

The Joy of Agri-Food Price Inelasticity

by

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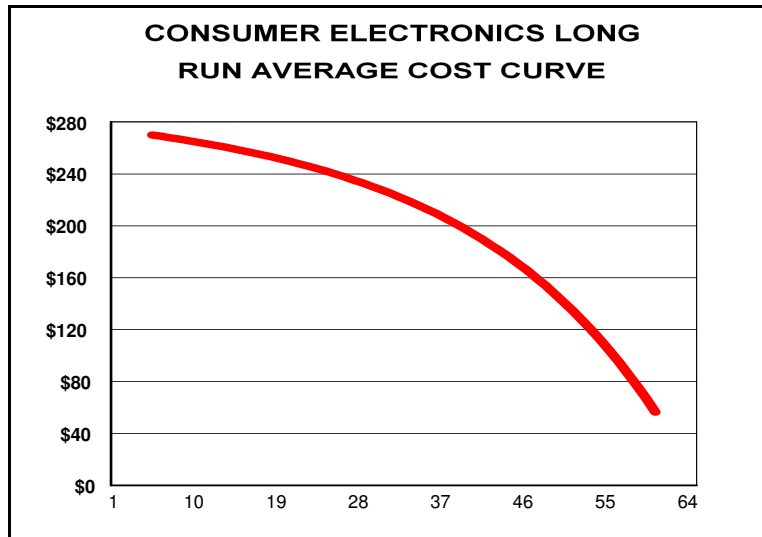
Two lectures in classes on economics were almost certain cures for insomnia. First one was on utility curves. Beware of anyone interested in utility curves. The other was of price elasticity. That was especially true when the instructor moved to using calculus, such as dy/dx . Part of the reason for this response was the inability to visualize the use of such knowledge. When would one ever meet the elasticity of prices?

Recently, while giving a presentation on the grand future ahead for agricultural land values, the term price inelasticity was used. An assumption made, somewhat incorrectly, was that all in the audience knew what that term meant and how it related to the value of farm land. In penance for that miscalculation, this effort to explain the joy of Agri-Food price inelasticity is coming to you.

Computer on which this is being written would be cheaper to buy today than when purchased. Prices for electronics seem to fall on a regular basis. Reason for that is that the long run average cost curve, or supply curve, for electronics appears somewhat like that in Chart One. As volumes rise, the price required to supply that quantity declines. The scales in this graph and the next are hypothetical, purely for the purposes of graphing the picture.

Preventing revenues from declining at firms such as Apple requires a continuous flow of new products. Those amazing innovations introduced by Steve Jobs allow the firm to remain on the high-priced part of the curve, the left-hand portion. Without a regular flow of innovative products, revenues would follow that curve lower. Those firms that are copiers rather than creators reside on the right side of that curve, mired in a low priced, competitive environment. Such is the reason most technology stocks ultimately disappoint.

Chart One

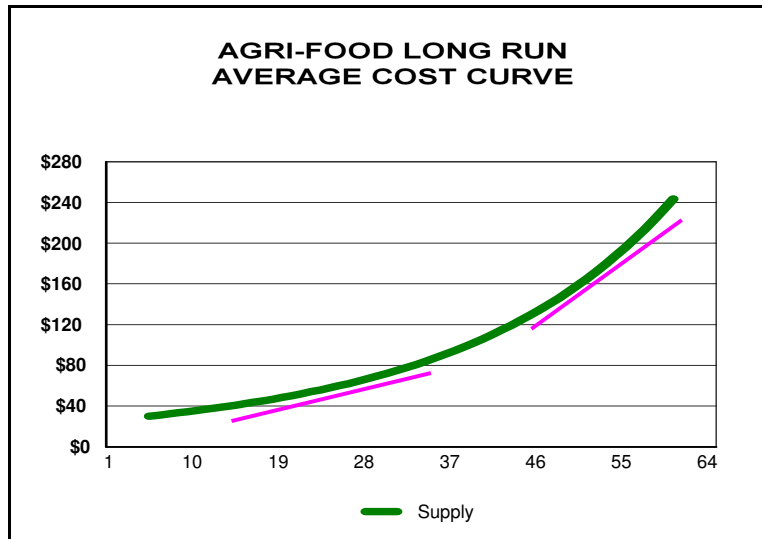


Part of the reason that the cost, or price, of electronics declines over time is the nature of new production facilities. At the margin, new production facilities produce goods cheaper than old factories. No one would build a new factory that is less efficient than an existing one.

That condition is not true for all industries, however. In Agri-Food production, the most productive land is already being used. Remember, Agri-Foods are not produced in a factory, but grown in dirt on what we refer to as a farm. Agri-Food is not produced in a factory, and the production characteristics of Agri-Food do not remotely resemble a factory model. The character of that dirt and the climate in which it resides determine the productivity of the land.

