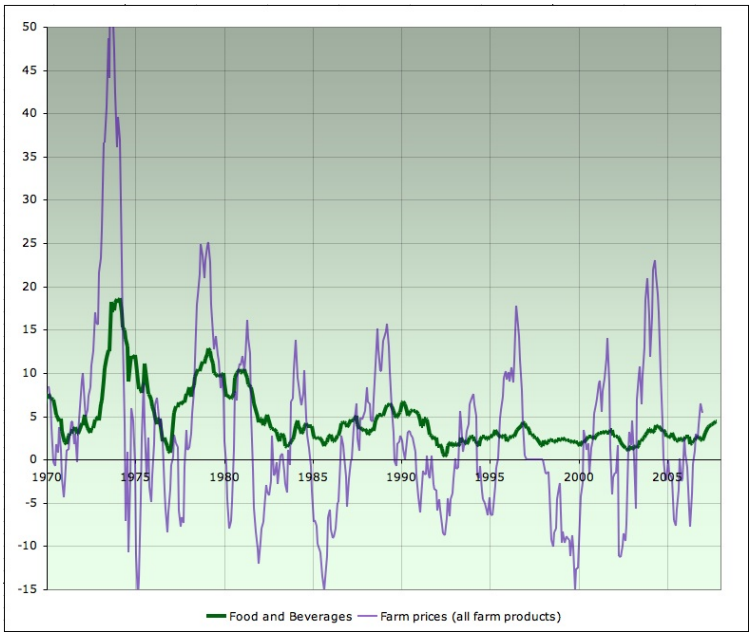
The Oil Drum
DISCUSSIONS ABOUT ENERGY AND OUR FUTURE

Food Price Inflation

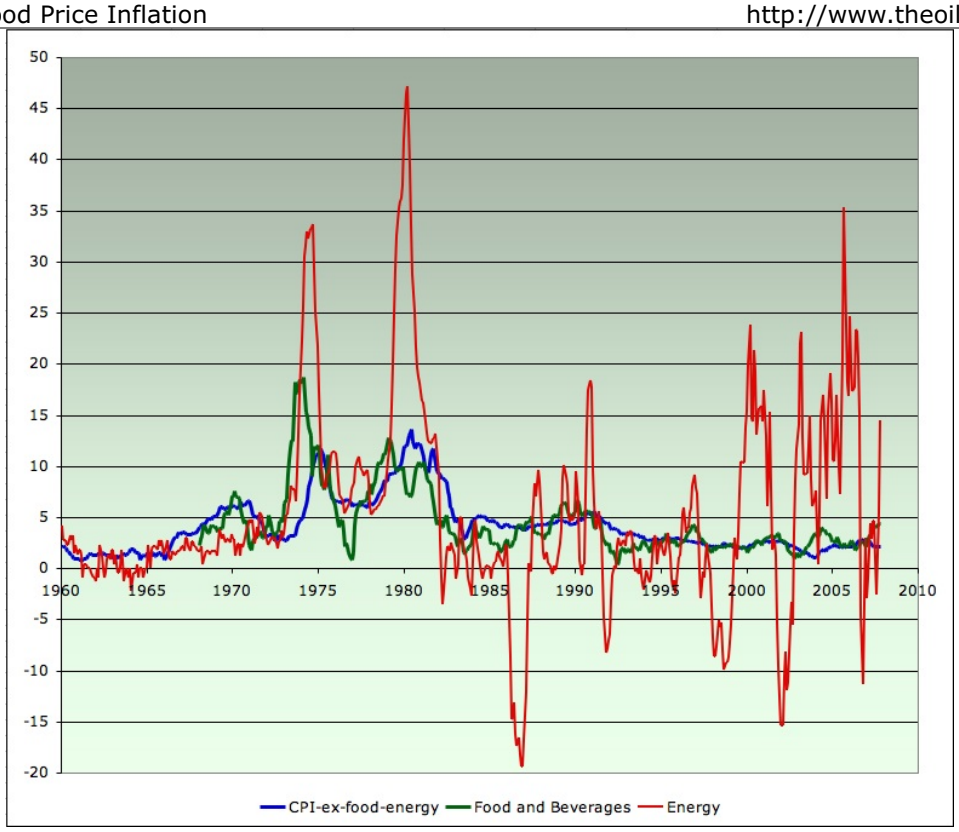
Posted by Stuart Staniford on December 17, 2007 - 10:58am
Topic: Miscellaneous
Tags: food prices, inflation, peak oil [list all tags]



Year-on-year percentage change in monthly consumer food prices and prices paid to farmers (average across all farm products) Jan 1970 - October 2007. Source Bureau of Labor Statistics, and National Agricultural Statistics Service. Graph is not zero-scaled. Click to enlarge.

