

# Price Adjustment and Core Capital Goods Manufacturing: A 2024 Perspective

Adriana Stoica, Toni Warner, Daniel D'Antonio, Sheyenne Jenkins

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## ***MANUFACTURERS' SHIPMENTS, INVENTORIES, AND ORDERS SURVEY (M3)***

The Manufacturers' Shipments, Inventories, and Orders survey (often referred to as the M3<sup>1</sup>) offers insights into current economic conditions and future production commitments in the manufacturing sector. It helps gauge the health of the manufacturing industry, which is a significant component of the economy. Durable goods orders tell investors what to expect from the manufacturing sector. The M3 survey provides valuable data on Nondefense Capital Goods Excluding Aircraft (also referred to as Core Capital Goods<sup>2</sup>) which is subset of durable goods used in the production of other goods and services. New Orders for Core Capital Goods are an important leading economic indicator of business investment and future production capacity. They are closely watched by economists and analysts as they provide insights into business spending and investment trends. An increase in orders typically signals business confidence and economic growth, while a decrease may indicate a slowdown.

While the M3 data provide insights into the U.S. economy, data are presented on a nominal basis. Estimates are not adjusted for price changes, so it can be challenging to identify the true underlying trend for manufacturing. The M3 data can be misleading if you do not acknowledge the impact of price fluctuations.

## ***Price Adjustment Approach for real estimates***

In 2024, the manufacturing sector continued to face rising prices. With that in mind, we created real core capital goods price adjustment by using M3 survey estimates and the U.S. Bureau Of Labor Statistics (BLS) corresponding manufacturing PPI<sup>3</sup> series as inputs.

In the December 2024 PPI for Total Manufacturing Industries (PCUOMFGOMFG<sup>4</sup>) published by the BLS, showed a 0.3% decrease from November 2024, not seasonally adjusted, and was the largest decline since September 2024. The price index for Total Manufacturing Industries increased at a rate of 1.1% on a year-over-year basis. See Figure 1 below for the PPI for Total Manufacturing Industries Index series from 2019-

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<sup>1</sup> Manufacturers' Shipments, Inventories, and Orders (M3) survey [Manufacturers' Shipments, Inventories, and Orders \(census.gov\)](https://www.census.gov/manufacturing/m3/)

<sup>2</sup> The Nondefense Capital Goods Excluding Aircraft include the following Industries: small arms and ordnance; farm machinery and equipment; construction machinery; mining, oil, and gas field machinery; industrial machinery; vending, laundry, and other machinery; photographic equipment; metalworking machinery; turbines and generators; other power transmission equipment; pumps and compressors; material handling equipment; all other machinery; electronic computers; computer storage devices; other computer peripheral equipment; communications equipment; search and navigation equipment; electromedical, measuring, and control instruments; electrical equipment; other electrical equipment, appliances, and components; heavy duty trucks; railroad rolling stock; ships and boats; office and institutional furniture; and medical equipment and supplies.

<sup>3</sup> The Producer Price Index, U.S. Bureau Of Labor Statistics [Producer Price Index Home : U.S. Bureau of Labor Statistics \(bls.gov\)](https://www.bls.gov/ppi/)

<sup>4</sup> Producer Price Index by Industry: Total Manufacturing Industries, Index Dec 1984=100, Monthly, Not Seasonally Adjusted [Producer Price Index by Industry: Total Manufacturing Industries \(PCUOMFGOMFG\) | FRED | St. Louis Fed](https://fred.stlouisfed.org/series/PCUOMFGOMFG)

2024, and Figure 2 below for a look at the last 25 month-to-month percentage changes in the PPI for Total Manufacturing Industries.

