

Potential bias in the Consumer price index

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Abstract

Consumer price index (CPI) is used to measure changes in the price level of consumer goods which households are facing. We can say that CPI is one of the most important indicators of the change in living conditions, therefore one of the main purposes of using CPI is indexing various incomes of population. CPI is also used for other purposes, among which the most important one is the use as a macroeconomic indicator for measuring the general level of inflation.

Despite CPI has been calculated for approximately 100 years, we can not claim it is calculated on the basis of a methodology which will give us a result that is fully consistent with the theoretical concepts of the index. Discrepancy between what index should measure and what index actually measures is largely a result of the complexity of calculating the index, and partially because of using index for several different purposes. In practice this principally means that due to insufficient input data and consequently the necessary methodology adjustments, the index value is only an approximation of what index measures respectively what its values are used for in practice. Due to use of different methodologies, in most cases CPI is not comparable between countries.

In this contribution I will show the potential bias, present in the CPI calculation due to use of input data which is only an approximation of the actual situation and due to use of different methodologies for calculating the index. Using data for Slovenia I will show biases in the value of CPI from its theoretical concepts, which we are able to measure or at least detect based on available data. Primarily I will examine and present the impact of using arithmetic and geometric mean in calculating index at the elementary level, the use of two main groups of indexes (formulas) in the calculation of the index at the aggregate level and extension of the range of goods respectively input data in calculating the index of household expenditure on housing.