

NABE Economic Measurement Seminar: Federal Reserve District Research and Surveys

An Introduction to the Chicago Fed's Activity Indexes

Scott A. Brave



The views expressed herein are my own and do not necessarily represent those of the Federal Reserve Bank of Chicago.



- 1 National Activity Index
- 2 Brave-Butters-Kelley Indexes
- 3 Midwest Economy Index
- 4 Detroit Economic Activity Index
- 5 Survey of Business Conditions
- 6 National Financial Conditions Index



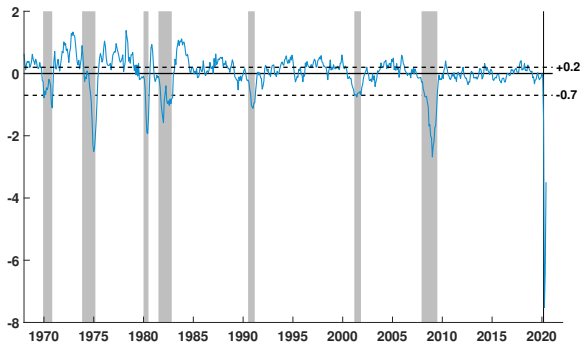
The Chicago Fed National Activity Index (CFNAI)

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



CFNAI-MA3 and Business Cycles

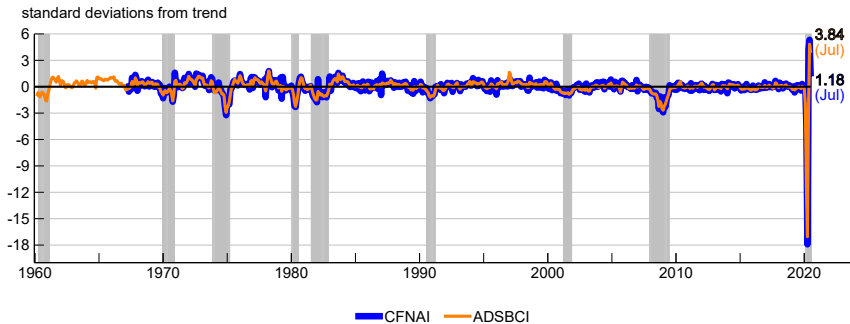


Above -0.7 characteristic of periods of economic expansion

Below -0.7 increasing chance of *recession* | Above $+0.2$ significant chance of *recovery*

The Chicago Fed National Activity Index and Business Cycles





The Aruoba-Diebold-Scotti Business Conditions Index (ADSBCI) is produced by the Federal Reserve Bank of Philadelphia.

Chicago Fed Insights:

Measuring the Decline in Economic Activity (Jun 15, 2020)

Measuring the Recovery in Economic Activity (Aug 5, 2020)



The Brave-Butters-Kelley Indexes (**BBKI**)

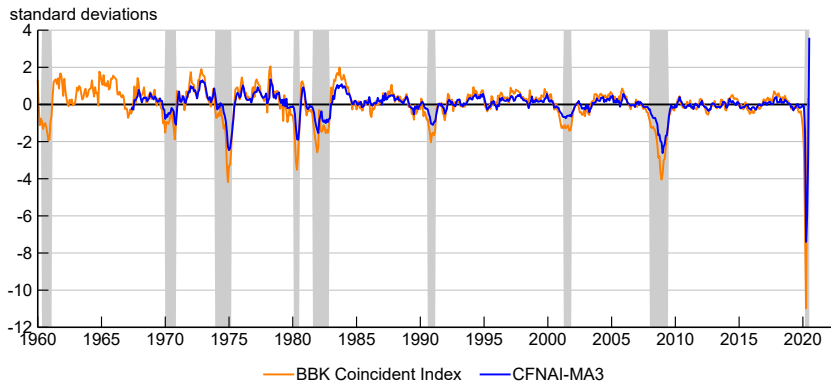
Business Cycle Indexes and Monthly GDP Growth

- A mixed-frequency collapsed dynamic factor analysis of U.S. GDP
- An application of "big data" in macroeconomics to
 - U.S. business cycles and
 - Monthly measurement of U.S. GDP growth
- Longer history based on **500** monthly indicators and quarterly GDP
- More closely aligned with historical U.S. recessions and expansions
- Available monthly at chicagofed.org/bbki

