

How Will Public Policy Shape the Future of Midwest Agriculture?

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Outline

- Potential for growth in exports of Midwest agricultural commodities – all in the developing countries.
- Traditional commodity support programs are unlikely to be the public policies that most affect Midwest agriculture in the coming decade.
- Some thoughts on the 2012 (or will it be 2013?) Farm Bill

Global Agricultural Prospects and the Potential Growth in Midwest Ag Exports

Exports Are Key to Future Profitability of Midwest Agriculture

- American agriculture has immense productive capacity relative to the size of the domestic U.S. market, and has exported $\frac{1}{4}$ to $\frac{1}{3}$ of its production of many commodities; without these exports, U.S. agriculture would be much smaller.
- The only large potential growth markets are in presently low income countries.
- The Midwest has a comparative advantage in producing the agricultural products whose demand grows most when low income people's purchasing power rises: animal products, the feed to produce them, and edible oils.

Projected Population Growth

Region	2009	2050	Change	Percent
World	6,810	9,421	+2,611	+ 38
High Income	1,232	1,318	+ 86	+ 7
Low Income	5,578	8,103	+2,525	+ 45
East & S.E. Asia	2,161	2,460	+ 299	+ 14
South Central Asia	1,726	2,624	+ 898	+ 52
Sub-Saharan Africa	793	1,679	+ 886	+112
Lat. America/Carib	580	724	+ 144	+ 25
N. Africa & W. Asia	436	693	+ 257	+ 59

Source: Population Reference Bureau. [2009 World Population Data Sheet](#), based on U.N. Population Office and U.S. Census Bureau analyses.

Dynamics of Food Demand Growth

- 1.4 billion people live on less than \$1.25/day; one billion of them suffer under-nutrition or hunger.
- 3.1 billion people live on less than \$2.50/day; by then, most hunger (calorie) problems solved.
- As their incomes rise from about \$2 to \$10 per day, people eat more meat, dairy products, fruits, vegetables & edible oils, causing rapid growth in raw ag commodity demand.
- After about \$10 per day, people buy more processing, services, packaging, variety, and luxury forms, but not more raw ag commodities.

*Poverty statistics (World Bank) as of 2005, before commodity price explosion.

Huge Growth in Food Consumption Expected from Economic Growth

Country	Population	% < \$1/day	% < \$2/day
China	1318	9.9	34.9
India	1132	34.3	80.4
Indonesia	232	7.5	52.4
Brazil	189	7.5	21.2
Pakistan	169	17.0	73.6
Bangladesh	149	41.3	84.0
Nigeria	144	70.8	92.4
Philippines	85	14.8	43.0
Source: World Bank, World Development Indicators database (2007)			

Projected World Food Demand

- World food demand could double by 2050
 - 50% increase from world population growth – from 6 to 9 billion -- all in developing countries
 - 50% increase from broad-based economic growth in low income countries
- The World Bank has estimated the number of people in developing countries in households with incomes >\$16,000/year will rise from 352 million in 2000 to 2.1 billion by 2030.
- How many presently low income consumers escape from poverty is the *most important* determinant of future global demand for food.
- Any policy that accelerates broad-based economic growth in low income countries will expand demand for Midwest ag products.

The Land Constraint

- There is at most 12% more arable land available worldwide that isn't presently forested or subject to erosion or desertification.
 - 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 wild-life habitat, biodiversity and carbon sequestration capacity.
- Most available cropland is in South America and Sub-Saharan Africa, inferior in quality to the fertile soils of the Midwest and will require large investments in infrastructure & ag research.

Water A Growing Constraint

- Farmers use 70% of the fresh water used in the world.
- With rapid urbanization, cities are likely to outbid agriculture for available water.
- The world's farmers need to double food production using less water than today. Biofuels will add further to this challenge.
- Water is priced at zero to most farmers, signaling that it is much more abundant than in reality and providing no incentive to use it efficiently or adopt already existing water-saving technology.

