urban-bias in allocating development resources.
- Lack of technology adapted to local agro-ecological conditions (soils, climate; slope)

Agriculture Has Been Off the Global Development Agenda

- Agricultural & rural development were priorities for foreign aid & int'l. development bank lending up until the mid-1980s, but:
 - Between 1980 to 2005, foreign aid to low income countries for ag development dropped from \$8 billion to \$3.4 bill./yr (from 17 to 3% of the whole)
 - In the 1980s, 25% of U.S. foreign aid went to agriculture; dropped to 6% by 1990 and 1% by 2008.
 - Share of World Bank lending going to agriculture fell from 30% in 1978 to 16% in 1988 to 8% in 2006.
- **The share of foreign aid and development bank lending invested in agricultural research fell by an even larger percentage during this period.**

Chart 1. Trends in aid to agriculture

Commitments, 1973-2008, 5-year moving averages and annual figures, constant 2007 prices



Historic Confluence of Agricultural Policy Decisions?

- 2013 Farm Bill (will set U.S. agricultural policy for 2014-2019)
- EU deciding post-2013 CAP
- Rethinking in Canada; Japan?
- Is agriculture back on the global development agenda?
- WTO Doha Round negotiations, which will set the future rules for agricultural trade, did not finish in 2012. When? Ever?

Similar Themes Across OECD

- Ag policy decisions will be made under tight government budget constraint following bailout from financial crisis of 2008.
- Volatility of agricultural commodity prices and in turn farm revenue.
- Should there be limits on payments to large farmers?
- Concerns of urban consumers have more influence on ag policy decisions.

Thank You.

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Many Types of Policies Affect Farmers

- Commodity programs
- Trade policy
- Science policy
- Macroeconomic Policy (thru exchange rate, inflation rate and interest rates)
- Credit Policy
- Tax Policy
- Energy Policy
- Environmental policy
- Food safety policy
- Competition Policy
- Animal welfare policy
- Health insurance
- Immigration policy
- Rural and economic development policy

That Are Many Essential Roles of Government in a Market Economy

- Provide legal environment and public policies that create a positive investment climate, such as
 - Political and macroeconomic stability
 - Rule of law
 - Definition and timely enforcement of contracts
 - Definition of property rights, including ease of registration, transfer and enforcement thereof

Essential Roles of Government in a Market Economy (contd.)

- Invest in people (human capital)
 - Universal primary school education
 - Quality health care
- Build (or cause others to build) infrastructure
 - Roads and other transportation
 - High cost transportation is a severe impediment
 - Telecommunications
 - Markets do not work well without information
 - Electricity supply

Essential Roles of Government in a Market Economy (contd.)

- Have and enforce anti-monopoly laws
- Correct negative externalities
 - E.g. pollution; odors
- Consumer protection
 - E.g. food safety; honest weights & measures
- Collection and dissemination of statistics
- Invest in agricultural research and technology transfer

Less Productive Functions of Public Policy in Agriculture

- Supporting market prices is a weak tool for addressing rural poverty or facilitating agricultural development.
 - Benefits are distributed in proportion to sales, so the largest farmers get the largest benefits, but they are rarely the people who suffer rural poverty.
 - Over time, these benefits inflate land values, so the ultimate beneficiaries are the largest land owners.
 - Hurts low income consumers who spend the largest fraction of their income on food.
- The most effective rural poverty reduction policies are direct needs-based payments and rural development, creating non-farm jobs within commuting distance of where the rural poor live.