

# The production, marketing and consumption of agricultural products are noticeably distinctive

Over the coming weeks we will be talking about science, philosophy, and economics as they relate to the agricultural sector in the US and around the world. Without considering these issues it is difficult to build the consensus needed to develop an agricultural policy that is cognizant of the needs of farmers, consumers, and taxpayers everywhere.

Science is a process that involves the discovery/identification of verifiable facts about the physical and social world. Some of these facts gain widespread acceptance over a relatively short period of time, while others take centuries or longer.

As the two of us look at the agricultural sector, including the production, marketing and consumption of agricultural products, we have identified what we believe to be a scientifically verifiable set of characteristics of food production, marketing, and consumption.

At the population level, food consumers (all of us) consume about the same number of calories whether the prices are high or low. The mix of foods may change, but the total number of calories consumed remains very stable. This is called the low price-elasticity of demand.

Having said that, we need to recognize that some people are virtually priced out of the food market and thus do not provide a significant level of effective demand for agricultural products. The size of this group is dependent upon the price level, the higher the price the lower the effective demand of this group.

At the world-level, the number of people in this group is conservatively estimated to be 800 million, though the number could easily be more than 1 billion. With an estimated world population 7.9 billion, roughly one out of every eight people falls into this group.

When the price of agricultural products increases, so does the size of this group.

On the production side of crop agriculture, there is general agreement among economists that agriculture suffers from a low price-elasticity of supply in response to low prices.

In other industries, when prices fall companies reduce their level of production to maintain profitability.

When crop prices fall, farmers tend to keep all their crop acres in production. Whether the crop acres are owned or rented there is little incentive for any given farmer to reduce the number of acres she plants. Farmers may change their mix of crops to favor a crop with a slight price advantage, but they forestall making decisions that materially reduce total production enough to affect prices.

But let prices increase and farmers will convert pastures and marginal acres to produce another bushel, bale, or hundredweight at the higher price. Once in production, it takes a long time for farmers reduce these acres.

So how do we explain this counter-intuitive behavior?

First, resources used in agricultural production have limited alternate uses and if converted to an alternate use like a housing development, this resource cannot be returned to agricultural production.

Second, fixed costs in agriculture are large compared to its variable costs and compared to the fixed costs in most other industries. Farmers use available income to pay variable costs of

production but in times of reduced revenue may only cover some of the fixed costs with the rest delayed or demurred.

Third, crop farmers in the temperate zone can make their production decision only once a year. In the northern hemisphere if farmers hold off on their May planting decision because of price, they cannot change their mind if prices increase in July. By way of comparison, an automobile plant can be idled for weeks at a time and started back up again when demand at a profitable price returns.

Fourth, most farmers provide a significant amount of the labor needed on their operation and there is no benefit to idling themselves. As a result, operator labor costs often get ignored because a spouse holds a job in town with income and medical insurance.

But not all the challenges that farmers face can be found on the farm. One is the position farmers face in the marketplace.

The major products they need to purchase—machinery, seeds, farm chemicals—are controlled by an increasingly limited number of firms. They have few places to turn for lower input prices.

And, when they go to sell their products the number of buyers is similarly limited.

As a result, they have minimal pricing power at both ends of the production/marketing system.

Good agricultural policy needs to be based on science and take these verifiable facts into consideration.

Failure to take these characteristics into consideration when developing agriculture policy inevitably leads to failed policies, higher government costs, and increased economic stress in agricultural areas.

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