Price Comparison of Alternative Marketing Arrangements for Hogs

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Considerable new data became available following passage of the Livestock Mandatory Reporting Act. The Act was passed in response to concerns regarding thin markets, accuracy of reported prices, and use of captive supplies. More recently, the phrase, "alternative marketing arrangements," has tended to replace the phrase "captive supplies." Alternative marketing arrangements also could be correctly termed alternative procurement or purchasing arrangements – depending on one's perspective as livestock seller or buyer.

This fact sheet is a companion to another, AGEC-615, *Extent of Alternative Marketing Arrangements for Fed Cattle and Hogs* (available at http://pods.dasnr.okstate.edu/docushare/dsweb/View/Collection-236). The companion fact sheet reports volume of purchases by alternative marketing arrangements. This one compares prices received and paid for slaughter hogs by alternative procurement methods over the seven-year period since implementing mandatory price reporting.

Data are taken from selected mandatory price reports at the Agricultural Marketing Service, or AMS, Market News site for livestock reports (http://www.ams.usda.gov/AMSv1.0/ams.fetchTemplateData.do?template=TemplateB&navID=MarketNewsAndTransportationData&leftNav=MarketNewsAndTransportationData&page=LSMarketNewsPage). The primary question addressed in this fact sheet is: are there significant differences in prices paid for slaughter hogs in the cash market compared with other procurement methods?

Pricing Method Data from Mandatory Price Reports

Implementation of the Livestock Mandatory Reporting Act occurred in April 2001. A few kinks in the new reporting system were worked out the first few weeks so the analysis for this fact sheet begins in May 2001 and extends through May 2008. Thus, this summary is for a full seven-year period. For convenience, years are identified by their end point, thus the year beginning in May 2001 and ending in May 2002 is referred to as 2002. The year ending May 2003 is referred to as 2003 and similarly for the remaining years 2004 to 2008.

Alternative marketing/procurement arrangements discussed here fall into four categories for slaughter hogs: negotiated cash trades, swine market formula arrangements (usually marketing contracts with price tied to the cash market), other market formula arrangements (with price often tied to the futures market), and other purchase methods (which may be production contracts with price tied to cost of production or with price window clauses). Prices are not reported for packer owned transfers.

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Slaughter Hog Price Comparisons

Mandatory price reporting data are discussed from two aspects in this section. The first considers annual averages from which we can identify general trends. The second shows the week-to-week dynamics that are found among alternative marketing methods.

Annual Averages

Table 1 provides summary statistics for the various pricing methods for the seven-year period, May 2001 to May 2008 since implementing mandatory price reporting.

All price comparisons are for barrows and gilts and are expressed on a live weight basis. Each price series is a national, weighted average price for that specific alternative marketing arrangement. It could be argued that the reported national, weighted average negotiated cash price is the most comprehensive reported price and is most representative of market conditions in the cash market. Here, negotiated cash prices are used as the base or standard for comparing prices reported by alternative procurement methods.

Year-to-year differences exist among alternative marketing or procurement arrangements but those differences have not been consistent. Prices for other purchase arrangements were highest in 2002 to 2004. Negotiated cash prices were highest the next two years, 2005 to 2006. Swine market formula prices were highest in 2007 and other market formula prices were highest in 2008. No single pricing method was best every year. Over the entire seven years, the category of other purchase arrangements received the highest price on average. Price differences between procurement methods differed little in some years but were very large in other years. The annual average price difference in 2005 is the extreme example. That year, negotiated cash prices were $8.85/cwt. higher on average than other market formula prices.

One of the major concerns in the hog industry has been whether sufficient trading occurs in the cash market for prices to represent accurately supply and demand conditions. In the accompanying fact sheet mentioned at the beginning of this fact sheet, it was noted that cash market trading accounted for 12.1 percent of all packer purchases for the seven-year period and were 10.3 percent in 2008. In addition, cash market trading has been declining slightly over the past few years. Based on annual average prices, cash market prices are a better alternative than other pricing methods in some years, but not in other years. Overall, negotiated cash prices appeared to be relatively competitive with other alternative marketing arrangements in six of the seven years, except 2003. But as noted, no single pricing alternative was best each year.