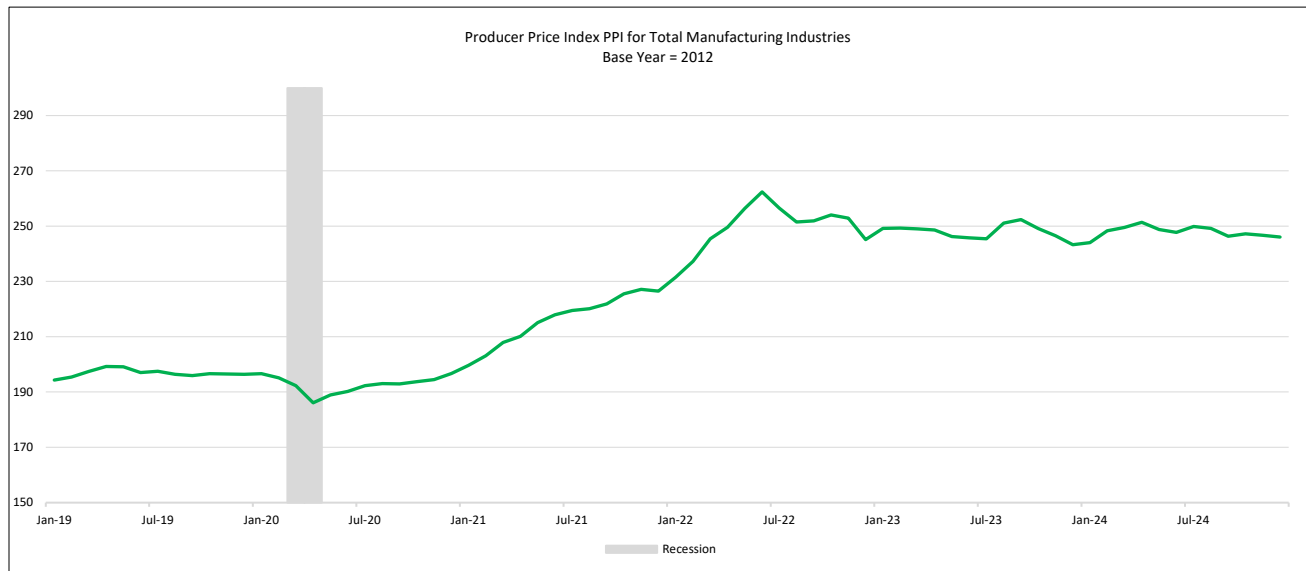


Figure 1: Producer Price Index (PPI) for Total Manufacturing Industries, January 14, 2025, U.S. Bureau of Labor Statistics, [Producer Price Index by Industry: Total Manufacturing Industries \(PCUOMFGOMFG\) | FRED | St. Louis Fed](#)