The next unit of farm land brought into production will be, generally speaking, less productive, or more costly on which to produce. To enable that land to produce, a higher price must be received for the Agri-Food output than is required for currently producing lands. The long-run average cost, or supply, curve for Agri-Food prices looks something like that portrayed in Chart Two.

Chart Two

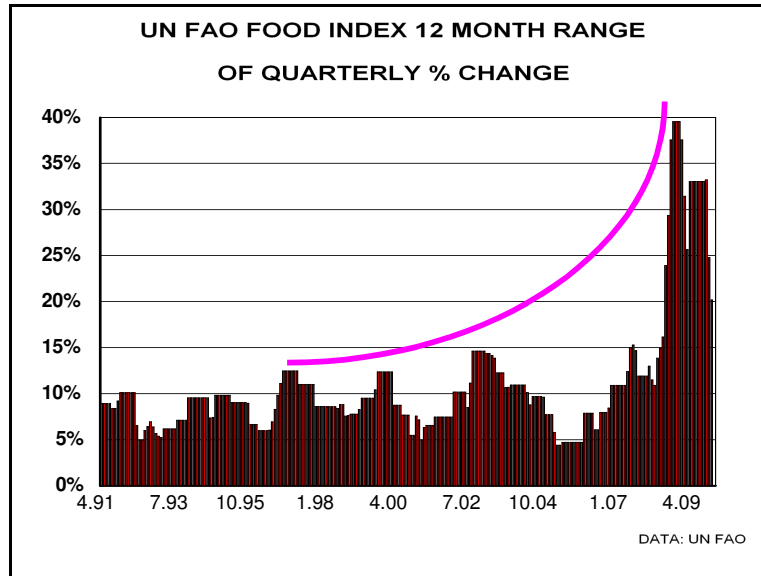


The two graphs we have considered have distinctly different shapes, with implications for pricing in both industries. Note also that the slope of the Agri-Food line becomes steeper as quantity increases. This condition can be observed in the slope of the two lines drawn tangent to the curve in Chart Two. Tangent line on right has a higher slope than that on the left.

What are the implications of the differences in these two curves? Consider first Chart One for consumer electronics. On that curve when moving from 10 units to 19 units, a 90% increase, price declines by 5%. On the Agri-Food curve, Chart Two, the price increases by 36%. That set of relationships is fairly acceptable as it is in the realm of most of our experiences. Note that the pricing consequences in each are far different.

Now, suppose we move far to the right on each graph. Assume that quantity supplied is to increase for both from 37 units to 46 units, a 24% increase. Consumer electronics prices fall by 20% while Agri-Food prices rise by 43%. Agri-Food market, when operating on the right-hand portion of the curve, is price inelastic. **That means the percentage change of price is greater than the percentage change in quantity supplied.** Price inelasticity means that the response of supply to a price change, in percentage terms, is less than that of the price change.

Chart Three



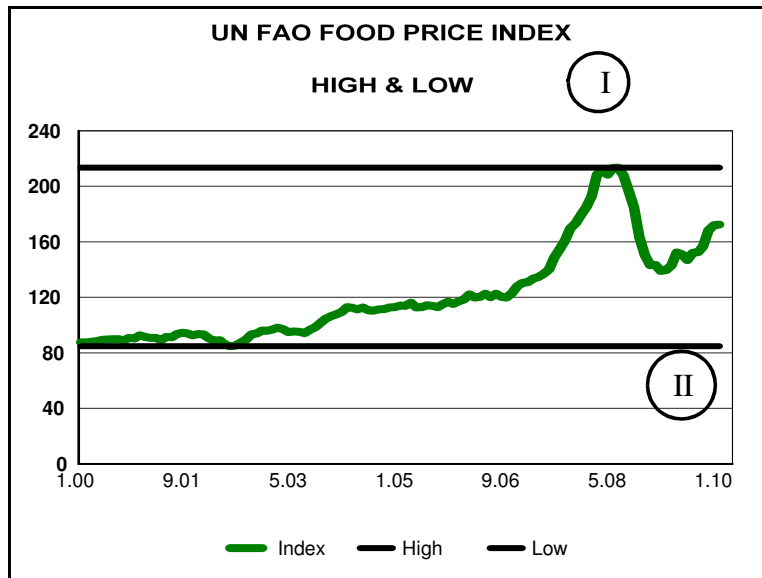
For the skeptics in our audience, let us see if the real world might validate somewhat our theoretical construct. The UN Food & Agriculture Organization (FAO) produces a price index for food. We calculated the quarterly price changes associated with each month back to 1990. In Chart Three is plotted the 12-month range for those quarterly changes by month.

