
Policy Matters

Newsletter of the Agricultural Policy Analysis Center



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Agricultural Policy Questions: With Prices Low, Why Haven't Bargain Hunters Scooped Up

"Agricultural Policy Questions" is a special series of the Agricultural Policy Analysis Center's (APAC) Policy Matters Newsletter. The series was created to bring attention to the underlying issues surrounding current discussion of the performance of U.S. agricultural policies set in place with passage of the 1996 Farm Bill. We hope this series provides context and background information in an easy-to-understand format for anyone interested in agricultural policy and the agricultural economy. Issues in the series and a series compilation through Spring 2000 are available on the APAC website at <http://apacweb.ag.utk.edu/>. Follow links to Newsletters & Press Releases then to Policy Matters.

Granaries are bulging and crop prices are depressed, but farmers continue to produce at full-throttle anyway. The last issue of *Policy Matters* explained why this occurs. In a nutshell: Farmers tend to stay in agriculture as long as they can, but even if financial bankruptcy forces a farmer to leave, another operator typically takes over the land and keeps it in agricultural production. In another industry, the land and other resources would be shifted to a totally different industry. But since this doesn't happen in agriculture, supply declines very little even when prices for major grains drop by nearly one-half, as they have since 1997. In the parlance of the agricultural economist, total crop supply is highly price inelastic.

If rebalancing bloated grain inventories with production cutbacks is too much to expect, what about the demand side? A large boost in grain usage in response to lower prices indeed would reduce inventories and solve the problem. To be sure, in most other industries, a 50 percent price drop would likely clear out any excess in-

ventories. But even after two years, no such demand explosion has occurred in the grain market. So what is it about the nature of the demand for agricultural products that makes it react differently than in other industries? Just as in the case of supply, the unique nature of agricultural demand has long been known by agricultural economists, but with the surge in grain exports in the 1970s and 1980s came a more price-responsive interpretation of grain markets, muting the long-established understanding of these markets. This issue of *Policy Matters* focuses on the domestic demand while the characteristics of export demand will be looked at in a future issue.

Essential For Life

By far, the characteristic that most defines the nature of food demand (feed demand in the case of animals) is that it is absolutely required for life. This fundamental difference between agricultural products and the products of most industries is a positive and a negative for agri-

culture. On the positive side, every person/animal must be fed so as population increases so does demand. But there is also a negative.

Price is of little consequence in the case of the domestic food market. That does not mean price is not important, it just has little effect on the quantity of food consumed. This gets back to its most fundamental attribute, food, unlike all but a few economic goods, is absolutely required for life. A person who has not eaten for days—and has money—will pay an exorbitantly high price for food. But once his stomach is full and he feels secure about the availability of food, food prices can be cut by 90 percent and he would buy very little more.

The demand for food at “low” versus a “high” price can be likened to a sponge which continues to soak up water until it is saturated but, once it saturated, it makes no difference if the sponge is in a small pail or a large lake—no more will be absorbed. Food tends to be close to the saturation point at all price levels, especially when compared with most consumer goods.

There is a striking difference in how price changes affect the quantity demanded for non-farm versus farm products. The demand for non-farm goods is generally more responsive to price. For example, when first introduced, VCRs were priced well above \$1000. When most of the development costs had been recouped and economies of size had lowered per unit costs, the industry greatly increased revenue and profit by lowering its price. Selling 20 million units with a margin of \$100 beats selling 1000 units with a margin of \$800.

Elastic Vs. Inelastic

When demand increases by a larger percentage than the price reduction, demand is said to be

price elastic. A product is price elastic if a percentage change in price (say, one percent) causes the quantity demanded to change in the opposite direction by a greater percentage (more than one percent). Thus, to an elastic demand, a fifty percent reduction in price must generate more than a fifty percent increase in the quantity demanded.

Because food/feed is a necessity for life, this kind of response to price does not occur in agriculture. Since its demand varies little whether price is high or low, food/feed is price inelastic meaning that for any percentage decrease in price the quantity demanded increases by a smaller percentage. For example, a price elasticity of aggregate demand for agricultural products of 0.25 means that a 10 percent decrease in the index of agricultural prices would increase the quantity demanded all agricultural products by 2.5 percent.

