

Evaluating Cattle Cycles:

Changes Over Time and Implications

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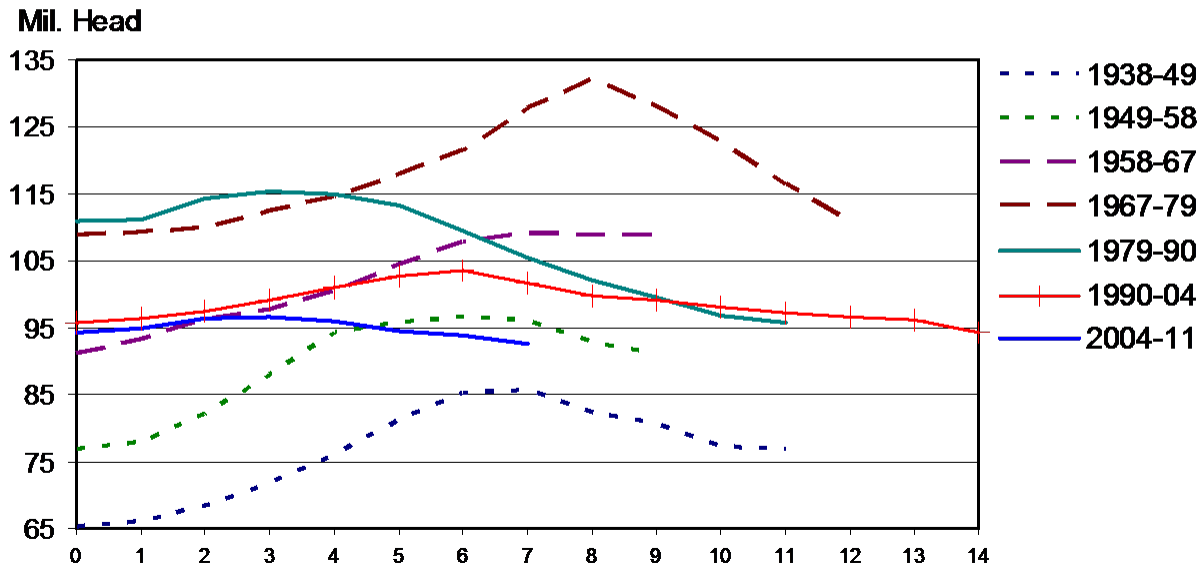
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The U.S. beef industry is operating in a period many stakeholders would characterize as volatile on a multitude of fronts. One of the more heavily discussed issues currently among cattlemen is if and when the U.S. beef cow herd will expand. These discussions quickly lead many producers to think about "cattle cycles" and evaluate the current situation relative to past history. This fact sheet summarizes how cattle cycles have changed over time and highlights implications for current cow herd expansion discussions.

Cattle Cycle Concept

The concept of cattle cycles refers to the historic tendency for cattle producers to expand and reduce production resulting in cyclical inventories over time. While no universal rules exist for identifying a given cycle, a duration of 9 to 13 years characterizes past cycles as typically identified by analysts. The duration of these cycles reflects the biological lags inherent in raising cattle and the rate at which profits (losses) are mitigated by expansion (contraction) of herds. Figure 1 indicates the current cycle, specified to have initiated in 2004, is in its seventh year. Coupling this with observations of 2011 projected profits being historically strong for cow-calf producers and the associated limited calf and steer supplies relative to feedlot capacity, may lead producers to think herd expansion is imminent and the current cycle is about to end.

Figure 1. Total U.S. Cattle Inventory, Jan.1



Keeping Cattle Cycles in Context

It is useful to dig deeper into the patterns of cattle cycles over time. Table 1 presents summary statistics of beef cow inventories within the current and previous five cattle cycles. This table provides tabular information confirming a visual observation from inspection of figure 1 -- namely that cattle cycles are "becoming flatter" over time. The variation of inventories within a given cattle cycle are declining over time. The range between maximum and minimum inventories has declined over the past four cycles. For instance, the three cycles spanning the 30 years between 1949 and 1979 involved herd adjustments of 9,740 head or more. This magnitude of total inventory adjustments has been notably reduced over more recent cycles.

The coefficient of variation (COV) is an alternative measure which assesses inventory variations in a context relative to base inventories within each cycle. Table 1 shows COVs have declined consecutively over all cycles going back to 1949. Combined, the COV and range statistics indicate the changes in inventories within cattle cycles have become less pronounced over time.

	1949-1958	1958-1967	1967-1979	1979-1990	1990-2004	2004-2011
<i>Average</i>	22,012	29,841	39,318	35,735	33,612	32,117
<i>Maximum</i>	25,659	34,708	45,712	39,230	35,319	32,703
<i>Minimum</i>	15,919	24,165	34,708	32,455	32,455	30,865
<i>Range</i>	9,740	10,543	11,004	6,775	2,864	1,838
<i>Standard Deviation</i>	3,724	4,054	3,438	2,487	926	706
<i>Coefficient of Variation</i>	0.169	0.136	0.087	0.070	0.028	0.022

Note: Values shown are January 1 beef cow inventories (1,000 head).
Source: Livestock Marketing Information Center

To better appreciate industry changes associated with the "flattening" of cattle cycles, it is worth further assessing patterns in beef production and cattle slaughter weights across historic cattle cycles. Table 2 shows how across multiple cycles commercial beef production, like beef cow inventories, has declined in variability. Conversely, slaughter weights have been notably less variable within cattle cycles (COVs are notably lower in every cattle cycle than beef cow inventories and beef production).

