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Title: Balancing the Swedish CPI
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Abstract
Traditional data collection to CPI (HICP) has successively been replaced by complimentary data sources in the Swedish CPI such as transaction data, web scraped data and API data. As of 2022, the step to fully non-human interacted data collection has become even narrower, with some parts remaining to mitigate. This transition should conceptually arrive at less uncertainty by reducing price collector variations as well as increasing sample sizes to almost census. However, the garden variety of data sources common to several countries and respective computation methods will still embed some uncertainty, regardless of being sample based or census coverage. Herein, we address some sources of statistical uncertainties in the Swedish CPI (HICP) and the computational approach to the uncertainty (MSE) measure that is provided to the public through the annually disseminated quality declaration. We abstain from the obvious and common-to-most problem of questioning top-level weights in aggregation since such computations mostly are due to macro features in the economy rather than the monthly data sources in the CPI – the latter being our focus in this paper. To contrast the obtained uncertainties in our established approach, we make comparisons on volatility due to other methods as listed in the CPI Manual of 2020 and Eurostat sources applied to the complimentary data. As an outcome from the paper, we address the balancing of the samples with respect to uncertainty and resources as a means to render a Total Survey Error for the Swedish CPI in the limelight of the various data sources.

Below is an extract from the annual Quality declaration for the Swedish CPI:

Table 1 Estimated sampling inaccuracy, length of 95% confidence interval 2021

Statistics	Length of 95% confidence interval	Comments
Monthly change	±0.14	Somewhat shorter for April, May, June and November
Annual change (inflation rate)	±0.23	Somewhat shorter for December*
Monthly change in inflation rate	±0.20	Somewhat shorter for April, May, June, November and December, somewhat longer for other months

* The change from December to December is based on one and the same sample.

Keywords: Variance estimation, mixed data sources, fixed basket,

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