

***Profitability: Looking to the Future of Your Operation***  
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***Introduction***

The current cattle market has been one for the record books. The result has most beef producers' accounts out of the red and (finally) in the black as many have recorded positive profits. However, accounting profits and economic profits are not always on equal footing.

Even when considering the real price of cattle, the current market is recording prices that have never been experienced. Figure 1 illustrates both nominal and real prices of the feeder cattle futures contract. Figure 1 shows that, after adjusting for inflation, prices in the final quarter of 2014 were 85.9% higher than the average of all prices from 2003 through 2008.

The first objective of this article is to provide a distinction between accounting and economic profits. Second, economic profits are elaborated on more thoroughly. Finally, as the primary objective, a review of factors that impact profit for beef industry participants are discussed and ways to utilize profits to increase efficiency and long-term sustainability are outlined.

***Accounting vs. Economic Profit***

Accounting and economic principles are often incorrectly placed into the same conversation. While these disciplines do exhibit similarities, there are distinct differences when calculating profit. The most important difference is the economic principle of 'opportunity cost'. Accounting profit is the most commonly expressed profit equation. This is:

$$\text{Total Profit} = \text{Total Sales} - \text{Total Expenses} \quad (1)$$

Total sales, in the accounting sense, includes all income (or revenue) from the sale of goods, products, or services. Total expenses include all costs from the production of the products, including labor, materials, financing, and taxes. Economic profit has a similar construct, but includes 'opportunity costs' in the equation, as follows:

$$\text{Total Profit} = \text{Total Sales} - \text{Total Expenses} - \text{Opportunity Costs} \quad (2)$$

While similar to accounting profits, the economic profit equation (equation 2), considers the costs of other endeavors given up by the firm or individual in order to produce the specific good or service that generated revenue. Therefore, the opportunity to do something else was not acted on in order to produce the specific good or service.

An example in this case is often useful. Consider a beef cattle operation that utilizes 100 acres of pasture that is quite fertile. This ground could be used to grow high yielding crops. The costs of

not growing crops would be considered ‘opportunity costs’ from an economic standpoint but would not factor into accounting profits. In this case, the costs are actually lost revenues from not planting crops.

Another example is the costs of owning and using a tractor as opposed to (a) owning the tractor and leasing it to neighbors, or (b) owning the tractor, with financing, as opposed leasing the same tractor which may exclude financing costs and depreciation. In both cases, the ownership and use of the tractor involves costs that would be considered by accounting, however the lack of income or increased costs of not utilizing the asset (the tractor) in another way is not considered from an accounting perspective.

The reason for this slight variation in defining profit stems from the economic theory of zero profits in the long term. This implies that resources will flow from ‘best uses’ at one point in time to ‘best uses’ at another, where the best use of the resource is not always the same. Going back to the fertile acreage example, the land might switch from pasture to crop land as the accounting profits are positive to grow, say, corn. In this case the opportunity costs of not producing corn is realized and the land switches from a previous ‘best use’ (pasture for cattle) to an updated ‘best use’ (crop land).

### ***Zero Economic Profits***

Again, in the long term, economic profits are zero. This fine point is important within the principles of the field of economics. This provides the basis for perfect competition, rational markets, and asset allocation. As an asset’s ‘best use’ changes, the revenues and costs associated with that asset change. In the long term (say, 5 to 10 years) the difference between the revenues and costs equal zero, or:

$$\text{Total Revenue} = \text{Total Costs} \quad (3)$$

From equation (2), this leaves Profit equal to negative opportunity costs, but again, in the long term these are zero and therefore all profits are zero.

The emphasis on long term is that assets can be tied up in specific uses in the short term. Examples of this include (1) contracts or leases, (2) labor force skills or education, and (3) beef cattle herd genetics. Each of these prove difficult to deviate from in the short term. Contracts may have steep penalties if broken, increasing the skill set of the labor force requires time and effort, and changing herd genetics quickly is often costly.

### ***Factors of Cattle Industry Profits***

#### **Cow-Calf**

Dhuyvetter and Langemeier (2010) conducted a study of high, medium and low profit cow-calf producers. Using accounting profit measures, collected via the Kansas Farm Management

Association, the authors teased out the factors that influence profitability of Kansas cow-calf producers. They find that owning more cattle increase profits, but this phenomenon has a diminishing effect and as herd size continues to increase profits will eventually decline. For their Kansas Farm Management Association data, they show that 345 head is the point at which profits switch from increasing with each additional cow to declining.

Not surprisingly, selling calves at heavier weights increased profits as did selling at higher prices. However, these are offsetting since heavier weights typically fetch lower prices. As calf weight is increased by 10 pounds (the average weight of calves sold in their data was 583 pounds) profits increase by \$7.55 per cow. However, profits decline by \$5.12 per cow for every \$1 per hundredweight decrease in the price those calves receive (typically as calf weight increases, price decreases).

Dhuyvetter and Langemeier found that low cost producers are more profitable. In retrospect, this is obvious, but the finding is profound. Operations that dedicated a smaller amount of their costs to all other things except feed were more profitable. They found that as the percentage of total costs for feed increased 1% profit increased \$10.68 per cow.

