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**Title:** Empirical findings on upper-level aggregation issues in the HICP

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**Abstract** (maximum length of 400 words)

While plenty of research has studied the upper-level aggregation bias in the US consumer price index (e.g. [Armknrecht, 2015](#); [Boskin et al., 1998](#); [Greenless & Williams, 2010](#)), empirical evidence for the European Harmonised Index of Consumer Prices (HICP) is rarely available. For the HICP, weights are annually updated based on national accounts data. However, the preliminary status of national accounts when used in the derivation of HICP weights creates a source of measurement uncertainty, assuming that the use of final (or at least revised) data may lead to more reliable weights. We thus provide a decomposition of the upper-level aggregation bias in HICP inflation into two components: the choice of index formula (*representativity component*) and the reliability of weights (*data vintage component*).

With national accounts vintage data, we estimate the upper level aggregation bias for Germany, France, Italy, Spain and the Netherlands in the period from 2012 to 2019 (see [ECB, 2021](#)). The database also enables us quantifying this for an aggregate of these countries, representing 82% of the euro area HICP (“Big-5 aggregate”). Measured in terms of annual HICP rates, the total upper-level aggregation bias of the Big-5 aggregate clearly falls short of one-tenth of a percentage point. This is a rather small number, in particular against the backdrop of existing evidence. The representativity and the data vintage components contribute to the overall bias in quite similar shares. In line with empirical evidence, the representativity component is positive for all countries considered. Data vintage components are positive in all countries but the Netherlands.

Moreover, in [Herzberg et al. \(2021\)](#), we show that our decomposition can be further refined. First, the benchmark, against which actual inflation is assessed, is approximated using full-information weights (instead of final national accounts weights). This concept implementable with German data is expected to better proxy “true” inflation. Second, we introduce an *annual updating component*, which measures the bias arising from the updating of HICP weights in comparison to a fixed-basket index. We show for the German HICP that the annual updating of the quantity component of the weights, which was implemented in 2012 into HICP compilation, has reduced the representativity component. Nevertheless, the measurement of the German HICP is impaired by the extrapolation of expenditure weights, and the use of preliminary national accounts data since 2012 has not led to an improvement.

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