For more information see: [Technical report](#)



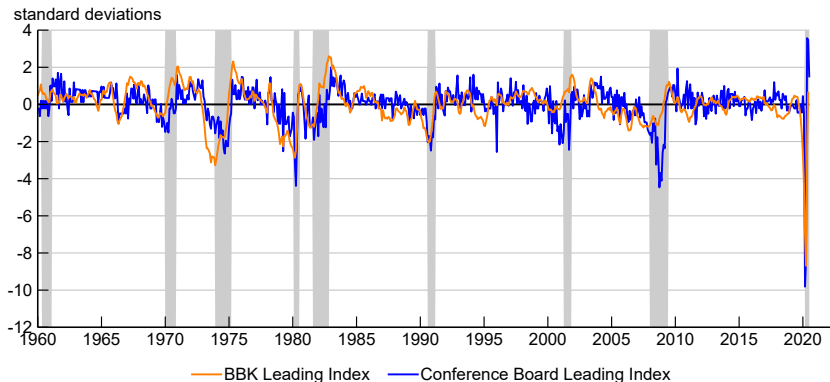
BBK Coincident Index vs. CFNAI-MA3



A new “big data” index of U.S. economic activity



BBK Leading Index vs. Conference Board Leading Economic Index

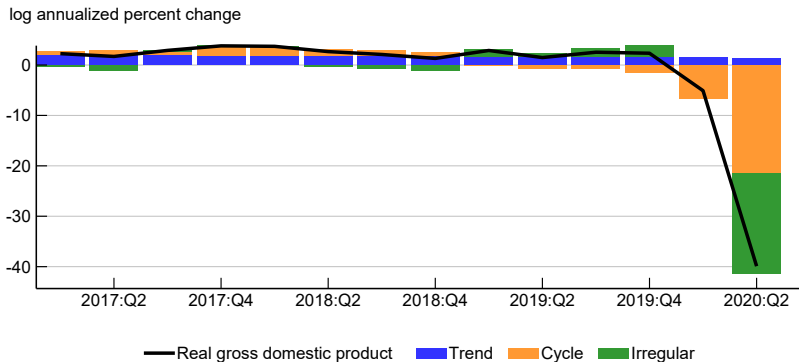


The Conference Board Leading Economic Index was accessed via Haver Analytics.

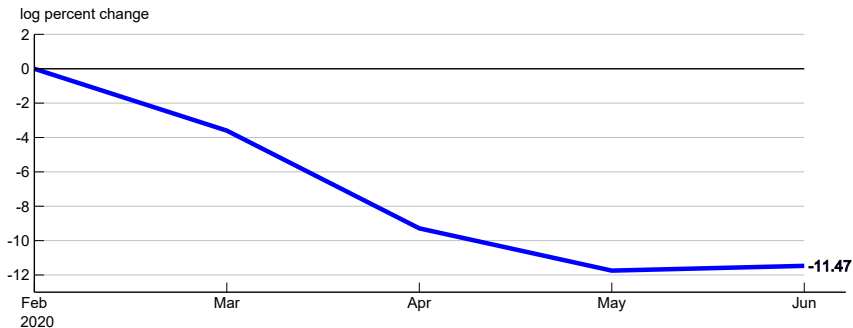
A “big data” view of the U.S. economy: Introducing the BBKI



Trend-Cycle Decomposition of U.S. real GDP growth, 2017-20



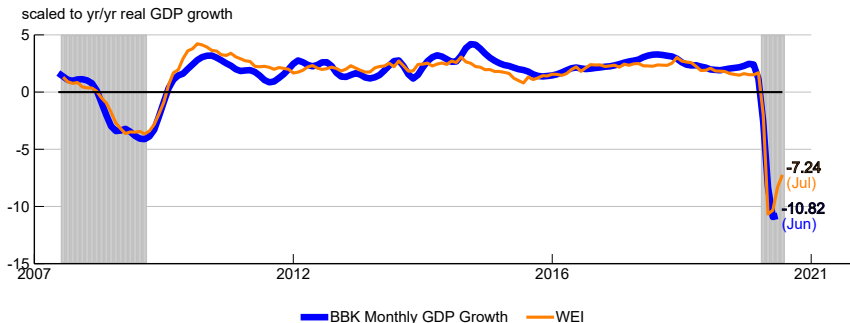
Cumulative decline in BBK Monthly GDP since February 2020



Measuring the Recovery in Economic Activity (Aug 5, 2020)



BBK Monthly GDP Growth vs. Weekly Economic Index (WEI)



The WEI is produced by the Federal Reserve Bank of New York.

