

# The Main Street Economist

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## When Will Agricultural Demand Rebound?

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**R**ecession has weighed heavily on the demand for agricultural products. Food consumption in the United States has shifted to lower-end products, cutting restaurant sales and purchases of high-priced meat items. Demand for gasoline has also weakened, dampening ethanol activity. And, the demand for U.S. agricultural exports has plunged as recession tightens its grip on the rest of the world.

The free fall in demand has led to sharply lower agricultural commodity prices, abruptly ending the U.S. farm boom. Profit margins have narrowed for crop producers and evaporated for livestock producers. The resulting drop in farm incomes contributed to slightly lower farmland values at the end of 2008.

The timing of a rebound for agriculture rests on how soon the global economy recovers and the demand for agricultural products returns. Current economic forecasts predict a global rebound in 2010. Demand for U.S. agricultural exports will bounce back. But will the bounce be strong enough to spark another farm boom?

### AG DEMAND FALLS

By the end of 2008, the U.S. recession had spread to the agricultural economy. Food consumption patterns in the United States shifted as consumers ate fewer meals at restaurants and more lower-priced foods at home. People

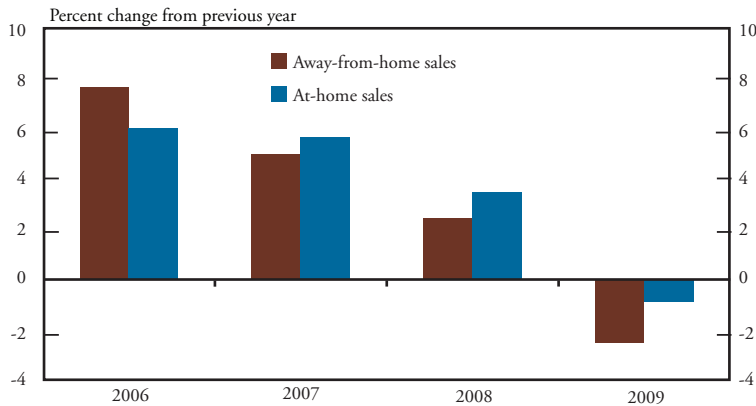
also limited their travel, trimming demand for gasoline and ethanol. As the global recession spread, foreign consumption of U.S. food products also fell sharply.

**Food demand.** Food is a necessity good. As incomes fall, people typically don't eat less, but they do change the types of food they consume. In essence, they cut their food bills by eating out less and eating lower-priced foods at home.

Since World War II, rising incomes have allowed U.S. residents to steadily increase the amount of food they consume away from home—but not during economic downturns.<sup>1</sup> The share of food consumed outside the home has contracted during each of the last five recessions (1973, 1981, 1991, 2001 and 2008). In the first two months of 2009, away-from-home food sales declined more sharply than at-home food sales (Chart 1).

Restaurant consumption patterns also change during economic contractions as people tend to eat at lower-priced restaurants. The biggest declines appear to hit white-table-cloth restaurants, while sales at fast-food restaurants tend to increase. For example, the National Restaurant Association projected that full-service restaurant sales would fall 2.5 percent in 2009 compared to a 0.4 percent increase in limited-service (quick-service) restaurants.

## CHART 1 U.S. FOOD EXPENDITURES



Source: USDA  
2009 data are year-to-date through February

As people eat at home more often and tend to eat lower-priced foods, they also tend to change their demand for meat and other protein food. Compared to vegetables, protein is a high-priced food. During good times, per-capita incomes rise and protein consumption increases. In developed countries, people consume almost twice the amount of calories from animal products than people in lesser-developed countries.<sup>2</sup> But per-capita meat consumption in the U.S. fluctuates with national economic growth. Since World War II, meat consumption has typically declined during recessions, and this trend is expected to continue in 2009.<sup>3</sup>

While U.S. consumers eat less meat in recessions, they also shift to lower-priced meats. The highest-priced meat is beef, followed by pork and poultry. In 2008, demand fell roughly 5 percent for both beef and pork, while poultry demand edged up.<sup>4</sup>

**Fuel demand.** The recession has also cut fuel demand, placing downward pressure on crude oil, gasoline, ethanol and crop prices. Because ethanol displaces gasoline, ethanol prices track U.S. gasoline and ultimately crude oil prices. In the first half of 2008, the strong demand for crude oil and gasoline propelled a sharp rise in the price of ethanol. But by the

