This document outlines recent changes made to the Brave-Butters-Kelley (BBK) Indexes. All future changes will be documented here.

- With the May 4, 2020, release of the BBKI, several improvements were made to the construction of the 500 data series used in the indexes (e.g., imputation of missing values and treatment of outliers). These improvements and incoming data led to small changes in the model’s estimated parameters and, subsequently, revisions to the history of the BBK Coincident and BBK Leading Indexes, as well as BBK Monthly GDP Growth. Of the three, the revisions were largest for the BBK Leading Index, as seen in the figures below.

In what follows, we repeat the figures from “A ‘big data’ view of the U.S. economy: Introducing the Brave-Butters-Kelley Indexes” to demonstrate that the major properties of the BBKI were not impacted by these changes.

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1 For more information on what was changed to the imputation of missing values, see p. 7 of the CFNAI technical report. Previous iterations of the BBKI used an outlier adjustment to the data that capped large positive and negative values at six times their interquartile range. We are no longer doing so starting with the May 4, 2020, release, as we found that this process had very little effect on past values of the indexes, but severely understated the incoming data during the Covid-19 pandemic.
Figure 1. Decomposition of Brave-Butters-Kelley Monthly GDP Growth, 2017–20

Source: Authors’ calculations based on data from Haver Analytics.

Figure 2. Brave-Butters-Kelley Monthly GDP Growth: Trend and cycle components

Note: Shaded periods correspond to U.S. recessions as defined by the National Bureau of Economic Research.

Source: Authors’ calculations based on data from Haver Analytics.
Figure 3. Brave-Butters-Kelley Coincident Index

Notes: GDP refers to gross domestic product. Shaded periods correspond to U.S. recessions as defined by the National Bureau of Economic Research. The dashed red line shows the historical threshold for U.S. business cycles described in “A ‘big data’ view of the U.S. economy: Introducing the Brave-Butters-Kelley Indexes.”
Source: Authors’ calculations based on data from Haver Analytics.

Figure 4. Brave-Butters-Kelley Leading Index

Notes: GDP refers to gross domestic product. Shaded periods correspond to U.S. recessions as defined by the National Bureau of Economic Research. The dashed red line shows the historical threshold for U.S. business cycles described in “A ‘big data’ view of the U.S. economy: Introducing the Brave-Butters-Kelley Indexes.”
Source: Authors’ calculations based on data from Haver Analytics.
Figure 5. AUCs at leads and lags

Notes: Area under the receiver operating characteristic (ROC) curve values (AUCs) correspond to leads (negative horizontal axis values) and lags (positive horizontal axis values) with respect to U.S. recessions as defined by the National Bureau of Economic Research since 1960. The 95% confidence intervals (CIs) are bias-corrected from 500 bootstrap replications. The horizontal and vertical dashed red lines correspond to the peak AUC and associated lead/lag in each panel. For further details, see "A 'big data' view of the U.S. economy: Introducing the Brave-Butters-Kelley Indexes."
Source: Authors’ calculations based on data from Haver Analytics.

Figure 6. Decomposition of real gross domestic product, 2017–20

Note: The black line is equivalent to the quarterly estimates produced by the U.S. Bureau of Economic Analysis.
Source: Authors’ calculations based on data from Haver Analytics.