Price Comparison – All Alternative Marketing Arrangements

Figure 1 compares weekly average live weight barrow and gilt prices for the four alternative marketing arrangements. Wide price differences are evident among the alternative marketing arrangements at some periods over the seven-year period. Negotiated cash prices and swine market formula prices are nearly indistinguishable, as will be discussed later. But those two series exhibit more week-to-week variability than do the other two series. A key explanation is that negotiated cash prices should represent changing supply and demand. Thus, in theory, they could be expected to exhibit the most variation from week to week.

Two key points can be made from Figure 1. First, at some point over the last seven years, each pricing alternative was the best pricing method for one or more weeks. For some methods the highest price distinction was short-lived (such as for other market formula prices and other purchase prices). Negotiated cash prices had both the highest and lowest weekly average prices over the seven-year period. Second, considerable variability exists between pricing methods and understanding why is very important.

Negotiated Cash Prices versus Swine Market Formula Prices

One concern for some supporters of mandatory price reporting was the potential favorable relationship of formula prices relative to negotiated prices. Figure 2 compares negotiated cash prices with swine market formula prices. The two lines on the graph are nearly indistinguishable. On a week-to-week basis with rare exception, the two weekly average price series are within pennies of each other. From Table 1, on average for the seven years, negotiated cash prices were $0.18/cwt. higher than swine market formula prices. Most

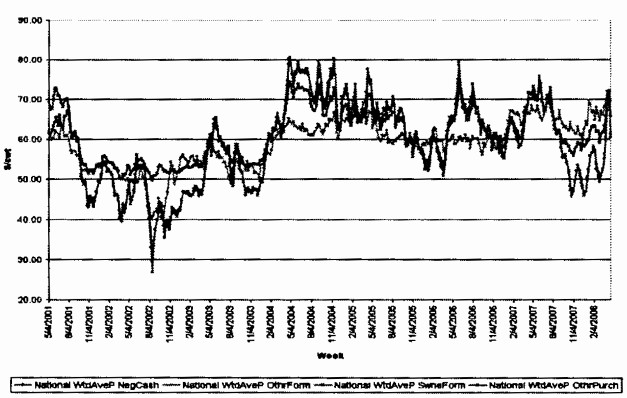

Figure 1. Weekly slaughter hog prices by alternative marketing arrangements, May 2001 to May 2008.

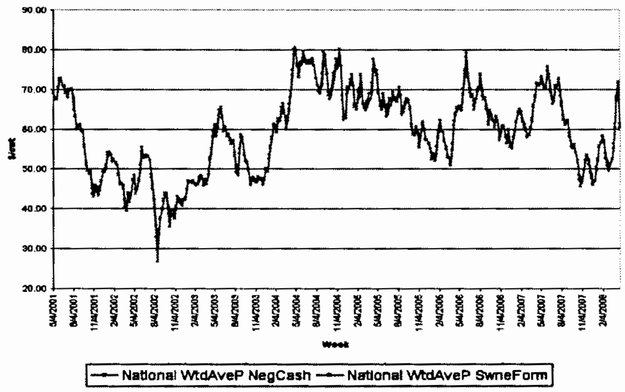

Figure 2. Weekly negotiated cash prices for slaughter hogs compared with swine market formula prices, May 2001 to May 2008.

swine market formula prices are tied to the cash market so observed price differences could be expected to be small and variability of prices could be expected to be nearly identical.

While not noticeable in Figure 2, regression analysis found that negotiated cash prices tend to be lower than swine market formula prices on a declining market (Ward 2008). Conversely, formula prices tend to trail negotiated prices on a rising market.

Negotiated Cash Prices versus Other Market Formula Prices

Figure 3 compares negotiated cash prices with other market formula prices. There is a sharp distinction between Figure 3 and Figure 2. Whereas in Figure 2, the two price series moved in lock-step with each other, clearly evident in Figure 3 is the wide deviation in prices for several weeks in a row. Differences are often $5-$10/cwt. and occasionally more and arise for at least a couple reasons.