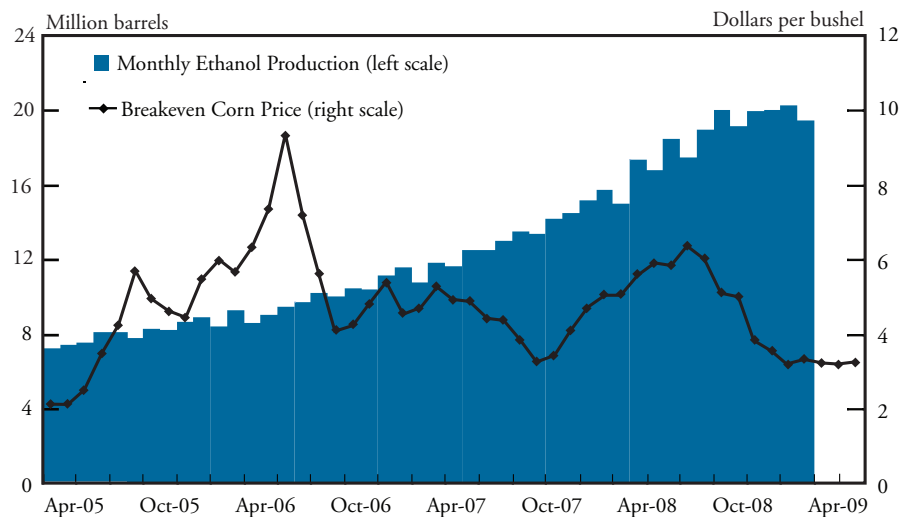
end of the year, the recession had cut the demand for transportation fuel. According to the Energy Information Administration (EIA), U.S. retail gasoline sales in 2008 declined almost 5 percent.

Lower fuel demand and falling gas prices quickly transferred to falling ethanol consumption, prices and profitability. After peaking in August 2008, ethanol consumption fell, causing prices and production to soften. The strained profitability in the ethanol industry contributed to the idling of several ethanol plants.

Falling ethanol demand and lower prices in turn placed downward pressure on corn prices.

Corn costs account for the bulk of ethanol production costs (Shapouri and Gallagher). After paying for fixed costs, current ethanol prices of \$1.50 per gallon could support corn prices of \$3.20 per bushel (assuming one bushel of corn produces 2.8 gallons of ethanol). These figures are well below current corn prices—and well below 2006 levels, when higher ethanol prices supported higher corn prices (Chart 2).<sup>5</sup> As a result, today's falling demand and prices for ethanol have placed downward pressure on prices for corn. Falling corn prices then spill over into other crop markets as the competition for corn acres softens.

## CHART 2 ETHANOL PRODUCTION AND BREAKEVEN CORN PRICE



Source: Energy Information Administration and Renewable Fuels Association  
Breakeven corn price is the price of corn that results in zero profits for ethanol production. Assumes fixed cash expenses of 41.2 cents per gallon of ethanol and one bushel of corn yields 2.8 gallons of ethanol.

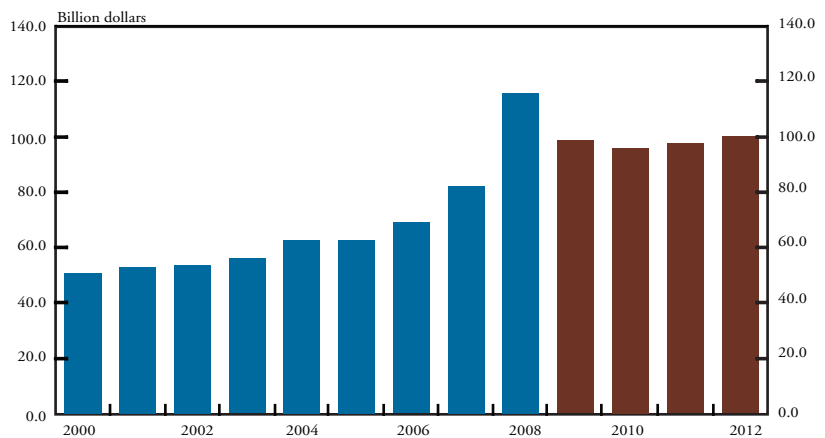
**Export demand.** As the financial crisis intensified and the recession spread globally, U.S. agricultural export activity also fell sharply. In early 2008, U.S. agricultural exports surged with stronger growth in developing countries, a fall in the value of the dollar, and lean global supplies from drought-reduced harvests across the globe. Higher incomes and a rising middle class in developing countries allowed many people to expand their food diets to include U.S. food products. At the same time, the lower value of the dollar helped make U.S. foods more affordable to foreign consumers.