Measuring the Recovery in Economic Activity (Aug 5, 2020)



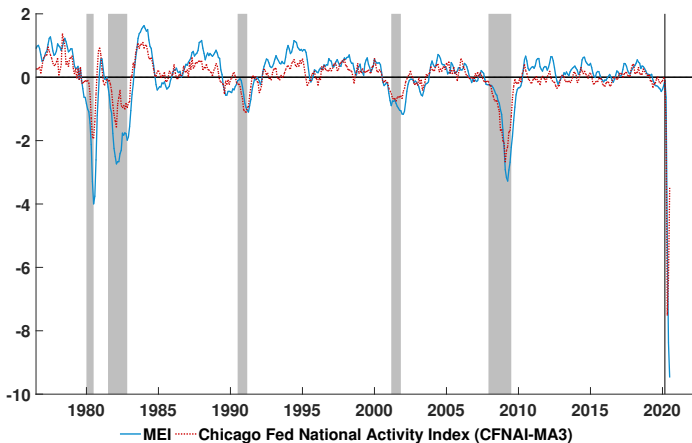
The Midwest Economy Index (MEI)

Similar to the CFNAI, but for the *Midwest* nonagricultural economy

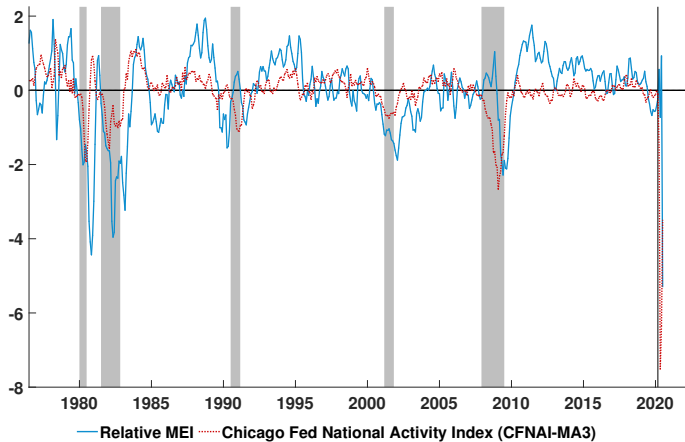
- Weighted average of 129 state/regional indicators
- Estimated by principal components analysis
- Covers *four* broad sectors of the Midwest economy
 - Manufacturing, Services, Construction and Mining, Consumer Spending
- Spans the *five* states in the *Seventh Federal Reserve District*
 - IL, IN, IA, MI, WI
- First introduced in Brave and Lu (2010)
- Released near the *end* of each month at chicagofed.org/mei



MEI and the CFNAI-MA3



Relative MEI and the CFNAI-MA3



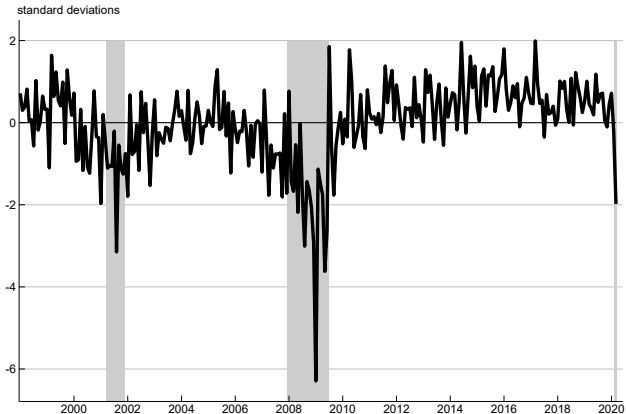
Detroit Economic Activity Index (**DEAI**)

A *monthly* summary statistic for Detroit economic growth

- Estimated by mixed frequency dynamic factor analysis
- Summarizes 24 annual, quarterly and monthly time series
- Covers city income, labor, real estate, and trade data
- Can be used to estimate GDP for the City of Detroit
- And forecast the City of Detroit's real per capita income
- Released [quarterly](https://chicagofed.org/deai) at chicagofed.org/deai