Other market formula prices often are tied to the futures market or futures option market. Therefore, other formula prices represent a price risk management alternative in conjunction with a price discovery alternative. A risk management strategy may be to reduce week-to-week variability in prices

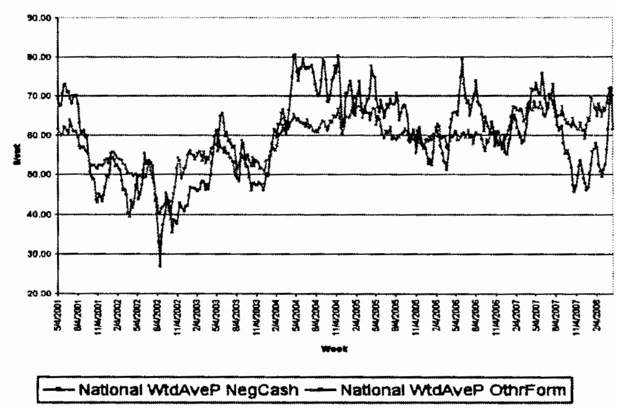

Figure 3. Weekly negotiated cash prices for slaughter hogs compared with other market formula prices, May 2001 to May 2008.

Table 1. Summary of weekly prices paid by packers for slaughter hogs by procurement method for years 2002-2008.*

		Summary statistics			
Procurement method	*Year***	*Mean*	*Standard deviation*	*Min-imum*	*Max-imum*
Negotiated cash	2002	55.09	10.5	39.43	72.9
	2003	45.04	6.25	26.88	59.41
	2004	57.13	7.73	45.96	80.23
	2005	72.80	4.69	62.27	80.59
	2006	61.91	5.75	51.22	74.73
	2007	64.32	5.36	55.19	79.19
	2008	59.18	9.00	45.64	75.77
	2002-08	59.35	10.75	26.88	80.59
Other formula	2002	55.39	3.97	49.64	63.69
	2003	50.14	5.19	39.70	57.64
	2004	55.86	3.89	49.83	65.22
	2005	63.95	2.06	60.42	69.34
	2006	60.05	1.91	56.65	66.57
	2007	61.38	3.35	56.02	67.98
	2008	65.61	2.88	59.14	71.80
	2002-08	58.91	6.10	39.70	71.80
Swine market formula	2002	55.27	10.08	40.57	72.48
	2003	45.24	5.59	29.56	58.09
	2004	56.67	7.36	46.15	78.76
	2005	71.82	4.51	62.64	80.28
	2006	61.31	5.53	50.95	43.65
	2007	64.47	5.21	55.92	78.44
	2008	59.40	8.91	46.43	74.74
	2002-08	59.17	10.34	29.56	80.28
Other purchases	2002	57.01	5.29	50.09	67.05
	2003	52.90	1.56	49.79	58.95
	2004	58.84	4.64	53.22	73.70
	2005	68.55	3.33	61.91	74.28
	2006	60.98	4.24	53.48	70.77
	2007	64.11	3.62	57.88	72.87
	2008	63.33	4.92	55.81	72.61
	2002-08	60.82	6.27	49.79	74.28

* Live weight price per cwt.
** Year 2002 is May 2001 through April 2002; and similarly for other years.
Source: Agricultural Marketing Service, U.S. Department of Agriculture

relative to the cash market but also to reduce extreme price gyrations. For certain, this means avoiding the extreme lows in prices, but may simultaneously mean giving up potential highest prices. Figure 3 reflects the annual average prices shown in Table 1. At times, other market formula prices are highest and sometimes lowest, but the variability is less than cash market prices and swine market formula prices that are tied to the cash market.

Regression analysis also confirmed that negotiated cash prices tend to be lower than other market formula prices on a declining market. And consistent with other price differences, other market formula prices tend to be lower than negotiated cash prices on a rising market.

Price differences between these two methods also may arise from the time period in which prices are discovered in other formula price arrangements versus cash prices. The sale price for slaughter hogs may be established with a futures market well before hogs are delivered for slaughter. In contrast, prices for most cash trades occur in the same week or within just a few days of when hogs are delivered for slaughter. As a result, the average forward contract price may or may not be close to the current weekly cash market price. Price differences may result in part from average weekly prices not being computed for the same price discovery periods for the two pricing methods.