	1949-1958	1958-1967	1967-1979	1979-1990	1990-2004	2004-2010
<i>Average</i>	11,770	16,235	22,356	22,833	24,956	25,805
<i>Maximum</i>	14,090	19,991	25,667	24,213	27,090	26,561
<i>Minimum</i>	8,549	12,983	19,991	21,262	22,634	24,548
<i>Range</i>	5,541	7,008	5,676	2,951	4,456	2,013
<i>Standard Deviation</i>	2,142	2,557	1,754	878	1,523	835
<i>Coefficient of Variation</i>	0.182	0.157	0.078	0.038	0.061	0.032

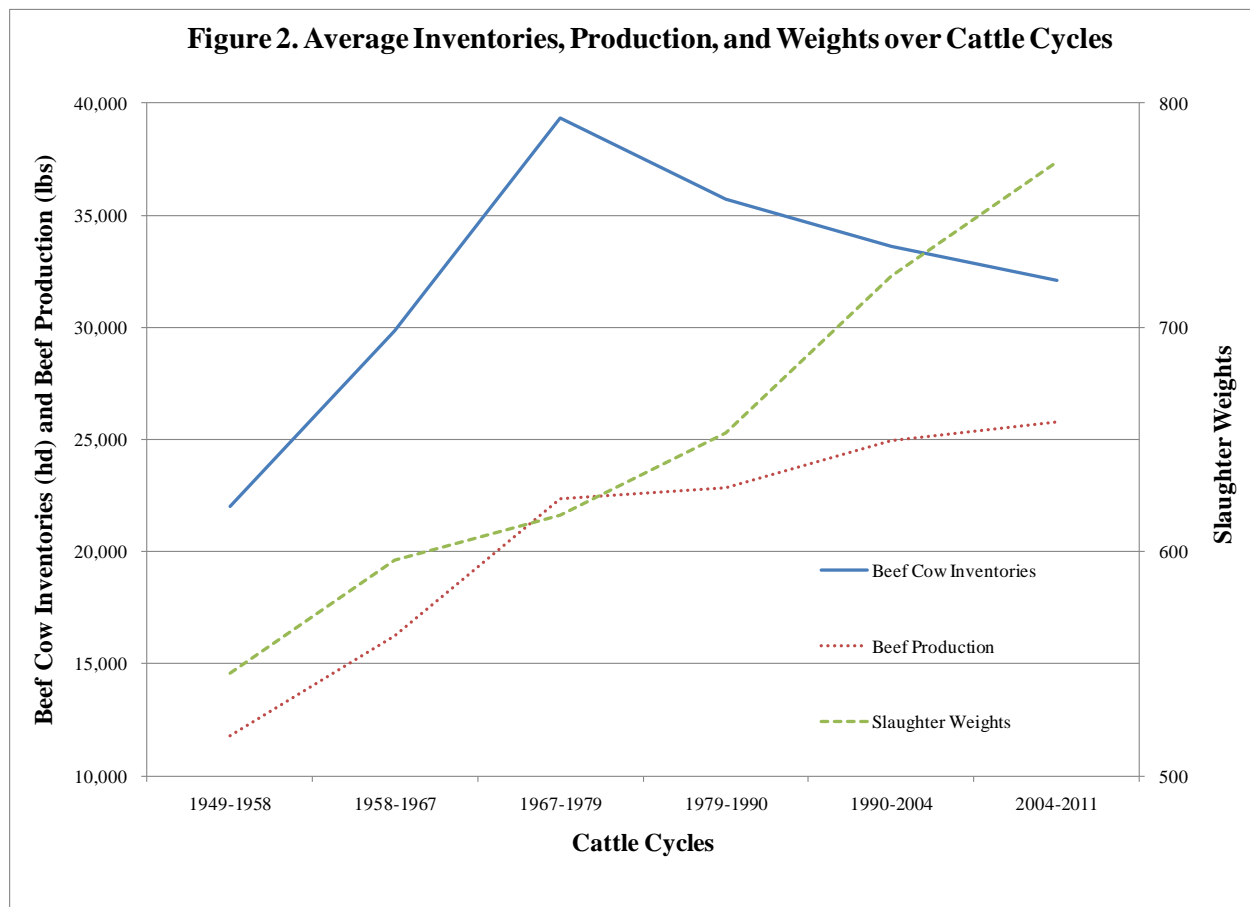
Note: Values shown are commercial beef production (1,000 lbs).
Source: Livestock Marketing Information Center

	1949-1958	1958-1967	1967-1979	1979-1990	1990-2004	2004-2010
<i>Average</i>	546	596	616	653	723	774
<i>Maximum</i>	575	608	639	686	765	784
<i>Minimum</i>	527	575	589	630	686	757
<i>Range</i>	48	34	51	56	79	27
<i>Standard Deviation</i>	13	11	14	20	25	9
<i>Coefficient of Variation</i>	0.025	0.019	0.024	0.030	0.034	0.012

Note: Values shown are cattle slaughter weights.
Source: Livestock Marketing Information Center

Figure 2 presents the average beef cow inventory, beef production, and slaughter weight for each cattle cycle. This chart reveals a central reason beef cow inventory variability within cycles has

been declining over time is the industry has responded by adding more pounds of beef produced ultimately from each cow in the herd. Slaughter weights have persistently increased over time offsetting declining beef cow inventories resulting in increasing beef production. This effectively reduces demand for beef cows, relative to the past where less beef was produced per animal moving through the industry's supply chain.



Implications

The observation of beef cow inventory variability within cycles declining over time has direct implications for producers evaluating the current situation and contemplating entry-exit decisions in the context of where the industry is at in the current "cattle cycle." Narrowly, producers should recognize the industry's efficiency gains as evidenced by increasing slaughter weights offsetting declining inventories and subsequently note the national beef cow herd is unlikely to return to historic levels simply because a "new cattle cycle" may be near initiation.