The Archdruid had a piece last week about the likely future of agriculture in a world with less fossil fuel. In that piece, he had an unsourced statistic stating that US food inflation was currently 20%. That sounded high to me. A quick check at the Bureau of Labor Statistics confirmed that current food inflation for US consumers is just a little north of 4%. In email with the Archdruid, he came up with more statistics. The FAO's global food price index, which summarizes agricultural commodity prices, rose 37% year on year to September 2007. This piqued my interest to explore the issue a little further, and here is a quick tour of what I found.

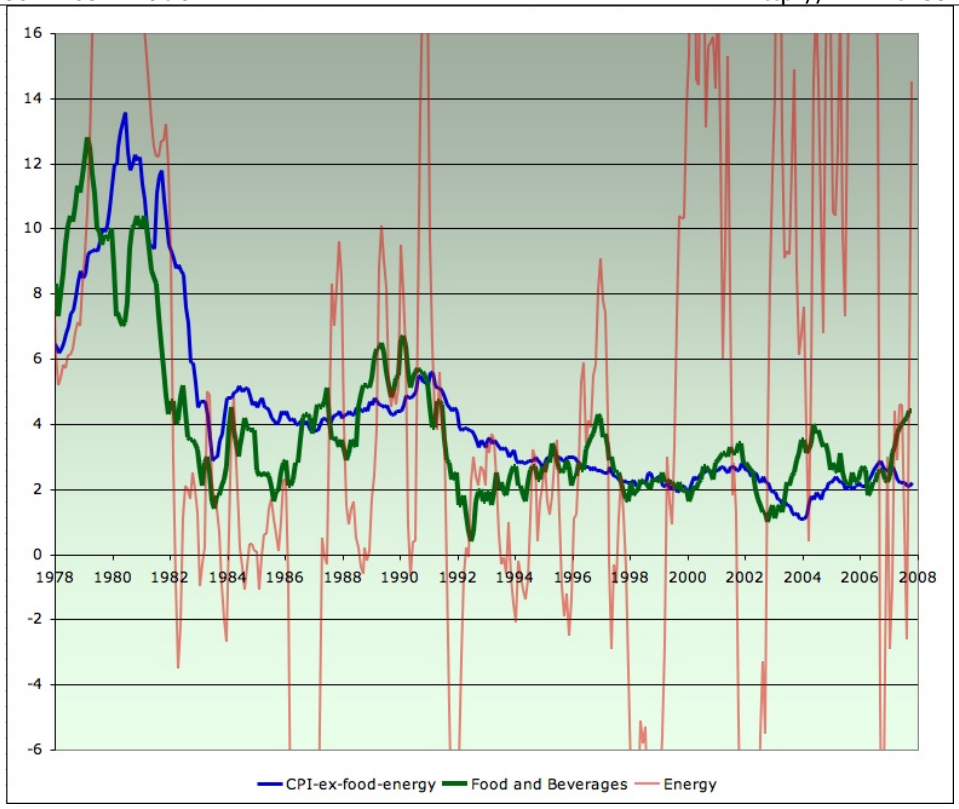
Let's start by looking at the last almost 50 years of consumer inflation in the United States. I have separated out energy, food and beverages, and everything else (this last is often called "core" inflation by economists). In this graph I am showing the percentage change in prices from 12 months ago to the current month:



Year-on-year percentage change in monthly energy prices, food prices, and the rest of the CPI inflation basket Jan 1960 - October 2007. Source Bureau of Labor Statistics. Graph is not zero-scaled. Click to enlarge.

As you can see, energy prices are far more volatile than everything else, but food is only slightly more volatile than the average consumer good. Energy price inflation is now of the same order of magnitude as in the 1970s, but food inflation is not yet that remarkable at the consumer level. At least, not when averaged across the BLS's basket of food items.

