News You Can Use

An Introduction to Chicago Fed Activity Indexes
The Chicago Fed National Activity Index (CFNAI)

A monthly summary statistic for U.S. economic growth.

- Weighted average of 85 indicators of U.S. economic activity
- Weights capture the relative importance to historical fluctuations
- Estimated by principal components analysis
- Covers four broad categories of data
  1. *Production and Income*: e.g., Industrial Production
  2. *Employment, Unemployment, and Hours*: e.g., Payroll Employment
  3. *Personal Consumption and Housing*: e.g., Housing Starts
  4. *Sales, Orders, and Inventories*: e.g., Manufacturing & Trade Sales
- First introduced in Evans, Liu, and Pham-Kanter (2002)
- Released toward the end of each month at chicagofed.org/cfnai
Proven track record of success over the past 18 years

1. 95% accuracy in identifying U.S. recessions and expansions
   • Berge and Jorda (2011)

2. Led NBER recession dating by 6-18 months in real time
   • Brave and Butters (2010)

3. Used to “nowcast” GDP growth and forecast inflation
   • Brave and Butters (2014)

4. Also, to identify “trend” GDP growth
   • Brave and Butters (2013)

5. Leading indicator of inflationary pressures
   • Fisher (2000)
Interpreting the CFNAI

Simple interpretation...a “Goldilocks” index

- A value of zero reflects an economy growing at trend
- Positive values indicate above-average growth
- Negative values indicate below-average growth
- Scale is in standard deviations from trend growth

To highlight business cycles and inflationary pressures, focus is given to a 3-month moving average of the index, i.e., the CFNAI-MA3.
The CFNAI and its Components

<table>
<thead>
<tr>
<th>Year</th>
<th>CFNAI</th>
<th>Production and income</th>
<th>Employment, unemployment and hours</th>
<th>Personal consumption and housing</th>
<th>Sales, orders, and inventories</th>
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<tbody>
<tr>
<td>2012</td>
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<td>2020</td>
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</table>

**Background Information**

Economic Research (FRB Chicago)
CFNAI-MA3 and Business Cycles

Above −0.7 characteristic of periods of economic expansion
Below −0.7 increasing chance of recession | Above +0.2 significant chance of recovery

The Chicago Fed National Activity Index and Business Cycles
Above $-0.35$ characteristic of periods of economic expansion

A Different Way to Review the Chicago Fed National Activity Index
More than 2 years into an economic expansion
Above +0.7 increasing chance of sustained rising inflation | Above +1.0 substantial

Forecasting Inflation with a Lot of Data
CFNAI Historical (Real-time) Data

<table>
<thead>
<tr>
<th>Series</th>
<th>T-1</th>
<th>T-2</th>
<th>T-3</th>
<th>T-4</th>
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<td>0.05</td>
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<td>P&amp;I</td>
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<td>0.04</td>
<td>0.03</td>
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<tr>
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<td>0.07</td>
<td>0.02</td>
<td>0.00</td>
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<tr>
<td>CFNAI-MA3</td>
<td>0.05</td>
<td>0.04</td>
<td>0.02</td>
<td>0.01</td>
<td>0.01</td>
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<tr>
<td>CFNAI Diffusion</td>
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<td>0.03</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
</tr>
</tbody>
</table>

Note: T denotes the last month of the index at the time of release.

Revisions to index due to data revisions and estimates of previously unavailable data
Additional information available at chicagofed.org/research/data/index

Contacts:

Michael Adleman
Media Relations
Federal Reserve Bank of Chicago
312-322-2934

Scott Brave
Economic Research
Federal Reserve Bank of Chicago
312-322-5784
sbrave@frbchi.org