The positive gains in U.S. export activity, however, could not be sustained. First, a rebound in foreign agricultural production trimmed demand for U.S. agricultural goods. Second, the financial crisis contributed to lower export activity. In September 2008, the threat of a global financial meltdown triggered a global flight to “safe haven” securities, primarily U.S. Treasuries. As demand for Treasuries increased, so did demand for the dollar, boosting its value and making U.S. agricultural goods less affordable to foreign buyers.

Third, the recession spread globally, trimming economic growth in foreign countries and cutting demand for U.S. agricultural goods. The pace of world economic growth is expected to slow even more sharply in 2009 before rebounding in 2010. According to the International Monetary Fund, softer economic growth in developing countries is expected to barely offset economic contractions in developed countries. Weaker income growth in developing countries will limit the changes in developing country diets, which have boosted U.S. exports over the past few years.

As a result, the global recession is likely to cut U.S. agricultural exports in 2009 and 2010, but exports could strengthen as a gradual rebound emerges in the global economy. USDA projections indicate that exports should rebound modestly in 2011 with a soft turnaround in global economies (Chart 3). The biggest declines in export activity are expected to emerge in the crop industry. Crop exports are expected to fall with sharp declines in corn and soybean

**CHART 3**  
**U.S. AGRICULTURAL EXPORTS**



Source: USDA fiscal years

exports. Exports of livestock products are also expected to decline in 2009, led by steep declines in dairy products.

### THE FARM BOOM STALLS

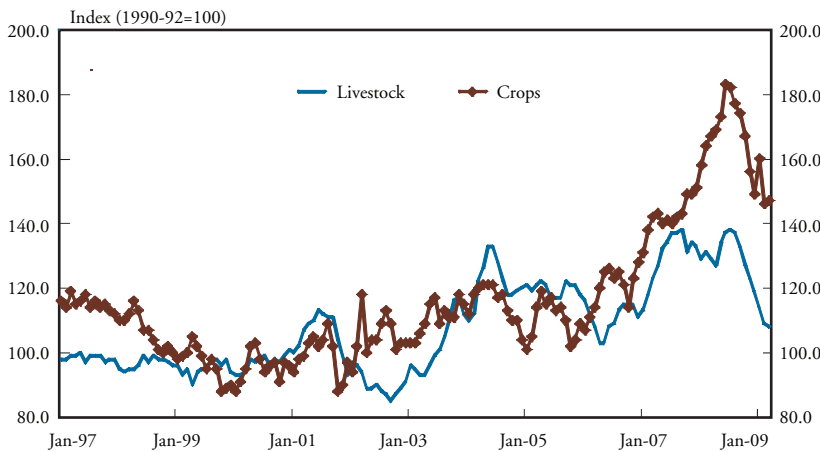
As softer agricultural demand has led to sharp declines in agricultural commodity prices and in turn lower farm income expectations, farmers have cut capital expenditures. In addition, farmland prices have dipped below the highs posted in 2008.

In the first half of 2008, U.S. crop prices jumped sharply, rising 35 percent above year-ago levels. The strongest gains emerged in corn, soybeans and wheat. After softening during the first part of 2008, U.S. livestock prices rebounded in the summer barbecue season. But with shrinking demand over the second half of the year, both crop and livestock prices retreated. By March 2009, U.S. crop and livestock prices had dropped roughly 20 percent below 2008 highs (Chart 4).

In 2009, weaker commodity prices are expected to trim farm revenues.<sup>6</sup> Gross revenues are expected to fall almost 10 percent. The biggest revenue declines are expected in the crop sector, led by falling corn and wheat revenues. Livestock revenues are also expected to slip in 2009, led by sharp declines in the dairy industry.