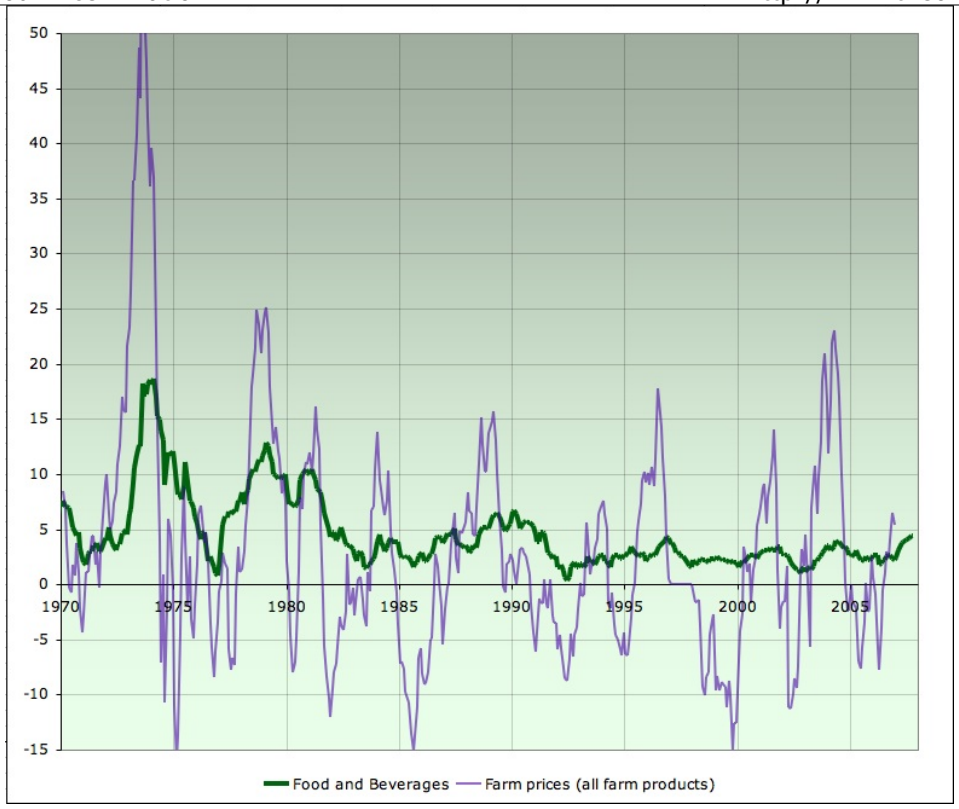
This next graph is the same, but zooms in just on the period from 1978 to now, and with some of the full range of the energy inflation cut off. I have also emphasized the green food curve more heavily, and made the red energy curve partially transparent, to allow food to be seen more easily:



Year-on-year percentage change in monthly energy prices, food prices, and the rest of the CPI inflation basket Jan 1978 - October 2007. Source Bureau of Labor Statistics. Graph is not zero-scaled. Click to enlarge.

Again, consumer food price inflation is a little over 4%. This is well below levels in the late 1980s, never mind the 1970s. However, it is rising rapidly.

I next explored farm prices by looking at the National Agricultural Statistics Service statistics for average prices for all farm products. I've plotted the yearly changes in that basket on the same graph with the consumer food price changes:



Year-on-year percentage change in consumer food prices and prices paid to farmers (average across all farm products) Jan 1970 - October 2007. Source Bureau of Labor Statistics, and National Agricultural Statistics Service. Graph is not zero-scaled. Click to enlarge.

As you can see, the prices that farmers receive for their wares are much more volatile than the prices that consumers see at the checkout stand. In general, farmers have had a miserable couple of decades in the 1980s and 1990s as their price increases generally fell below other forms of inflation. Indeed farm prices frequently dropped substantially even in nominal terms. However, since 2000, they have been seeing larger price increases, and for a larger fraction of the time. However, this series, too, is not at 1970s levels. At least not yet.

Unfortunately, the NASS all farm products price series only goes through the end of 2006. That conceals what is probably a significant spike in prices in 2007, centered in grain prices.

