Background Information KOF Economic Barometer

Changes in the Methodology from Vintage 2021 to Vintage 2022

This year's revision introduces two changes to the methodology of the KOF Economic Barometer. The first concerns the variable selection procedure in times of the Corona pandemic, the second addresses the imputation of missing values.

First, the Corona pandemic has left its mark in virtually every macroeconomic time series. Many economic indicator series underlying the KOF Economic Barometer as well as its reference series have experienced significant down-turns and recoveries during the course of the year 2020 and 2021. A brought consensus that these movements are not considered as an ordinary business cycle movement but rather extraordinary events that emerged from outside the economy has evolved. As a result, the methodology of the KOF Economic Barometer was adapted from Vintage 2021 to Vintage 2022 to take this into account. The methodology of the KOF Economic Barometer now relies on a robustification technique that was initially proposed by Huber (1981). In particular, the automatic selection procedure described in Abberger et al. (2014, 2018) is now enhanced by the proposal made by Huber (1981) to ensure both, the substantial lead to and the high correlation of the economic indicators with the reference series throughout the Corona period. For this, we compute the sample cross correlations between the economic indicator variables (using all eligible transformations as described in Section 3.4.1 of Abberger et al. (2014)) and the reference series in a robust manner. In particular, we incorporated the proposal of Gnanadesikan and Kettenring (1972), Devlin et al. (1975) and Shevlyakov and Vilchevsky (2002). In summary, their procedure uses Huber's ψ-Function $\psi(z)_H = max(-c, min(z, c))$ to weight each variable z along with a proposal for the arbitrary constant c = 5 × mad(z) where mad(z) refers to the median absolute deviation of the variable z. The literature has advocated to choose c data-dependent (e.g. Wang (2007)). For this reason, we replaced the constant 5 with a data-dependent value $\tilde{c}$ that is chosen annually such that only observations covered by the Corona period are affected by this robustification, leaving all other observations unchanged. In this way, the amount of robustification is recalibrated annually during the revision of the KOF Economic Barometer and is ensured to focus on the phase of the Corona pandemic only.

Second, as described in Section 3.4.2 of Abberger et al. (2014), in the case of a delayed, interrupted or abolished publication of economic indicators used for the computation of the KOF Economic Barometer the resulting missing values are imputed using the Expectation Maximization (EM) algorithm of Stock and Watson (2002). We further stabilized their procedure by recuring to the last observation carried forward method in case of an extreme imputation through the EM algorithm. An imputation is considered as extreme if it falls outside the p-th and (1-p)-th quantile of the historic distribution of the first differences of each variable. The value of p is chosen to be 2.5%. This procedure ensures that the signal sent by imputed observations is bounded to the signal that was actually observed recently.

Further information:

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