We do know that the world includes more people today than it did ten years ago. The population of the world has increased. More people means more food is being consumed each and every day. So, in Chart Three we know that the quantity of food being supplied is increasing as time move to the right. To accomplish that increased production requires more expensive technology to enable productivity gains on existing land, and/or higher expenses to enable the farming of less productive land.

The plot in that graph is a measure, though admittedly not a perfect one, of the Agri-Food price volatility being experienced. *As is readily apparent, Agri-Food price volatility has been rising as the quantity of food being supplied increases.* That condition suggests the world is more likely operating on the right-hand side of the long run Agri-Food supply curve. *That situation indicates that Agri-Food is now operating in the price inelastic portion of that curve.*

Implication: An increase in the quantity of Agri-Food demanded by the world will result in a percentage increase in prices far greater than the percentage increase in supply. Or simply, prices will go up more than supply. The benefits of the higher prices for Agri-Food will accrue to all involved in the Agri-Food production chain.

Chart Four



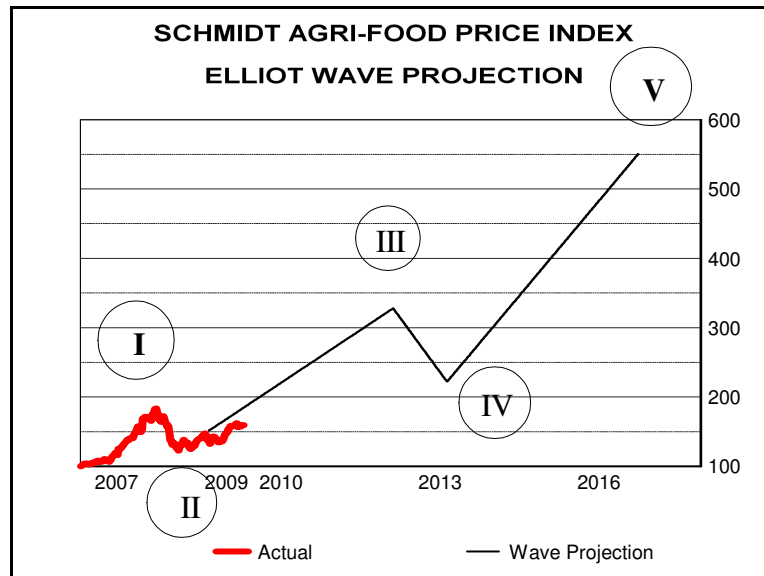
In Chart Four is graphed that UN FAO Food Price Index for the past ten years. Solid black lines have been added to highlight the ten year high and low for that index. We note that the last low, apparently a major turning point, came well above the high that occurred prior to the hedge fund induced run up of 2008. That this low is such gives considerable encouragement.

Given that Agri-Foods are now in the price inelastic portion of the long-term supply curve we can begin to frame Agri-Food prices in an Elliot Wave framework. In that graph we have marked what seems to have been a Wave I and Wave II. If that is the case, then the world of Agri-Food is now operating in Wave III. Confirmation of that count will be when the FAO Price Index exceeds the previous high.

Further, we can now build an estimate of how the Elliot Wave framework might unfold for Agri-

Food commodity prices. That is done in Chart Five. In that chart the Schmidt Agri-Food Price Index, a weekly measure, is used as it is perhaps more practical than the UN FAO index which is only available monthly.

Chart Five



The time frame used for this projection is consistent with estimates of future Agri-Food demand for China, with India taking up for any slack that might eventually develop in Chinese demand. Chinese demand for Agri-Food will continue to rise beyond the time period plotted in the graph. However, the second derivative will have peaked and turn negative in the 2017-20 time period, perhaps. The second derivative is a significant determinant of prices.

Those investments connected to Agri-Food should prosper during this period of pricing strength in Agri-Food. Farmers come obviously to mind as their cash flow will increase significantly during this period. Suppliers of all kinds will benefit from that higher cash flow. As the same time, the Agri-Food accumulators, those that collect the Agri-Food from the producers before passing it along to food processors, will benefit as they will have increased pricing power.

Those willing to look into the future can participate in the joy of Agri-Food price inelasticity. We

should also note that the situation being described is a structural bull market created by global Agri-Food demand pushing against an inelastic Agri-Food supply curve. As it is structural in nature, only buy tickets should be written. Anyone writing sell tickets in a bull market is put off the train, and will have trouble when attempting to reboard

Ned W. Schmidt, CFA, CEBS is publisher of *The Agri-Food Value View*, a monthly exploration of the Agri-Food grand cycle being created by China, India, and Bio-energy. To contact Ned or to learn more, use this link: www.agrifoodvalueview.com