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Session 1: Index theory and practice

Consistent aggregation of superlative price indices

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It is of great practical value when the computation of the overall inflation rate can be conducted in a two stage procedure where on the first stage average changes of subgroups are computed and on the second stage these individual results are aggregated into the overall change. Alternatively, the overall inflation rate could be directly computed from the complete universe of products, without decomposing this universe into subgroups. This single stage computation is simpler, but provides fewer insights.

It is considered as a major advantage of a price index formula, when it computes the same overall inflation, regardless of whether it is applied in a single stage or two stage calculation. When a price index formula satisfies this postulate, the formula is denoted as consistent in aggregation (or additive). In the literature, there is some disagreement on the precise meaning of consistency in aggregation. However, there is a consensus that the three superlative price index formulas of Fisher, Walsh, and Törnqvist are not fully consistent in aggregation. Based on a rigorous formal definition of consistency in aggregation, the present study proves that this perception is wrong. This is good news for national statistical offices that use superlative price indices (e.g. Statistics Sweden).