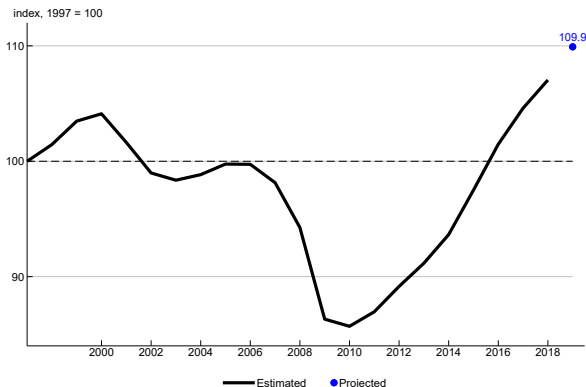
Detroit Economic Activity Index (DEAI)



Tracking Detroit's Economic Recovery After Bankruptcy with a New Index



Detroit Gross City Product (GCP)

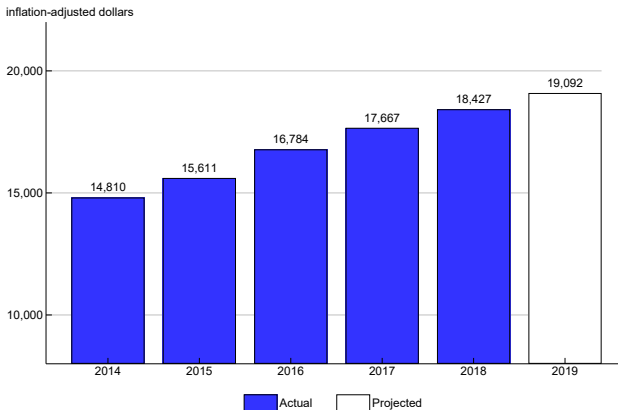


Michigan Economy Blog:

- Detroit Economic Growth Decreased Substantially in March to Its Lowest Level Since the Great Recession, According to Chicago Fed Index (Jun 4, 2020)



Detroit Real Per Capita Income



Measuring Detroit's Economic Progress with the DEAI



The Chicago Fed Survey of Business Conditions (CFSBC)

Survey conducted 12 times per year released at chicagofed.org/cfsbc

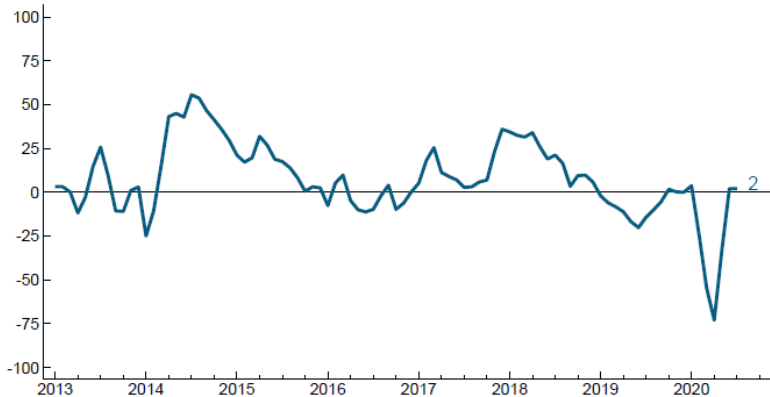
- Described in Brave and Walstrum (2014, 2015)
- Over 800 business contacts from a wide variety of industries
- Average response rate of approx. 10% (75% repeat responders)
- About equal percentage from goods and services industries
- Covers activity, hiring, capital spending, labor and nonlabor costs

Ex: *How did demand for your firm's goods or services change?*

- Large increase
- Medium increase
- Small increase
- No change
- Small decrease
- Medium decrease
- Large decrease

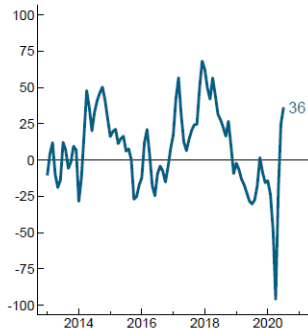


CFSBC Activity Index

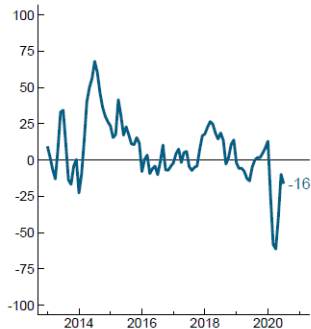


CFSBC Manufacturing vs. Nonmanufacturing Industries

Manufacturing



Nonmanufacturing



FAQs



The National Financial Conditions Index (NFCI)