In the case of domestic demand for feed, which is the largest demand category for feed grains and processed soybeans, demand may be less price responsive now than decades earlier. Until relatively recently, livestock was produced on small to medium size units by individual farmers, many of whom were “inners and outers” who make adjustments in livestock numbers or number of farrowings per year depending on price. Today a large share of livestock—almost 100 percent for some species—is produced under some type of contract in fixed facilities that are so specialized and expensive that casual shifts in and out of production are not economically feasible. While these large livestock concerns likely use more sophisticated procurement strategies than earlier producers, one way or another, the feed must be purchased whether prices are high or low. That is, feed demand becomes less price responsive—or more price inelastic—as more

and more livestock are produced under fixed contractual arrangements. A somewhat offsetting effect is provided by the more price responsive industrial demand for crops. While industrial demand for major crops has been increasing, feed demand remains the dominant use for feed grains and soybeans.

Demand Rigid, Not Shock Absorber

This lack of response in quantity demanded in agricultural markets to price changes (i.e., this price inelasticity) means that, to clear the market following a surge in output, price must decline dramatically to offset buyers' inherent unwillingness to buy more. Food (and hence agricultural) demand is very rigid. Ideally, there should be a shock absorber effect such that additional output would move through the market with a relatively small price decrease and, conversely, a relatively small price increase would significantly reduce product sales following a crop shortfall. This shock absorber function is accomplished in many markets but much less so in agriculture. Instead, an over expansion in supply causes extreme farm price and income declines. As consumers learned in the 1970s, prices also go up dramatically when agriculture supplies become low.

Income Growth Also Has Little Effect

What about income growth? With the rest of the economy experiencing remarkable sustained growth, why haven't increases in per capita incomes of late increased the demand for agricultural products and thereby raised agricultural prices? The answer is that, while income is an important determinant of demand for most goods and services, income growth affects agricultural demand very little in a rich country like the U.S.

On the other hand, the demand for many non-farm products is more dependent on income than

population. As incomes permit, consumers buy more and higher quality clothes, larger houses, more expensive furniture, increasingly more luxurious automobiles, college educations for their children, the latest crop of electronic gadgets or go on longer and more exotic vacations. Demand for many nonfarm products stretches or is elastic with increased incomes.

Such elasticity is not evident for food and its underlying agricultural ingredients. In high-income countries such as the U.S., increases in per capita income have almost no effect on the total demand for food and, thus, almost no effect on the demand for agricultural products. After reaching a certain income level, the consumer's marginal urgency for securing additional food is very low. Of course, the mix of foods consumed may change with incomes—better cuts of meat, more fresh fruits and vegetables and less rice and beans—but few are going to add a fourth meal to their daily diet just because it is now affordable.

Consumers are likely to dine out more often and at fancier places as their incomes grow. They may switch to more highly processed foods that are more convenient and require little preparation time. But these effects only increase the demand for services associated with the food. Farmers as a group receive very little of these additional expenditures.

Based on what agricultural economists have long-known about the nature of supply, as summarized in the last issue, and the nature of (domestic) demand, as discussed in this issue, it is evident that one could easily be overly optimistic about how grain markets—unfettered by government involvement—would perform. In the next issue in the Policy Questions Series of *Policy Matters*, we will look at how the export market fits into all this.

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APAC was established in 1992 around the Blasingame Chair of Excellence in Agricultural Policy to conduct research and provide information on the impacts of

alternative policies and economic conditions on agricultural output, prices, and income. Analyses are conducted at the representative farm, state, regional, and national levels.

Policy Matters is intended to be a vehicle for APAC to share analyses on farm policy issues and information on the economics of agriculture with farmers, agricultural leaders, policy makers, and researchers in the state and around the nation.

We Welcome Your Input

Are there policy issues you would like to see APAC address? Please contact APAC's director, Daryll E. Ray, at:

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