The only environmentally sustainable future: double food system productivity

- Make presently unusable soils productive
- Increase genetic potential (of individual crops and/or farming system) (ditto for farm animals)
- Achieve as much of that potential as possible by:
 - Improving nutrition of that crop
 - Increasing water availability and control
 - Reducing competition from weeds for water, nutrients and sunlight
 - Reducing losses from disease and insects
- Reduce post-harvest losses

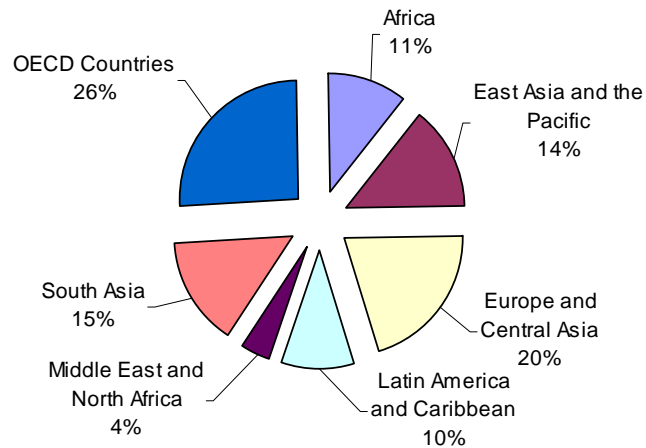
Long-Run Prospects

- Since Malthus, prophets of doom have argued population growth will increase food demand faster than agricultural production can grow.
- Public and private sector investments in agricultural research have increased productivity faster than demand growth, with resulting 150 year downward trend in real price of grains.
- Need to double world food production by 2050 using less water and little more land than today & also produce feedstocks for biofuels production.
- Future world market price trend will depend on whether research increases land and water productivity faster than world demand grows.

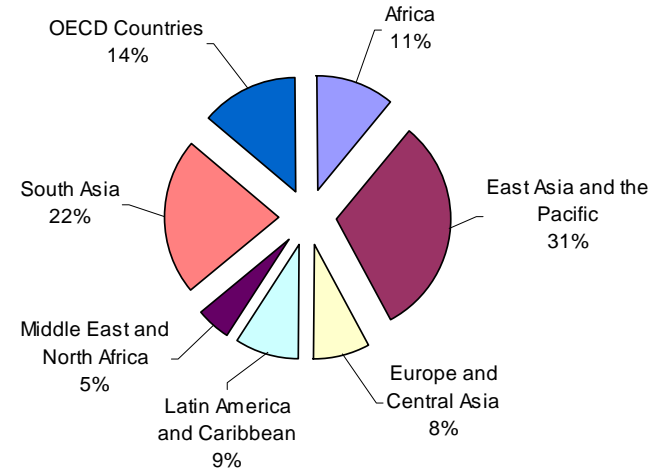
Adaptations Will be Required Due to Global Climate Change

- Need adaptive plant (and animal) breeding , just as has been done successfully to relax physical constraints for more than a century, e.g. introduce more drought or heat tolerance.
- Change the mix of what crops are produced in a given geographic location
- Rely more on international trade.

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.

WTO Agriculture Negotiations

- Need successful Doha “development round” to accelerate economic growth in LDCs.
- Much had already been agreed by 7/31/04:
 - Eliminate all ag export subsidies
 - Reduce the *cap* on trade-distorting domestic subsidies (highest the most, but exceptions possible)
 - Reduce *cap* on tariffs (highest the most, but exceptions allowed if increase tariff-rate quota)
 - Give the least developed countries open access to high income country markets for most goods.
- The high world market prices of 2007-08 should have made it easier to bring the Doha Round to a successful conclusion, but....

Stalemate of WTO Negotiations

- Three key disagreements:
 - U.S. demands real increases in market access.
 - E.U. & developing countries demand real cuts in U.S. trade-distorting ag supports.
 - Brazil and India are asked to offer more market access for services and manufactured goods.
- The potential future growth markets for Midwest ag products are in the developing countries where population and purchasing power are growing.
- This potential will be realized only if those developing countries can export the products in which they have a comparative advantage.

US Proposal Misunderstood by Many American Farmers

- There has been much more push-back from American farmers than justifiable as very little real reduction in U.S. domestic support has been offered.
- The proposed 60% cut is from the *cap* on, not actual, *trade-distorting* payments (those linked to production of *specific* commodities)
- Any real cut in trade-distorting support can be made up fully via larger non-trade-distorting payments (direct payments or public goods investments).