While owing more head and selling at heavier weights are obvious ways to increase revenues (via more head sold and more pounds sold), there are costs associated with these (maintenance costs on cows and the costs of adding weight to cattle). Not surprisingly, producers that managed costs most effectively were high profit cow-calf producers.

## Feedlot

Langemeier, Schroder and Mintert (1992) analyzed data from Kansas feedlots and found that the price cattle received, the price paid for cattle going into the feedlot and corn prices had the largest impact on feedlot profitability. Later in 1999, Lawrence, Wang, and Loy found similar results from data in Iowa. Feedlots operate on a much narrower range of output weights (fed cattle weights) and thus output price versus weight does not experience the same offsetting characteristics that cow-calf producers see.

Beyond output price, the largest two costs (feeder cattle and feed) impact feedlot profits the greatest. Once again, this is not surprising and is to be expected. However, it speaks to the importance of costs management in the cattle industry.

## *Summary and Implications*

For the most part, cattle producers are “price takers.” This is due to the similarities in the cattle sold (i.e., homogeneity). As a result, minimizing costs is the best way for beef producers to increase profits since they have limited options to increase revenue. This implies it is very important for beef producers to strive to reduce cash outflows in their operation without sacrificing performance and productivity.

The interesting aspect of the current cattle market is that it has provided an opportunity for even high cost producers to be profitable. To maintain this momentum into the future, producers are encouraged to use these higher bottom lines to make improvements to their herd’s productivity

(primarily achieved through genetics, but also via improved forages and other production aspects) and their farm infrastructure (improve facilities, equipment, etc). These investments will most likely pay dividends in the long run and increase the likelihood of long term sustainability.

## Literature Cited

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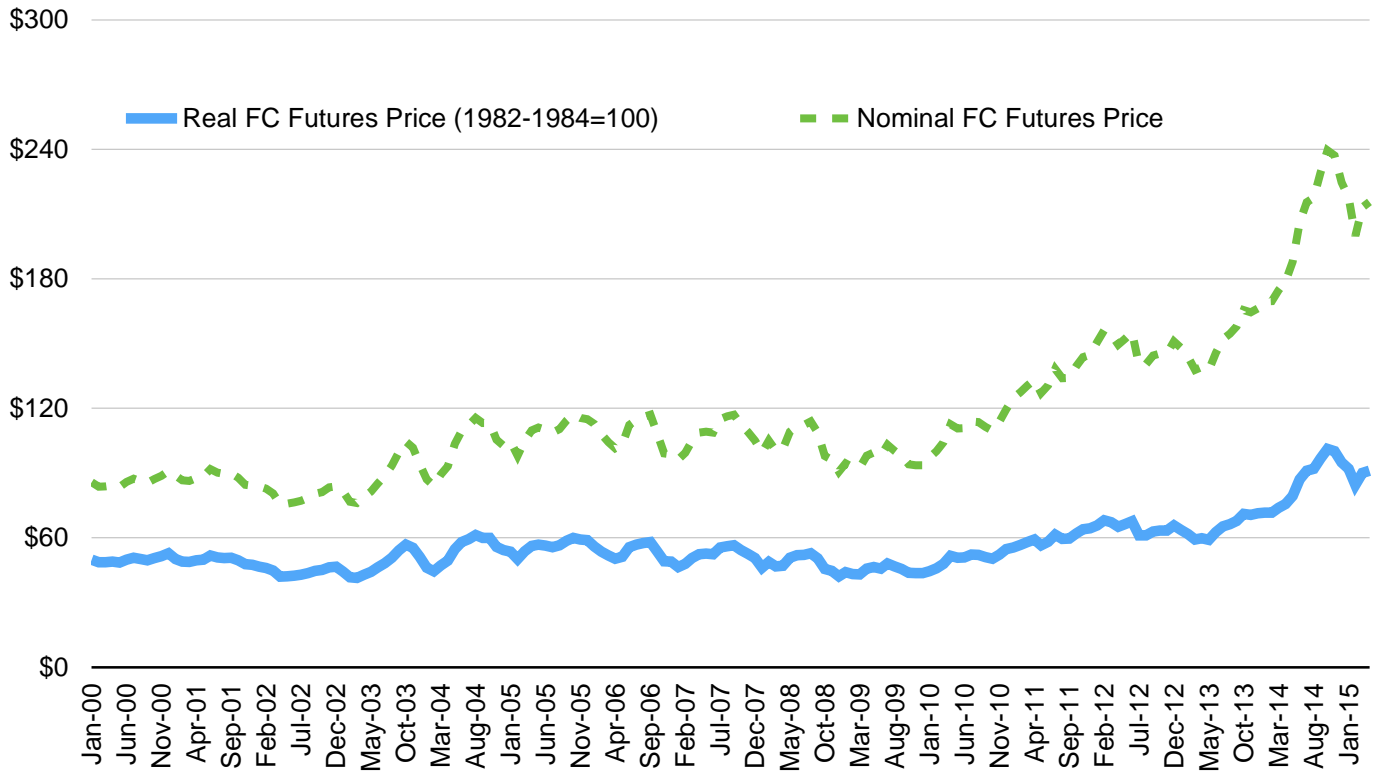


Figure 1. Nominal (dashed line) and Real (solid line) Feeder Cattle Futures Prices.