Despite lower production costs, declining revenues in 2009 are expected to cut farm profitability. Early in the year, falling grain and energy prices led to declines in feed, fertilizer and fuel costs, trimming farm production costs by almost 5 percent. Despite the lower feed costs, livestock

**CHART 4**  
**U.S. CROP AND LIVESTOCK PRICES RECEIVED BY FARMERS**

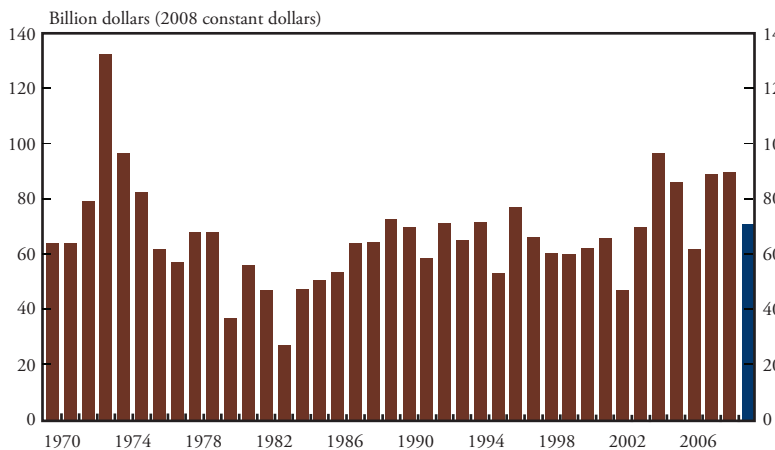


Source: USDA

producers are struggling to post profits for the year because revenues have fallen more sharply. Crop producers, by contrast, are expected to enjoy positive profit margins, albeit narrow ones. Together, lower revenues and input costs are projected to clip net farm incomes by 20 percent in 2009. Nevertheless, incomes will remain historically high (Chart 5).

Eroding farm income expectations have slashed capital spending by farmers. In the fourth quarter of last year, Federal Reserve surveys reported steep contractions in capital expenditures. In the Chicago, Dallas, Kansas City and Minneapolis Federal Reserve districts, the number of agricultural bankers reporting contractions in farm capital

**CHART 5**  
**U.S. NET FARM INCOME**



Source: USDA

spending rose sharply. Moreover, according to the Association of Equipment Manufacturers, tractor sales fell 20 percent during the first three months of 2009. Weaker sales are leading to reduced production at agricultural equipment manufacturers.

The expected declines in farm income are also clipping farmland values throughout the Corn Belt. According to Federal Reserve surveys, farmland values fell with the decline in commodity prices in the fourth quarter of 2008. In the Kansas City District, nonirrigated farmland values declined 6 percent from

September to December 2008—but remained above levels posted the previous year. The strongest declines occurred in the eastern parts of Nebraska. The Federal Reserve Banks of Chicago and Minnesota also reported similar farmland values declines in the fourth quarter, although prices remained well above year-ago levels. As commodity prices firmed in the first quarter of 2009, farmland values, especially high-quality farmland, have stabilized.

**WHEN WILL THE FARM ECONOMY REBOUND?**

With demand shrinking and the farm boom ending, many wonder when the agricultural economy will rebound. After a global expansion of monetary and fiscal stimulus, current forecasts suggest an economic recovery in 2010. The farm rebound hinges on renewed strength in food and fuel consumption.

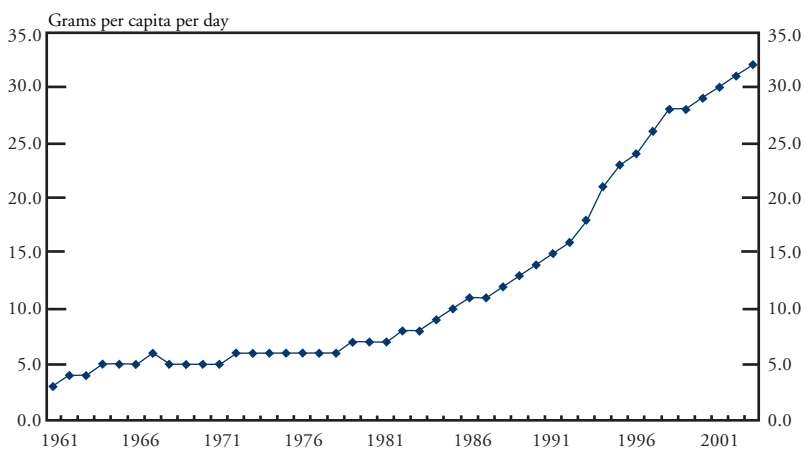
Current U.S. economic forecasts point to some level of stabilization in second half of 2009 and a moderate rebound in 2010. The most recent projections from the Federal Reserve System indicate sharp declines in the first half of the year, with the economy stabilizing in the second half and posting a relatively tame 2.5 to 3.3 percent rebound in 2010.<sup>7</sup> Since WWII, U.S. economic growth in the first year after a recession has averaged more than 4 percent.