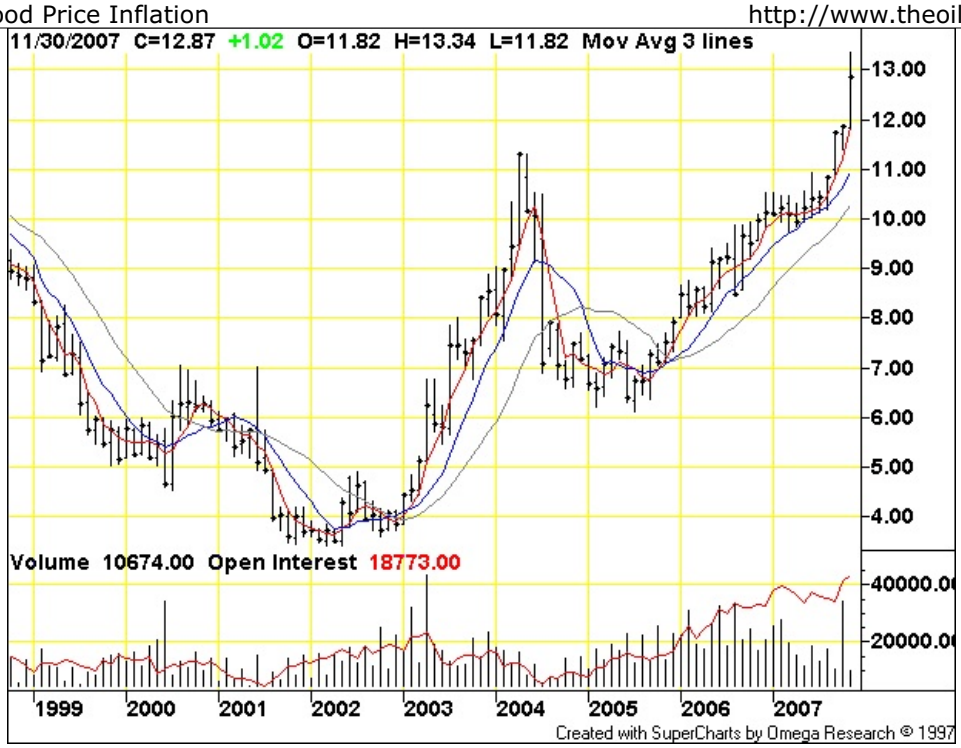
Here are corn prices (and now I'm switching to price levels (of futures contracts) rather than percentage changes.

Monthly corn prices on the Chicago Board of Trade, 1999-present. Source TFC Commodity Charts. Graph is not zero-scaled. Click to enlarge.

Corn has gone up dramatically. Wheat is even more dramatic:

Monthly wheat prices on the Chicago Board of Trade, 1999-present. Source TFC Commodity Charts. Graph is not zero-scaled. Click to enlarge.

Rice is not as bad, but is still higher than in the last decade:



Monthly rice prices on the Chicago Board of Trade, 1999-present. Source TFC Commodity Charts. Graph is not zero-scaled. Click to enlarge.

The causes? As the UN Food and Agricultural Organization Summarizes:

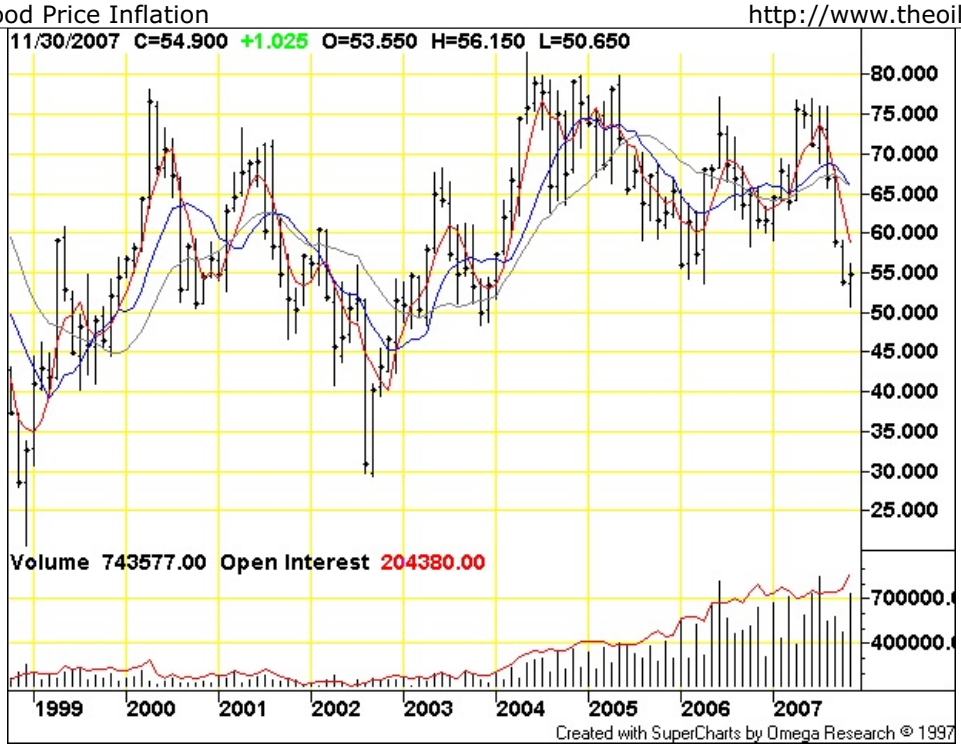
> Among major cereals, this season's main protagonist is wheat, the supply of which has been hampered by production shortfalls in Australia, a major exporter, and low world stocks, while demand has been strong, not only for food but also feed. In September, wheat was traded at record prices, between 50 and 80 percent above last year. Maize prices increased progressively from the middle of last year until February 2007, when they hit a ten-year high, but have fallen considerably since. Supply constraints in the face of brisk demand for biofuels triggered the initial price hike in maize prices. However, reacting to a massive expansion in plantings and expectations of a record crop this year, prices have started to come down, although by September they had still remained 30 percent above last year. Prices of barley, another important cereal, also soared lately. Supply problems in Australia and Ukraine, tighter availability of maize and other feed grains, compounded with strong import demand, have contributed to the doubling of prices of both feed and malting barley in recent weeks.
>
> The tightness in the grain sector also affected the oilseed complex, which witnessed a year-on-year price surge of at least 40 percent, depending on crops and products. Soaring maize markets during the second half of the previous season contributed to keeping oilseed prices at high levels as maize plantings expanded at the expense of oilseed plantings. Due to the expected shrinking of world supplies and historically low inventories in 2007, in the face of faster rising demand for food and biodiesel, as well as unusually strong demand for feed, oilseed markets are experiencing further increases in prices in these early months of the new season.
>
> Among all agricultural commodities, dairy products have witnessed the largest gains compared with last year, ranging from 80 percent to more than 200 percent. Higher animal feed costs, tight dairy supplies following the running down of inventories in the

> European Union and drought in Australia, the suspension of exports by some countries coupled with the imposition of taxes by others, and dynamic import demand are the main factors that have sustained dairy prices at historically high levels.

Here's milk, at the center of the dairy sector price increases mentioned above:

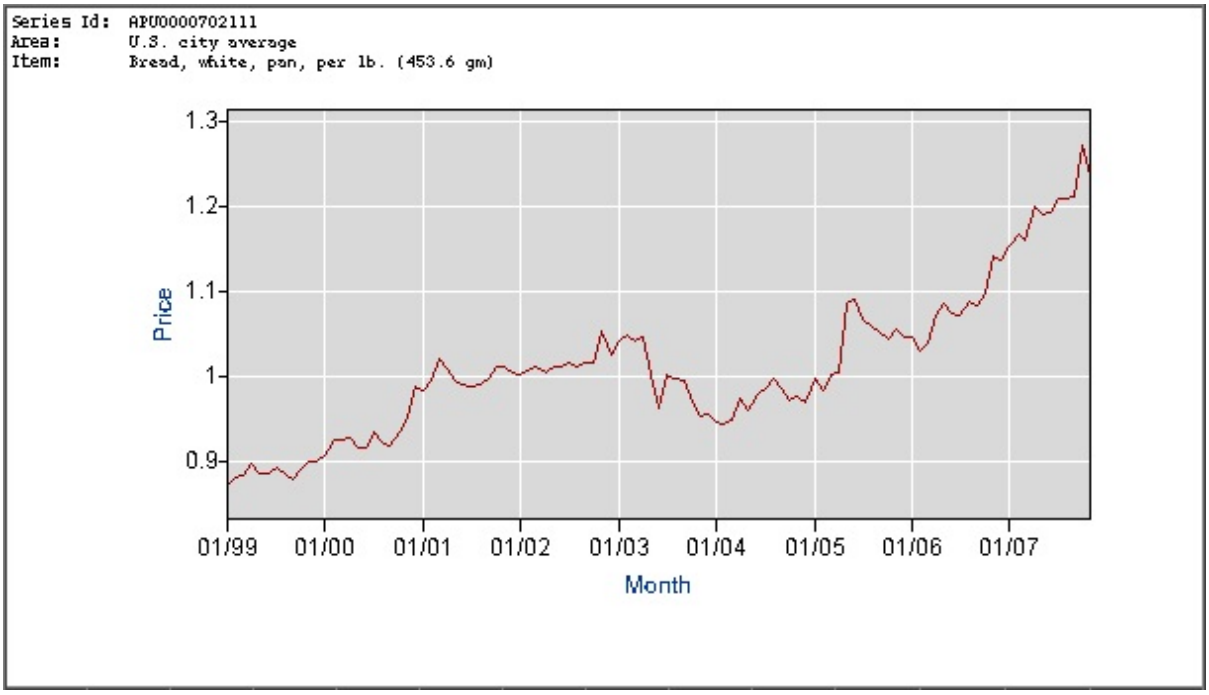
Monthly milk prices on the Chicago Board of Trade, 1999-present. Source TFC Commodity Charts. Graph is not zero-scaled. Click to enlarge.

Not all commodities have gone up though, explaining how averages are lower than the wheat/corn high flyers. Here's pigs:



Monthly lean hog prices on the Chicago Board of Trade, 1999-present. Source TFC Commodity Charts. Graph is not zero-scaled. Click to enlarge.

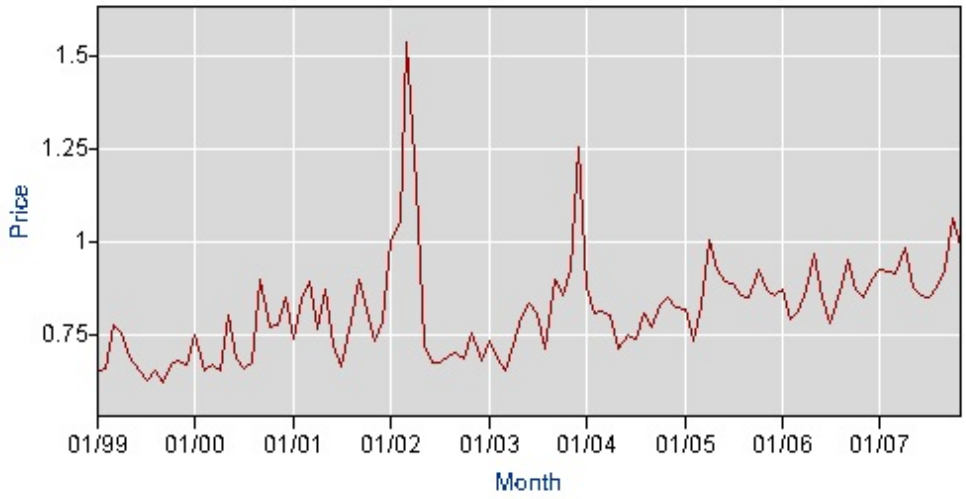
This commodity inflation has a much more muted effect on consumer prices in developed countries, since we largely eat fairly processed foods. The actual commodity (ie food) input in what we buy in the grocery store is a modest fraction. For example, wheat costs about 16c/lb, but bread is well over a dollar a pound. Hence bread prices have not increased nearly as much, percentage-wise, as wheat prices, though they are up:



Monthly price of white bread, Jan 1999 - Nov 2007. Source Bureau of Labor Statistics. Graph is not zero-scaled. Click to enlarge.