Growing Array of Public Policies Affecting Agriculture

Many Types of Policies Affect the Food & Agricultural Sector

- 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
- Homeland security policy

Food & Agriculture Policy Will Involve Much More than USDA

- EPA & Interior
- USTR & Commerce
- Energy
- State, USAID, DOD;
NSC
- HHS
- Homeland Security
- FDA
- DOT
- OMB
- Labor
- State governments

State-Level Policies Will Affect Ag Competitiveness among States

- General business climate (e.g. tax structure, labor laws, workmen's comp, ...)
- Environmental regulations
- Animal welfare/CAFO/siting regulations
- Food “safety” policy
- Public investments in agricultural research
- Science policy, e.g. GMOs

More State-Level Policies

- Structure/support for ag extension
- Rural infrastructure investments (roads, bridges, locks & dams; broadband internet)
- Rural economic development policy
- Water policy (quality; access by farms)
- Policies towards “corporate farming” and “large specialized” farms
- Prime farmland preservation policy

Some federal policies impact different states differently and distort who produces what.

- Disaster payments
- Renewable fuels policy (corn vs. other feed stocks)
- Higher support levels for “southern crops”
- Dairy marketing orders
- Others?

Towards the 2012 Farm Bill
(or will it be in 2013?)

Hot Food & Ag Policy Issues

- Enhance health & nutrition of Americans; reduce childhood obesity; alleviate hunger here and abroad.
- Modernize food safety system; consolidate into one federal food safety agency?
 - Implement traceability
- Climate change & other environmental priorities; reward farmers for carbon sequestration and reduction in greenhouse gas emissions.

More Food & Ag Policy Issues

- Effect of global economic slowdown, input prices & financial crisis on U.S. farmers
 - Risk management
 - Access to credit
 - Export demand & risk of more protectionism
 - Land prices
- Renewable energy, esp. 2nd generation biofuels; ensure survival of biofuels industry
- Transport Policy (crumbling infrastructure)
- Animal welfare regulations

More Food & Ag Policy Issues

- Trade Policy
 - Complete Doha Round trade negotiations
 - Brazil cotton case
 - Three unratified bilateral trade agreements
 - Renew Trade Promotion (“fast track” negotiating) Authority (TPA)
 - Trade Adjustment Assistance (TAA)
- U.S. response to short-term food emergencies (food aid) vs. investments in long-term ag development in LDCs
 - Get ag back on global development agenda

Farm Policy Landscape

- Unprecedented anti-farm program editorial comment in media across the country in 2006-2007, yet negligible change occurred.
- Numerous groups have proposed alternatives to present farm programs, e.g.:
 - Gross revenue insurance in place of disaster payments, crop insurance, marketing loans, loan deficiency payments, & counter-cyclical payments.
 - Public goods investments, e.g. rural infrastructure, ag research, etc.
 - Payments to farmers for providing environmental services, like EU's area-based payments with conservation cross-compliance requirements.

Two Fundamental Philosophical Questions Re Future Farm Policy

- Of the Federal dollars allocated to agriculture and rural America, how much should go to farmers as individuals & how much should be invested for the greater good of agriculture and rural America?
- Of the fraction that goes to farmers as individuals, how much should be linked to the production of *specific* commodities & how much should be decoupled from what the farmer produces?

Can Farm Support Programs be Justified in the Future?

- With average farm family income and wealth higher than for the average American family, it is no longer credible to make the case for commodity programs on the basis of low farm family incomes.
- The only credible case will have to be built around the greater inherent riskiness of agriculture & why taxpayers should provide a safety net under farm revenue.

Is Agriculture Different?

- Biological lag of months to years from input to output, during which insensitive to price.
- Entire year's production is harvested in one or a few short interval(s) each year.
- One input in production, weather, is a random variable not under farmer's control.
- Ag commodity prices are more volatile than prices in rest of economy & often overshoot
- Each year's revenue is the product of two random variables: price times yield.

Is Agriculture Different? (cont'd)

- Roles of land & sunlight in prod'n. require production to be geographically dispersed.
- Modern ag production is twice as capital intensive as U.S. manufacturing sector.
- Finite supply of land makes it residual claimant.
- Throughout a country's economic development, role in GDP & employment must drop.
- Its product, food, a necessity of life that has to be consumed daily by every consumer.

Volatility of Ag Commodity Prices

- Random shifts in supply when production and consumption are both insensitive to changes in price in the short run.
- Shorter length of contracts that specify price of agricultural commodities.
- Government interventions may amplify it.
- Tend to overshoot in response to unanticipated shocks, e.g. monetary shocks.
- Export demand shifts often from changes in int'l. weather, policy; exchange rates.

Revenue Insurance?

- There are overlaps & redundancies among present commodity support programs, disaster payments and subsidized crop insurance.
- It is likely that the political process, reinforced by campaign contributions, will ensure continuation of some form of agricultural support programs in the future.
- If so, could all programs be rolled into one whole farm revenue insurance program?