Weekly update on U.S. financial conditions at chicagofed.org/nfci

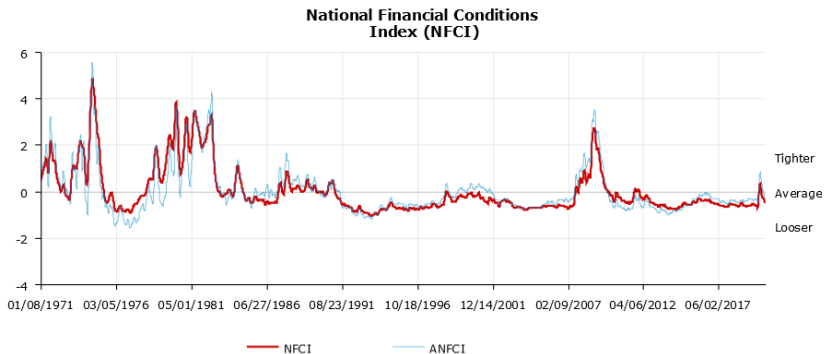
- Weighted average of 105 indicators of financial activity
- Weights capture relative importance to historical fluctuations
- Estimated by mixed-frequency dynamic factor analysis
- Broad coverage of the financial system
 - 1 Money markets
 - 2 Debt and Equity markets
 - 3 Traditional and “Shadow” banking systems

Useful in monitoring financial stability and forecasting

- Brave and Butters (2012)
- Brave and Butters (2011)



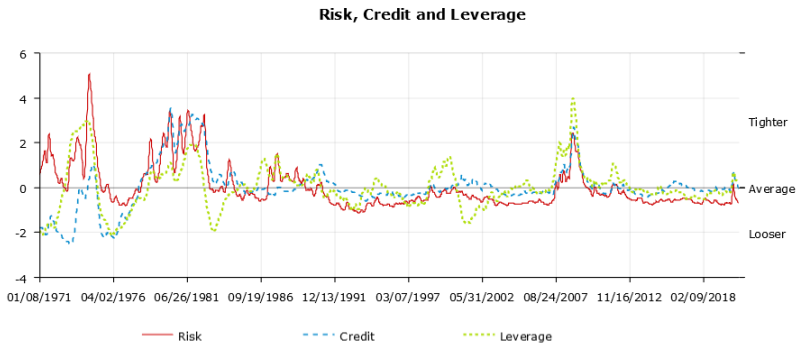
The NFCI and ANFCI



FAQs



Risk, Credit, and Leverage Subindexes

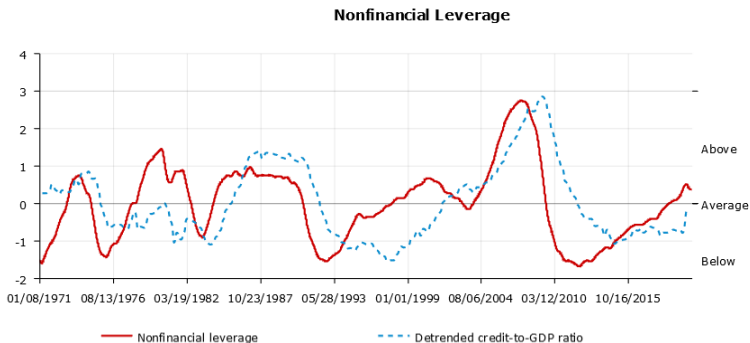


Risk is a coincident, *Credit* a lagging, and *Leverage* a leading indicator of financial stress

Diagnosing the Financial System



Nonfinancial Leverage Subindex



Nonfinancial leverage is a leading indicator of financial stress and recessions

Detecting Early Signs of Financial Instability



Additional information available at chicagofed.org/research/data/index

And in [Alternative Economic Indicators](#) available from the Upjohn Institute

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Contact:

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