Products unlinked to the major commodities are often not unusually high. Eg, nothing special has

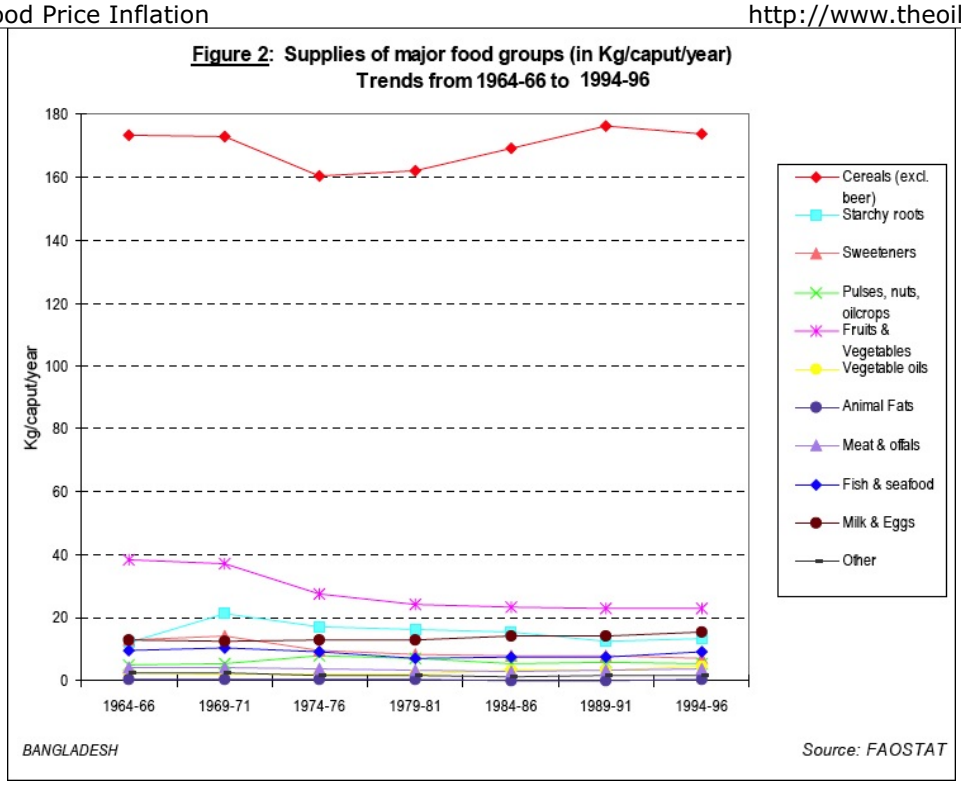
happened to the price of lettuce:



Monthly price of iceberg lettuce, Jan 1999 - Nov 2007. Source Bureau of Labor Statistics. Graph is not zero-scaled. Click to enlarge.

In short, although commodity prices for key agricultural products have increased a lot lately, the impact on consumer food prices in the developed world is quite modest, and no immediate threat to middle class consumers. Calls to stockpile food are way off the mark in my opinion. We have a huge amount of room to eat more cheaply by eating less processed food and less meat.

However, it's another story altogether in the developing world, where a massive tragedy may be in the early stages of playing out if the trends of this year were to continue. Very poor people eat far less processed food, and rely very heavily on cereals, so they are much more exposed to the price rises in grains than western consumers. I haven't been able to find any statistics on diet/hunger that are recent enough to show the effects of this year's price rises, but we can engage in some speculation based on long standing patterns of diet. For example, here's consumption of major food groups in a very poor nation, Bangladesh:



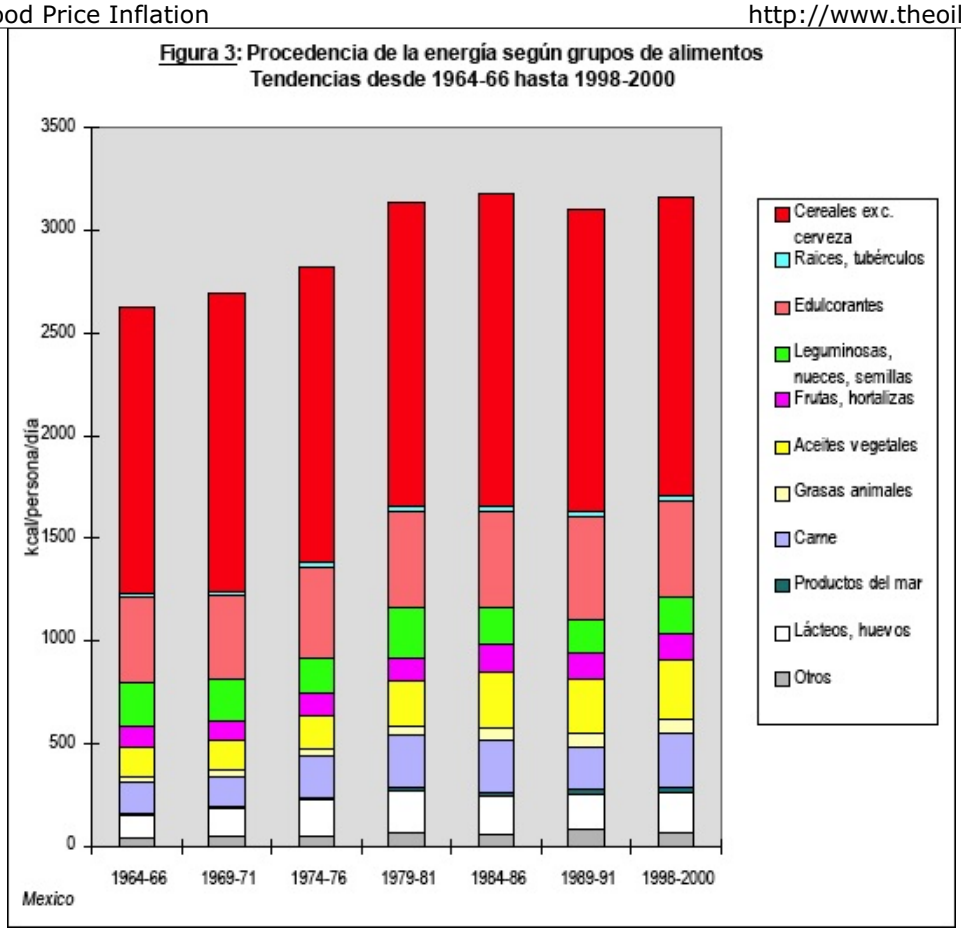
Consumption of major food groups in Bangladesh 1964 - 1996. Source [FAO Nutrition Country Profile for Bangladesh](). Click to enlarge.

As you can see, the diet in Bangladesh is completely dominated by grains, no doubt mostly rice. And Bangladeshis were hungry to begin with:

> Rates of malnutrition in Bangladesh are among the highest in the world. More than 54% of preschool-age children, equivalent to more than 9.5 million children, are stunted, 56% are underweight and more than 17% are wasted. Although all administrative divisions were affected by child malnutrition there were important differences in the prevalences of the three anthropometric indicators...
>
> Bangladeshi children also suffer from high rates of micronutrient deficiencies, particularly vitamin A, iron, iodine and zinc deficiency. Bangladesh should be commended for making significant progress in reducing vitamin A deficiency (VAD) among preschool children over the past 15 years; however, consumption of vitamin A rich foods is still low, suggesting that the underlying causes of VAD require further attention and support. Anemia is also highly prevalent among children in Bangladesh and few programs have been initiated to improve their iron status...
>
> Malnutrition among women is also extremely prevalent in Bangladesh. More than 50 percent of women suffer from chronic energy deficiency and studies suggest that there has been little improvement in women's nutritional status over the past 20 years...

It's not hard to imagine that sharp increases in the price of grains will have immediate and significant effects in worsening the situation of people already so vulnerable.

Closer to home, here is the diet of a less destitute country, Mexico:



Consumption of major food groups in Mexico 1964 - 2000. Source FAO Nutrition Country Profile for Mexico (Spanish). Click to enlarge.

Here, cereals make up about half the calorific intake (which is ample on average). So Mexicans are not as vulnerable as Bangladeshis. Still, the averages will hide many poorer people who have both less food altogether, and a much higher proportion of it from corn and rice (staples of the Mexican diet). And increasing the hardship of Mexico's poor is just about certain to increase their tendency to try to move north across the border, which is a major source of political tension in the US.

And there lie the key issues for wealthy citizens of developed nations I think.

In the last year, there have been food riots, protests, or stampedes in Mauritania, China, Senegal, India, Pakistan, Morocco, Mexico, Yemen, Indonesia, and Burkina Faso.

If food prices continue to go up, the world's middle classes will still be able to afford ample food. But it's hard to see how, in the long term, we will be insulated from the social and ecological collapses that might get triggered in poor countries.