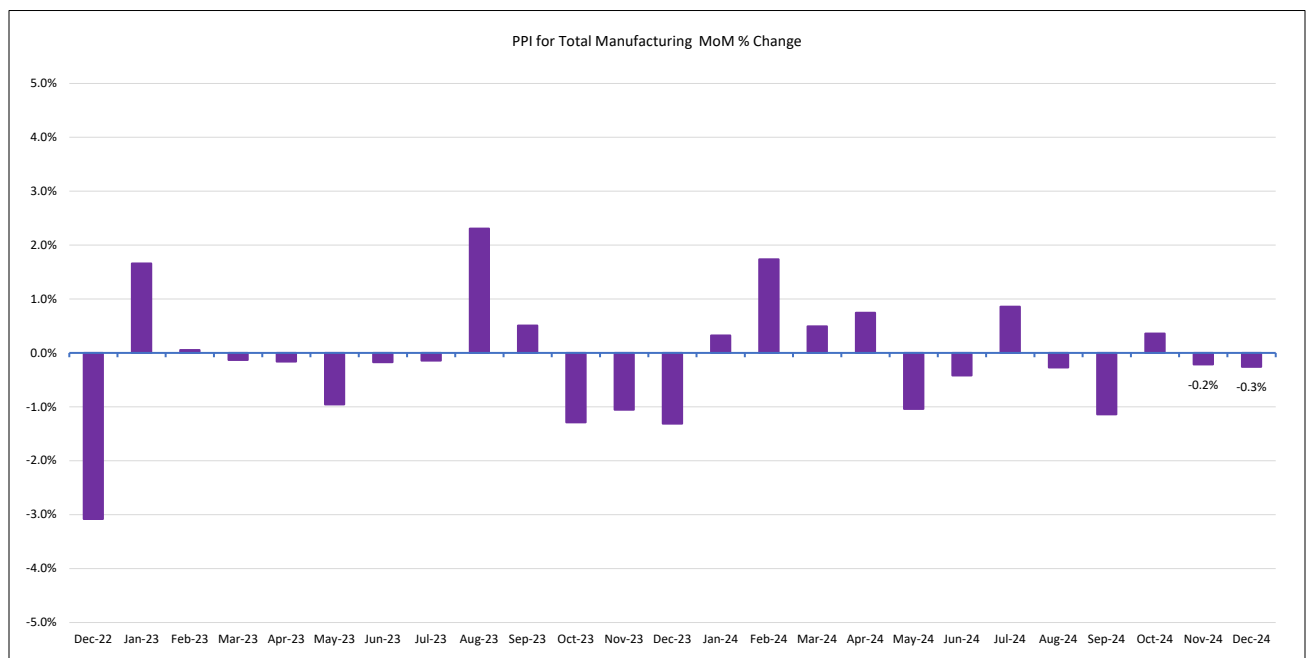


Figure 2: Month-to-month percentage changes, Producer Price Index (PPI) for Total Manufacturing Industries, January 14, 2025, U.S. Bureau of Labor Statistics, [Producer Price Index by Industry: Total Manufacturing Industries \(PCUOMFGOMFG\) | FRED | St. Louis Fed](#)

Utilizing PCUOMFGOMFG estimates from the BLS' PPI release in conjunction with the M3 related estimates, we can generate aggregate price adjustments.

A direct calculation can be done using these two series to price adjust the nominal M3 series. While these methods may not generate the most precise price adjusted data, they can serve as a measure for how prices are impacting the nominal trends published each month.

The process used to price adjust the estimates for each total manufacturing series was to divide the nominal new orders number for each total manufacturing series by the deflator. This deflator was

developed by dividing the BLS price series by the 2012 average for that same price series to index it.

For simplicity, the BLS - PCUOMFGOMFG series, rebased to 2012, was used as the deflator for total manufacturing. This series was chosen as the closest representation of the coverage for manufacturing new orders.

This produces a real dollar series one can use to better understand the indicator estimates. This is a different approach from how this is normally done where weighted percentages would be used for each component price index to derive an aggregate fixed-weight deflator. Taking this more detailed approach could be an avenue pursued later, but for the purposes of this illustration of price impacts, this direct approach can be used as an approximation. See Figure 3 below for a look at the original nominal time series versus the real dollar time series using the fixed weight that results from this method.

