

PolicyPennings by Daryll E. Ray & Harwood D. Schaffer

Crop prices and consumer food demand

In describing the model we use to analyze agricultural policies, the two previous columns examined the responsiveness of the production of grains, oilseeds, and fibers to changes in prices. We saw that farmers respond quickly to high prices, primarily by bringing additional acres into production. During the recent run-up in high prices, for farmers in the US, that meant converting pastureland and land coming out of the Conservation Reserve Program into the production of corn and soybeans. Farmers elsewhere in the world also increased the number of acres they devoted to the production of these crops or their substitutes. The result was that producers met and even overshot the increase in demand, resulting in the current low prices.

The story when prices fall below—even well below—the cost of production is quite different. Despite low prices, farmers continue to plant all of their cropland acres. They may switch among crops to maximize the amount of revenue that they can allocate to fixed costs, but they do not deliberately leave unplanted acreage.

As we learned in introductory economics classes, the quantity supplied and the quantity demanded need to respond sufficiently to a price decline so the market can quickly self-correct. With little responsiveness to low prices by producers, the burden falls to consumers.

Many products show an increase in quantity demanded by consumers when prices fall. If that were not true, then clearance sales would not work very well and retailers would be left with last season's inventory taking up retail space. This is true whether we are talking about cars, clothes, or yesterday's holiday candy. And, they keep dropping the price until all out of season merchandise is sold.

So how does this work for food? For individual food items, lower prices do increase sales. We can see this when we look at chicken and beef. The price of beef is higher than that of chicken and in recent years the per capita consumption of chicken has increased while that of beef has declined. Certainly some of that change has been in response to the perceived relative health benefits of chicken vs beef though the price differential cannot be ignored.

Similarly, looking only at beef, the price of ribeye steak is considerably higher than the price of ground beef. The higher price of ribeye allocates it to a higher income market while ground beef is more affordable to those with less income.

As food prices increase, people will move from ribeye to roasts, to ground beef, to chicken, to beans. As we look at food item by item, we see that consumers do respond to price as they decide what food items they purchase.

But, when we look at total food intake we see no

evidence that a significant number of people go from eating three meals a day to two when prices are high. Likewise, consumers do not begin eating four or five meals a day when prices are low. If basic food needs are already met, the total caloric intake of individuals varies little over a wide range of prices, though total US caloric intake has slowly increased over recent decades bringing about the obesity epidemic.

Consumers may eat more starches and beans when prices are high and more veggies and meat when prices are more affordable, but aggregate food consumption remains relatively steady.

What about exports? Surely, they are more price responsive! If we look at world crop production, we see that exports have declined as a percentage of world crop consumption. The citizens and farmers of other countries prefer to feed themselves with domestic consumption. They only import the amount they cannot produce themselves. US crop exports are more responsive to crop shortfalls elsewhere in the world than they are to price.

One of the common narratives in support of increasing crop exports is that the diets of the growing middle class in developing countries is shifting from predominantly staples—usually based on rice, wheat and locally grown specialty grains—to diets that includes increasing amounts of meat from livestock and poultry that are fattened with corn and soybean products. The implication being that developing countries will need to import more and more grain and soybeans, especially from the US.

This has the potential to help US exports if feed demand in developing countries increases faster than the trendline increase in non-US production. As of yet, there is no evidence that this will be the case.

What about the 800+ million people around the world who go to bed hungry? In that case markets work as predicted; food goes to those who can afford it. Even at today's grain and oilseed prices there are nearly a billion people who cannot afford the price of admission. For them the food they need will have to come from feeding programs or self-production, not exports from the US.

Neither the production nor the consumption side of the total food supply equation responds very much or very quickly to decreases in the overall price level. As a result, major-crop farmers face long periods of low prices, punctuated by short periods of high prices as the result of either significant production shortfalls or a change in governmental policy that stimulates a sharp increase in demand (e.g. WWI, WWII, the decision of the USSR to import grain rather than kill off their livestock herd, and the US state and federal government supported ethanol boom).

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Short of a supply problem or an abrupt demand-increasing change in ethanol policy this coming year, we are in the midst of one of the low-price periods.

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