Negotiated Cash Prices versus Other Purchase Prices

Figure 4 parallels Figure 3 in the sense that negotiated cash prices and other purchase prices deviate widely at times. This was noted from annual average prices shown in Table 1. Other purchase prices are far less variable than negotiated cash prices. At times, other purchase prices track negotiated cash prices closely and at other times they may be significantly higher or lower.

Price differences again can be explained by the nature of the other purchase arrangements. These may be contract purchases with price tied to cost of production or may be window contracts with or without a ledger agreement. Both types of contracts are risk management tools. Cost of production contracts are, in essence, a method of pricing to secure a fixed or narrow margin related to the cost of producing hogs. This pricing also might be called cost-plus pricing or, in essence, the cost of production plus a profit margin. Window contracts are a means of stabilizing prices to a window or price range, which eliminates periods of low prices but also gives up periods of high prices. Ledger arrangements may be agreements between a hog producer and packer such that producers receive a price at the floor or ceiling of the window when prices are below and above the window, respectively. If prices are higher than the ceiling, packers retain an amount above the ceiling in a ledger account, which is used to offset periods when prices fall below the floor of the window.

Whether with cost of production contracts or window contracts, weekly average prices potentially may differ widely from that week's negotiated cash market prices and swine market prices tied to the cash market. Therefore, deviations

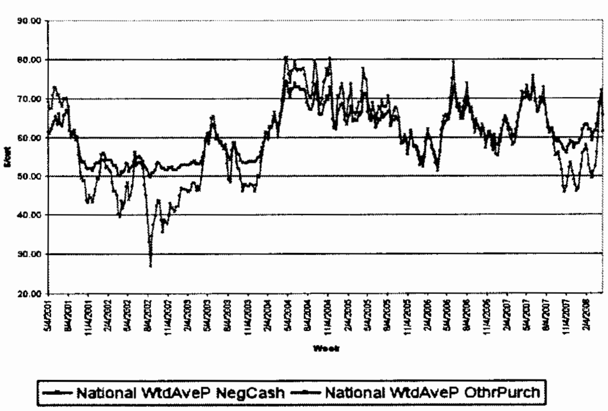

Figure 4. Weekly negotiated cash prices for slaughter hogs compared with other purchase method prices, May 2001 to May 2008.

from the negotiated cash market could be expected for other purchase prices.

As with other price differences, regression analysis confirmed that negotiated cash prices tend to be lower than other market formula prices on a declining market. And consistent with other price differences, other market formula prices tend to be lower than negotiated cash prices on a rising market. As discussed, other market formulas and other purchase arrangements are alternative price or profit risk management tools. While not shown in a direct comparison, Table 1 confirms other purchase arrangements typically result in higher prices. In six of the seven years and on average for all seven years combined, annual average prices for other purchases were higher than for other market formula prices. The single year exception was 2008.

Conclusions

Mandatory price reporting increased the amount of data and information available on various pricing methods and quantities traded for slaughter hogs. Comparisons are easier now than before mandatory price reporting between prices paid by packers for hog purchases by alternative methods. Data also enable more regular and more detailed analyses of market impacts from alternative marketing arrangements and related questions than previously.

Analyses with weekly data for the seven years since mandatory price reporting began can be summarized as follows:

- Differences between annual average negotiated cash prices and prices from alternative marketing arrangements (that is, swine market formula prices, other market formula prices, and other purchase arrangement prices) were very similar for one alternative (swine market formula prices) but quite variable for the other two methods. However, no pricing method consistently was higher or lower than others on an annual basis for the seven-year period and each alternative was highest in at least one year.
- Considerable week-to-week variation in prices is evident. Overall, for the seven-year period, swine market formula prices were nearly identical to negotiated cash prices. Both track the short-term dynamics or general movement of market prices, which are determined by supply and demand forces.
- Differences between negotiated cash prices and prices from alternative marketing arrangements from week to week were related to rising and declining market prices. For all alternative arrangements compared with cash prices, negotiated cash prices were lower than other prices on a declining market and higher during periods of rising market prices.
- Large differences between negotiated cash prices and prices from other market formula prices or other purchase prices can be explained in most cases by the underlying mechanics of price discovery for each arrangement. Both alternatives are price or profit risk management tools. As such, the timing of discovering the sale/purchase price affects the weekly average price reported and timing differences can cause large price differences.

References

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