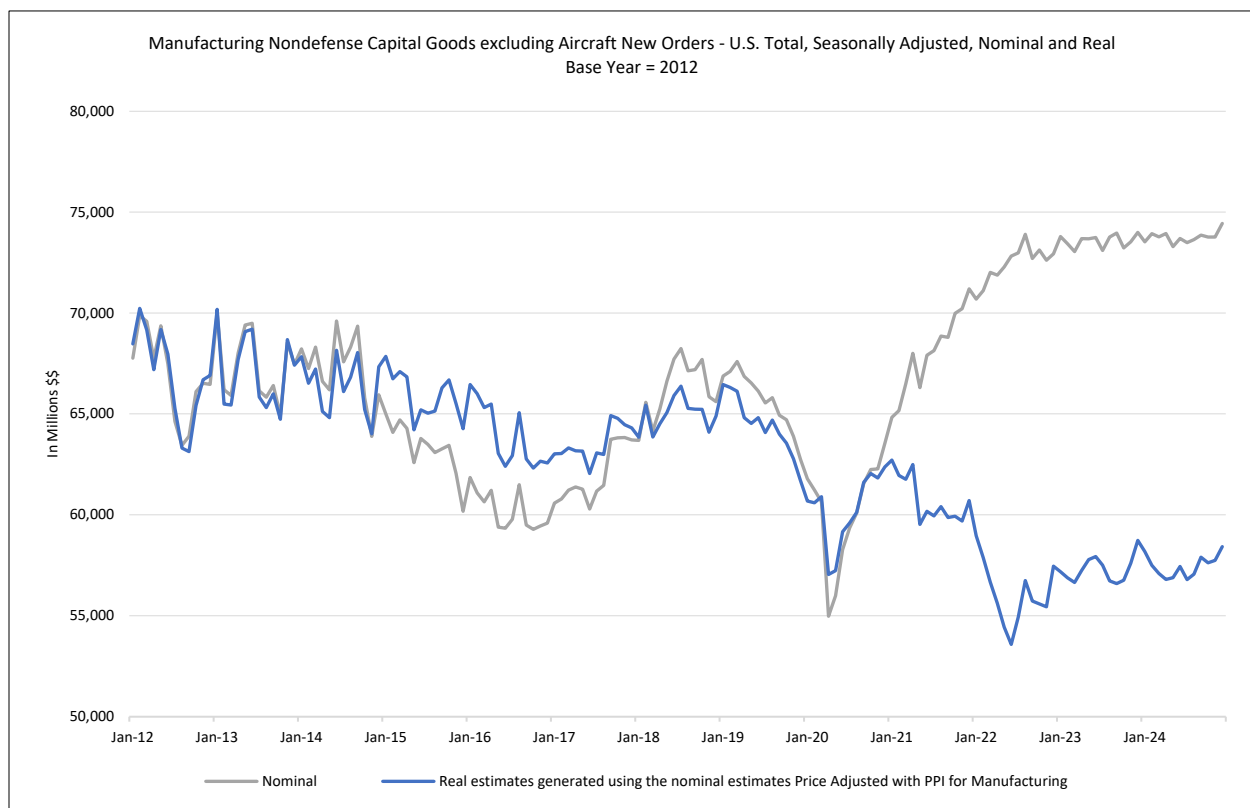


Figure 3. Nominal vs Real estimates generated using the nominal estimates Price Adjusted with PPI for Total Manufacturing  
Sources: Producer Price Index (PPI) for Total Manufacturing Industries, January 14, 2025, U.S. Bureau of Labor Statistics; U.S. Census Bureau, Manufacturers' Shipments, Inventories, and Orders, February 4, 2025.

Using the calculated real dollar estimates shown in Figure 3, this process allows calculations of real dollar month-to-month percent changes that can be compared against their nominal counterparts. See Figure 4 below for this presentation.

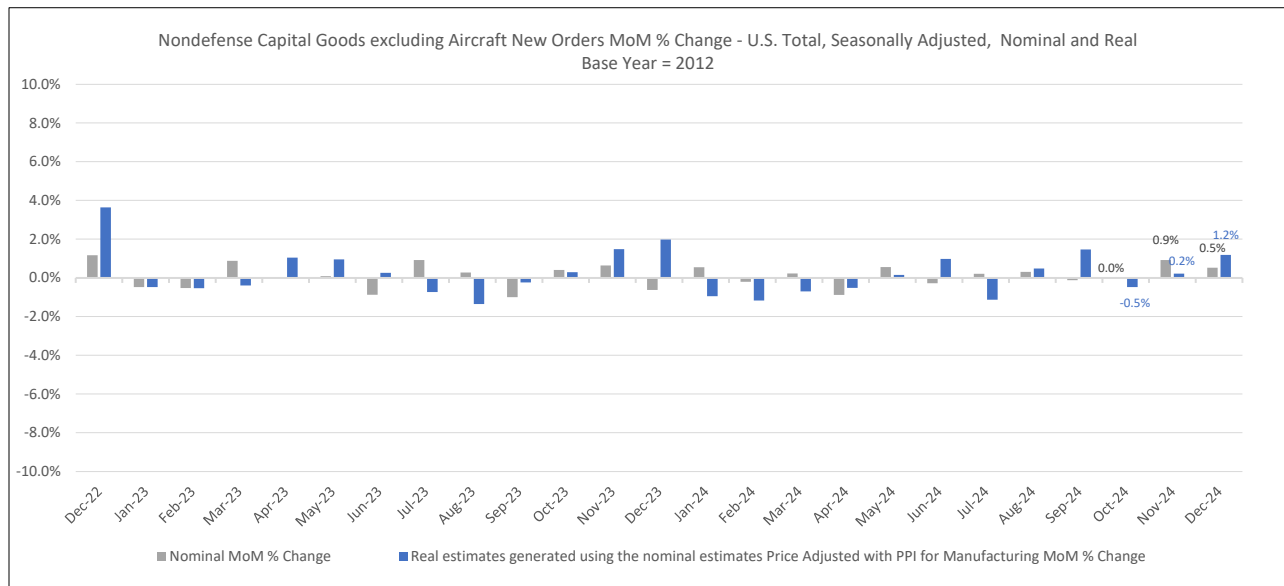


Figure 4. Nominal vs Real estimates generated using the nominal estimates Price Adjusted with PPI for Total Manufacturing MoM % Change

Sources: Producer Price Index (PPI) for Total Manufacturing Industries, January 14, 2025, U.S. Bureau of Labor Statistics; U.S. Census Bureau, Manufacturers' Shipments, Inventories, and Orders, February 4, 2025.

