California Agriculture and Global Challenges: Resources Prices and Prospects

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Daniel A. Sumner
University of California Agricultural Issues Center
Outline and Main Points

• GOAL OF THIS TALK:
  – SET THE STAGE FOR THE PRESENTATIONS AND DISCUSSION TO FOLLOW.

• California agriculture is large, diverse and integrated with world markets

• Over many decades real commodity prices have declined, but recent increases may signal a reversal for global commodities and many “California” crops

• Major questions: will the supply/demand balance return to the trend of lower real prices, which allows better diets for the world poor? What challenges face production agriculture here and globally?

• Asking where agriculture is heading requires considering forces driving both the supply side and the demand side.
California 2010 cash receipts and acreage, by commodity grouping

**Cash receipts**
- Dairy: 16%
- Other livestock: 10%
- Fruits: 23%
- Tree nuts: 14%
- Vegetables and melons: 19%
- Nursery/greenhouse: 10%
- Grains and cotton: 9%
- Hay and forage crops: 19%
- Fruits: 15%
- Tree nuts: 13%

**Acreage**
- Hay and forage crops: 38%
- Grains and cotton: 19%
- Fruits: 15%
- Vegetables and melons: 9%
- Tree nuts: 13%
- Nursery/greenhouse: 0.004%
California 2010 exports, by commodity group and destination

Commodity Group

- Tree Nuts: 27%
- Fruits: 20%
- Field Crops: 16%
- Animal Products: 10%
- Wine: 7%
- Vegetables: 7%
- Other products and mixtures: 13%

Destination

- Canada: 23%
- European Union-27*: 18%
- China / Hong Kong: 11%
- Rest of World: 20%
- United Arab Emirates: 3%
- South Korea: 5%
- Japan: 9%
- Mexico: 6%
- India: 2%
- Taiwan: 2%
- Australia: 1%

*The European Union-27 refers to the member states of the EU excluding the United Kingdom, the Baltic States, and Iceland, Norway, and Switzerland.
California has a variety of climate and land use zones

This natural diversity allows diverse agriculture to thrive

A relatively small share of the total land mass is suitable for high-productivity irrigated crops
Geographic diversity of alfalfa acreage

- Alfalfa acreage is not concentrated and is spread across climate zones within the state.

- Production occurs from Shasta County in the North to Imperial County in the South.
Geographic diversity of tomato acreage

- Most tomato acreage is for processing tomatoes
- Tomato acreage is mainly in the Central Valley from Chico to Bakersfield
- Production takes place in several different climate zones
Gross domestic product from crop and animal production as a share of total gross domestic product in California and the United States, 1963-2009
Index of real prices of California wine grapes, lettuce and almonds, 1980-2010
U.S. indexed real rice prices, 1972-78 and 2006-2011
U.S. indexed real milk prices, 1972-78 and 2006-2011
Index of real U.S. wheat production, price and revenue (1991=100) with coefficient of variation for revenue at 5 year intervals
Index of yield and real revenue per acre for wheat in Sumner County, Kansas (1991=100)
Index of real U.S. milk production, price and revenue (1991=100) with coefficient of variation for revenue at 5 year intervals.
Index of milk and real revenue per cow in Tulare County, California (1991=100)
Real prices for alfalfa hay, corn and all milk with 2011 USDA projections for corn and milk

Corn
Alfalfa hay
Milk
Real Price of California Alfalfa: Data, Fitted Values and Projections (2005 dollars)

$P_A = a + bP_C + dP_M + G_{year}$, $R^2 = 0.82$

Data points

Projection with linear trend
What forces are driving these recent and ongoing trends?

- The Prof. McCalla develops the economic reasoning and data.
- I foreshadow a few issues
  - Use of farm resources to produce fuel
  - Increased demand from income growth in developing countries

And, importantly:

- Dampened commitment to agricultural R&D leading to slowing productivity growth
Outline and main points

SORRY, I'M BUSY SAVING THE PLANET

Bio Ethanol
PURE CORN

GO GREEN
Real world per capita income vs. world per capita protein for food, (natural logs) 1969-2007

Slope =
Income effect = 0.37

A 10% increase in income is associated with a 3.7% increase in human use of protein
Thank you.

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