



Manufacturing

Manufacturing Survey Methodology

May 24, 2023

The Federal Reserve Bank of Kansas City serves the Tenth Federal Reserve District, encompassing the western third of Missouri; all of Kansas, Colorado, Nebraska, Oklahoma, and Wyoming; and the northern half of New Mexico. As part of the nation's central bank, the Bank participates in setting national monetary policy, supervising and regulating numerous commercial banks and bank holding companies, and providing financial services to depository institutions.

The Manufacturing Survey is a web-based survey open for five days, from the third Wednesday to the following Monday each month, and includes responses from plants in Colorado, Kansas, Nebraska, Oklahoma, Wyoming, northern New Mexico, and western Missouri. The Manufacturing Survey's accumulated results help trace longer-term trends. The survey monitors manufacturing plants selected according to geographic distribution, industry mix, and size. Survey results reveal changes in several indicators of manufacturing activity, including production and shipments, and identify changes in prices of raw materials and finished products.

Composite Index - The composite index is an average of the production, new orders, employment, supplier delivery time, and raw materials inventory indexes.

The composite index is modeled after the ISM Manufacturing PMI. The Manufacturing PMI is a composite index based on the diffusion indexes of five of the indexes with equal weights: New Order (seasonally adjusted), Production (seasonally adjusted), Employment (seasonally adjusted), Supplier Deliveries, and Inventories (seasonally adjusted).

Source: [February 2024 ISM Manufacturing PMI \(ismworld.org\)](https://ismworld.org)

Diffusion Index- The diffusion index is calculated as the percentage of total respondents reporting increases minus the percentage reporting declines.

Seasonally Adjusted Diffusion Index - The seasonally adjusted index is calculated as the diffusion index plus or minus the new seasonal factors.

The seasonal adjustment factors for the manufacturing survey indexes must be re-calculated annually to regulate cyclicity. The month vs. month and expected-in-six-months diffusion indexes are seasonally adjusted using Census X-13 ARIMA-SEATS, so historical indexes differ slightly from previously released numbers. The seasonal adjustment calculation is typically performed in the first two weeks of January, before the release of results for the January manufacturing survey. The new seasonal factors will be used throughout that year.

An annual survey sample update process is conducted each summer to increase the number of survey contacts and ensure that our survey sample is statistically representative of the various industries and states.