World economies are expected to follow a similar path. According to the World Bank, world growth is expected to contract in 2009, as shrinking economic activity in developed, industrialized countries offsets weak gains in developing countries. World economic growth is expected to rebound moderately in 2010.

A farm rebound will depend heavily on the strength of the rebound both in the U.S. and globally. Domestically, stronger U.S. incomes would help increase restaurant sales and meat consumption. Moreover, rising incomes and stronger demand would support U.S. fuel consumption and ethanol demand. Stronger fuel demand would push up gasoline prices and contribute to higher ethanol prices, which in turn would place upward pressure on corn prices.

A stronger global economy and rising incomes in developing countries would also increase the demand for food and U.S. agricultural products. In developing countries, rising incomes are often used to improve the diets of the population. For example, in China, the rise in income over the past decade coincided with a sharp increase in the caloric intake of Chinese residents (Chart 6). Similarly, large caloric gains were also reported in other developing countries that experienced strong income growth. As the global economy strengthens and developing countries rebound, so will the demand for foods, especially proteins for which American producers are highly competitive.

**CHART 6**  
**CHINA PROTEIN CONSUMPTION FROM ANIMAL PRODUCTS**



Source: Food and Agriculture Organization of the United Nations (FAO)

Prospects of stronger global demand in 2010 have raised long-term projections of U.S. farm income. Various forecasts expect a modest recovery in farm incomes in 2010 (USDA and FAPRI). However, farm incomes are not expected to return to 2008 levels for several years. A major driver of farm profits is export activity. Following historical trends, stronger farm incomes will depend on export activity, global incomes and the value of the dollar.

In sum, the global recession has slashed the demand for agricultural products. Global demand for U.S. food products has fallen and ethanol demand has declined. Commodity prices in the United States have dropped from historical highs, paring farm incomes, capital spending and real estate values. The timing and strength of a farm rebound depends on a rebound in global food and fuel consumption. Thus, the U.S. farm economy is expected to rebound in 2010, but the recovery may not reach the record highs of 2008 any time soon.

#### ENDNOTES

- <sup>1</sup> Per capita consumption data obtained from the Food CPI and Expenditures Briefing Room at the Economic Research Service, U.S. Department of Agriculture, <http://www.ers.usda.gov/Briefing/CPIFoodAndExpenditures/>.
- <sup>2</sup> Global food consumption data was obtained from the Food and Agriculture Organization of the United Nations, [www.fao.org](http://www.fao.org).
- <sup>3</sup> Per-capita meat consumption forecasts obtained from Agricultural Baseline Projections Briefing Room, Economic Research Service, U.S. Department of Agriculture, <http://www.ers.usda.gov/briefing/baseline/>.
- <sup>4</sup> Meat demand statistics obtained from Kansas State University, [www.agmanager.info](http://www.agmanager.info).
- <sup>5</sup> It was assumed that non-corn cash expenses would equal 41.2 cents per gallon based on Shapouri and Gallagher (2005).
- <sup>6</sup> Farm income forecasts obtained from the Farm Income and Costs Briefing Room, Economic Research Service, U.S. Department of Agriculture, <http://www.ers.usda.gov/Briefing/FarmIncome/>.
- <sup>7</sup> U.S. economic projections of the Federal Reserve Governors and Reserve Bank presidents obtained from the Minutes of the Federal Open Market Committee, Board of Governors of the Federal Reserve System, January 27-28, 2009. <http://www.federalreserve.gov/monetarypolicy/files/fomcminutes20090128.pdf>.

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