



# EMPIRICAL ANALYSIS OF THE RELATIONSHIP BETWEEN FEEDER CATTLE CASH PRICES AND FUTURES PRICES IN NORTHEAST TEXAS

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## I. Introduction

According to a recent USDA report, cattle prices are on the rise due to a combination of a strong consumer demand and a reduced market supply (USDA, 2012). These variations in cattle prices, urge cattle producers to investigate and eventually use price risk management tools available to them.

Futures market offers a viable option against adverse price movements because of the ability of futures prices to predict cash prices. Given this appealing feature of futures prices, understanding the relationship between feeder cattle futures and cash prices along with considering other factors gains an utmost importance in terms of assisting feeder cattle producers in making economic decisions.

## II. Research Objective

To empirically identify factors influencing the cash prices of feeder cattle at the Northeast Texas Beef Improvement Organization (NETBIO) at Sulphur Springs Livestock Auction (SSLA) in Sulphur Springs, Texas, using regression analysis.

## III. Empirical Model

To accomplish the research objective, the following hedonic pricing model was estimated:

$$P_{\text{casht}} = \beta_0 + \beta_1 P_{\text{futurest}} + \beta_2 \text{Weight}_t + \beta_3 \text{Lot\_size}_t + \beta_4 \text{Gender}_t + u_t$$

where  $P_{\text{casht}}$  is the cash prices of feeder cattle (\$/cwt);

$P_{\text{futurest}}$  is futures closing prices of feeder cattle (\$/cwt);

$\text{Weight}_t$  is the weight of feeder cattle (pounds);

$\text{Lot\_size}_t$  is the number of heads of feeder cattle purchased (heads);

$\text{Gender}_t$  is a dummy variable accounting for feeder cattle gender with heifer = 1, and 0 otherwise;

$u_t$  is the disturbance term; and

$\beta$ s are the parameters to be estimated.

## IV. Data

The data for this analysis were obtained from the Northeast Texas Beef Improvement Organization at Sulphur Springs Livestock Auction. The NETBIO data were collected on cash prices, weight, number of heads sold, and gender for feeder cattle sold for 2015. Feeder cattle futures prices were obtained through the Chicago Mercantile Exchange Group website.

Figure 1. Historical Beef Supply

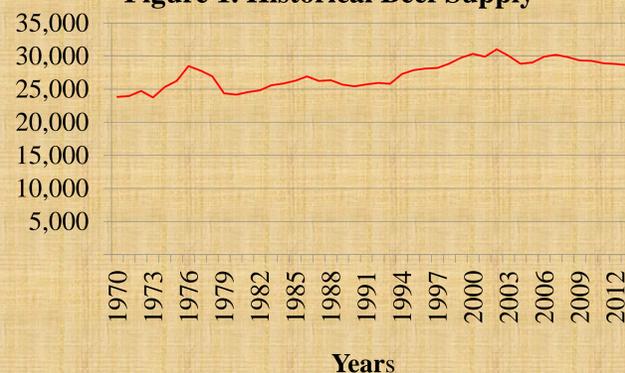


Figure 2. Historical Cattle Prices

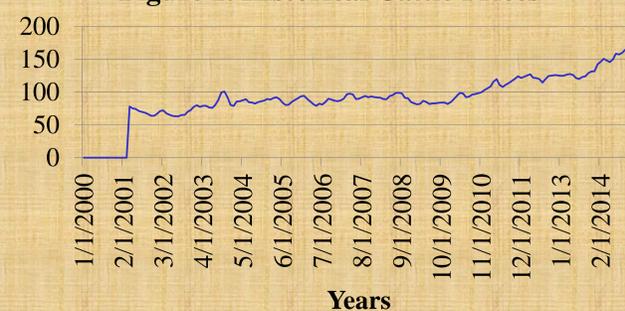


Figure 1 shows that beef supply has been relatively constant over time. Figure 2 shows an upward trend in historical cash cattle prices which was caused by a tight supply and increased consumer demand.

Table 1. Descriptive Statistics

Variables	Units	Mean	Std. Dev.
Cash prices	\$/cwt	247.24	44.26
Futures prices	\$/cwt	203.32	5.20
Weight	lbs	594.56	144.56
Lot size	heads	36.26	13.77



Image Source : [www.sslivestockauctions.com](http://www.sslivestockauctions.com)

## V. Estimation Results

The parameter estimate associated with the feeder cattle futures prices was not statistically significant at the 5% significance level indicating that there was no relationship between feeder cattle cash and futures prices. A statistically insignificant result was also found for the parameter estimate associated with the Lot\_size variable.

However, both variables accounting for weight and gender were statistically significant. In particular, an increase in the weight of feeder cattle by one pound was associated with a decrease in the cash prices of feeder cattle of about \$0.247 per cwt, holding everything else constant. And, the average cash price for heifers was lower by \$31.87 compared to that for steers, holding everything else constant.

## VI. Summary

Based on the results from the multiple regression analysis, the study concluded that there was no relationship between the NETBIO cash prices and corresponding futures prices of feeder cattle. In addition, the study established a statistically significant relationship between feeder cattle cash prices and weight and gender.

## VII. References

1. United States Department of Agriculture, Economic Research Service, Online Database, (2012).