Lean Hogs, Retail Pork YoY as a Consumer-Absorption Lens

US BLS retail pork price, year-over-year, inverted

~10 min read · David Stendahl · Market Lab Analytics · 2026-10-28

What this signal is, with the limits stated upfront

Every month the US Bureau of Labor Statistics publishes retail pork chop prices. The signal reads the year-over-year change in that series, inverts it, and reads the composite as a consumer-demand absorption lens on CME Lean Hogs futures. The intuition is straightforward: when consumers pay up for pork, demand is firm and the hog market feels it; when retail pork is soft, demand is absorbing less. The empirical pattern is more complicated. The 2014 PEDv crisis, which killed millions of US piglets and compressed market hog supply, pushed retail pork prices up sharply year-over-year and LH futures made cycle highs. The 2020 COVID packing shock closed Smithfield Sioux Falls and other pork plants, retail pork prices spiked, and LH recovered from the April lows into summer. In 2022, the broad food inflation surge lifted retail pork YoY as a pass-through from feed and labor costs, not from hog-market tightness, and LH traded range-bound.

Spearman rank correlation of the composite against LH forward 60-day returns is minus 0.0667 across 8,986 observable days (p = 2.5e-10). The negative sign is empirically correct for the signal as currently configured; the engine's polarity flip is implemented at the composite level so the state-conditional pattern inverts cleanly: EXTREME_POS (lowest raw retail pork YoY) fwd 60-day LH mean is +1.68 percent, well above the +0.26 percent baseline.

Two upfront limits. First, the relationship between retail pork and LH futures is noisier than for live cattle. Hog supply responds faster than cattle supply, which dampens the demand-side read. Second, retail pork prices lag LH futures. The signal captures consumer demand that was realized two to four months prior, so the state-conditional edges concentrate at the extremes.

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How the inputs compose

Source: US BLS Average Price Data retail pork chop, year-over-year change, 1,260-day z-score with 60-day minimum, polarity-inverted at the composite level, tanh-bounded.

The engine computes raw retail pork YoY z-score, then multiplies by minus one so the composite's positive band corresponds to low retail pork YoY. This is a polarity flip at the composite stage, not a logical inversion of the semantic meaning. The engine's `polarity.composite_direction` is AS_IS from the published composite's perspective. State-conditional panel confirms the orientation.

Phase thresholds: +/-0.3. State thresholds: +/-0.2 and +/-0.6.

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What the state-conditional returns have actually done

The SPY forward-60-day return baseline (unconditional) is mean plus 2.31 percent, median plus 3.13 percent. Standard deviation 7.23 percent. Percent negative 29.8 percent. State-conditional means below are expressed as edges relative to this baseline.

Reference baseline (unconditional, LH fwd 60-day): mean +0.262 percent, median −0.241 percent, standard deviation 12.06 percent, percent negative 51.2 percent (n = 8,986).

State-conditional fwd 60-day LH (by composite band):

- EXTREME_NEG (below −0.6), N = 2,472, mean +0.83 percent (plus 0.57 pp above baseline)
- MODERATE_NEG (-0.6 to −0.2), N = 1,699, mean −0.22 percent (minus 0.48 pp below baseline)
- NEUTRAL (-0.2 to +0.2), N = 1,185, mean −0.86 percent (minus 1.12 pp below baseline)
- MODERATE_POS (+0.2 to +0.6), N = 1,362, mean −1.57 percent (minus 1.83 pp below baseline)
- EXTREME_POS (above +0.6), N = 2,268, mean +1.68 percent (plus 1.42 pp above baseline)

The pattern: both tails are constructive relative to baseline. The MODERATE_POS band is the weakest. This is a bimodal state-conditional pattern that reflects the signal's modest IC and the complex two-to-four-month lag between retail pork and LH futures.

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Three cases that frame how to read this signal

Case 1: Feb 2019 EXTREME_POS run, extended, fwd 60d LH +14.49 percent.

A long EXTREME_POS run started February 4, 2019 and ran 178 days. The composite was reading tight consumer-pork demand relative to the trailing norm. LH futures rallied through spring 2019 on export demand firmness.

Case 2: Sep 2019 EXTREME_POS entry, fwd 60d LH −19.60 percent.

Composite entered EXTREME_POS at +0.60 on September 4, 2019. LH fell sharply over the next 180 days through the pre-COVID window and into the April 2020 crash. The composite was reading the demand backdrop but the subsequent packing shock resolved differently.

Case 3: 2026 Q3 EXTREME_NEG re-entry, fwd 60d LH −13.45 percent.

Composite entered EXTREME_NEG on June 2, 2026. LH fell through summer and fall. The signal was reading elevated retail pork YoY as a cautionary consumer-demand signal.

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How to use the signal today

The composite reads −0.9244 as of 2026-10-27, within the EXTREME_NEG band. The phase label is −1. Retail pork YoY has been elevated through 2026, consistent with the composite reading.

From the state-conditional panel, EXTREME_NEG has delivered a mean fwd 60-day LH return of +0.83 percent, which is +0.57 pp above the +0.26 percent baseline. Twenty-seven percent of the full sample sat in this band. The empirical pattern is a bimodal split: both tails outperform baseline but the mechanism differs. In the current context, pair this signal with Hogs and Pigs quarterly placements, slaughter cadence, and belly inventory for the full supply-demand read.

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Methodology notes

Signal reads US BLS Average Price Data retail pork chop, YoY change, 1,260-day z-score, polarity-inverted at composite level, tanh-bounded.

Spearman IC minus 0.0667 (n = 8,986, p = 2.5e-10). Modest-magnitude IC; negative sign is correct for the engine's as-published composite orientation.

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What this signal does not cover

Four caveats. First, retail pork prices lag LH futures; the signal is backward-looking at demand. Second, the signal does not distinguish pass-through inflation shocks from hog-cycle demand firming. Third, both state tails outperform baseline but through different mechanisms; the composite should be read in conjunction with other LH inputs. Fourth, the signal is a lens on consumer absorption, not a trading trigger; half-life two to three months.

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