Similarly, calculations can be done for year-over-year percent changes. Figure 5 presents these results. As with the month-to-month percent changes in Figure 4, one can see how the percent changes vary between a nominal and real dollar basis, providing a different perspective of manufacturing demand and spending trends.

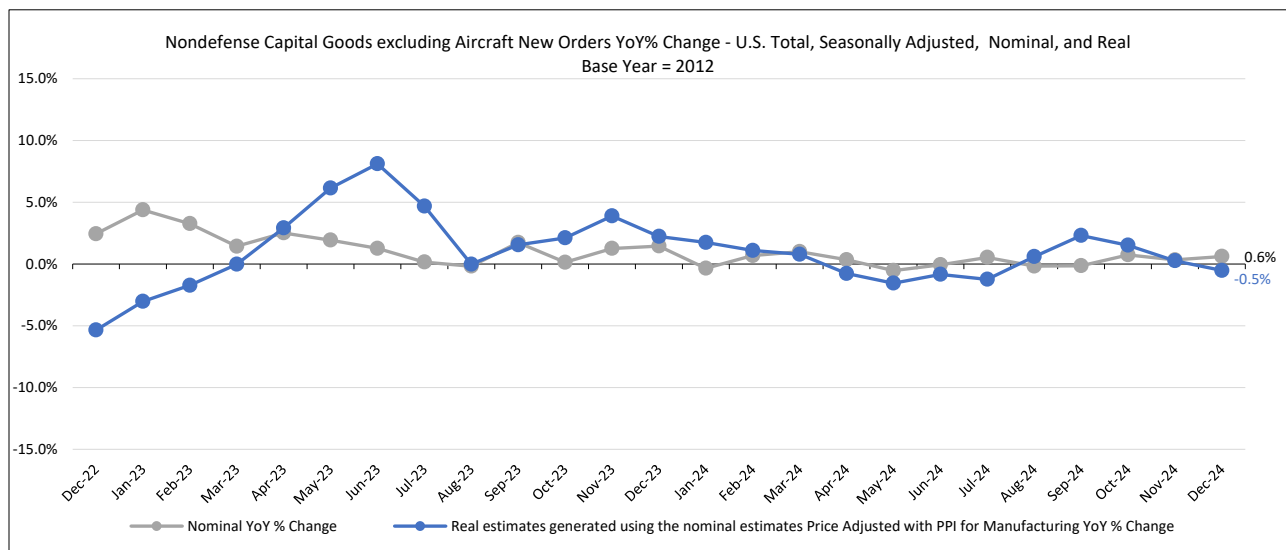


Figure 5. Nominal vs Real estimates generated using the nominal M3 estimates Price Adjusted with PPI for Total Manufacturing YoY % Change

Sources: Producer Price Index (PPI) for Total Manufacturing Industries, January 14, 2025, U.S. Bureau of Labor Statistics; U.S. Census Bureau, Manufacturers' Shipments, Inventories, and Orders, February 4, 2025.

## ***Summary***

Since the U.S. Census Bureau does not publish real dollar estimates for many of its economic indicators, interpreting the meaning of changes in any given month can be a challenge. Utilizing time series from the U.S. Census Bureau along with corresponding price indices from the BLS' PPI can provide users with a method to better understand the impacts price changes may be having on the estimates.

The methods presented here for the M3 do have their limitations. The M3 sample is not a probability-based sample, so statistical significance is not measurable for this survey. The new orders estimates collected each month represent the value of orders booked and do not have unit or quantity information. Also, the methods described above do not try to decompose the estimates to a finer level of detail so that more precise price indices can be used in creating price adjusted estimates.

This effort was undertaken to provide some insight into the price impacts on manufacturing core capital goods orders, but these results should be interpreted with caution. However, the type of price adjustment presented does have value for helping data users better understand the role prices may be playing in the nominal estimates released each month.

We want to hear from YOU! Email all feedback to [eid.m3.qs@census.gov](mailto:eid.m3.qs@census.gov).

**Disclaimer:** Differences between estimates may be attributed to sampling or nonsampling error, rather than to differences in underlying economic conditions. Caution should be used in drawing conclusions from the estimates and comparisons shown. Additional information on the survey methodology, including sampling and sampling error, may be found at [Manufacturers' Shipments, Inventories, & Orders - How the Data are Collected](#).