CPI User Manual

The compilation method used for the Swedish Consumer Price Index (CPI) differs from how CPI:s are calculated in most other countries. Moreover, the Swedish methodology has changed over time.[1] In this document, we describe how the information published in the Statistical Database on www.scb.se should be interpreted, and how users can construct their own index series based on this information. The description is formulated in terms of the CPI, but the CPI with fixed interest rate (CPIF) is also compiled using the same methodology. A list of the variables available in the Statistical Database can be found in the appendix.

Index with reference year 2020

The Swedish Consumer Price Index is a chained index with reference year 2020 (i.e., it has 2020=100). Two types of index links are used to calculate the CPI: *Annual links*, $A(y)$, which describe the price development between years *y–1* and *y*, and *monthly links*, $M(y,m)$, which describe the development between year *y–2* and month *m* of year *y*. To calculate an index with reference year 2020 for period *y,m*, annual links going from year 2020 to *y–2* are multiplied with a monthly link. A so-called "technical factor" is also added to the formula. (This factor ensures that the series' rates of change coincide with the CPI series calculated prior to 2026, i.e., CPI with reference year 1980.[2]) An index for March 2026 can thus, for example, be constructed in the following way:

$$I_{2020}^{2026,3} = \left[\frac{M(2026,3)}{100}\right] \cdot \left[\prod_{t=2021}^{2024} \frac{A(t)}{100}\right] \cdot \left[\frac{A(2019) \cdot A(2020)}{\frac{1}{12}\sum_{m=1}^{12} M(2020,m)}\right]$$

Here, the first component describes the price development between year 2024 and March 2026, and the second component the development between 2020 and 2024. The third component is the technical factor. (Since all index links in the Statistical Database have been multiplied by 100, corresponding divisions are also required in the chaining.)

[1] See SOU (1999:124, appendix 3), Ribe (2004), Bäcklund and Sammar (2012), and Ståhl (2025), for further information about the aggregation methodology used for the Swedish CPI.

[2] For details, see the references given in footnote 1.

Index series for historical periods

The example above describes how chained index values with reference year 2020 can be constructed for years 2026 and onwards. A slightly different approach is, however, needed for earlier years of the series (c.f., footnote 1). Before 2005, the Swedish CPI was instead compiled from so-called *long-term links*, $L(y)$, describing the price development between December of year *y–1* and December of year *y*, and *short-term links*, $K(y, m)$, describing developments between December of year *y–1* and month *m* of year *y*. Table 1 gives the formulas needed for different years of the series.

Table 1: Formulas for calculating an index with reference year 2020=100 based on index links.[3]

Year (y)	$I_{2020}^{y,m}$
…, 2003	$\left\{\frac{12\cdot 100^{(2022-y)}\cdot\sum_{n=1}^{12} M(2004,n)}{\sum_{n=1}^{12} K(2004,n)\cdot\sum_{n=1}^{12} M(2020,n)\cdot\prod_{t=y}^{2003} L(t)\cdot\prod_{t=2003}^{2018} A(t)}\right\}\cdot\frac{K(y,m)}{100}$
2004	$\left\{\frac{12\cdot 100^{(2022-y)}\cdot\sum_{n=1}^{12} M(2004,n)}{\sum_{n=1}^{12} K(2004,n)\cdot\sum_{n=1}^{12} M(2020,n)\cdot\prod_{t=2003}^{2018} A(t)}\right\}\cdot\frac{K(y,m)}{100}$
2005, …, 2019	$\left\{\frac{12\cdot 100^{(2022-y)}}{\sum_{n=1}^{12} M(2020,n)\cdot\prod_{t=y-1}^{2018} A(t)}\right\}\cdot\frac{M(y,m)}{100}$
2020	$\left\{\frac{12\cdot 100^{(2022-y)}}{\sum_{n=1}^{12} M(2020,n)}\right\}\cdot\frac{M(y,m)}{100}$
2021, …	$\left\{\frac{12\cdot 100^{(2022-y)}\cdot\prod_{t=2019}^{y-2} A(t)}{\sum_{n=1}^{12} M(2020,n)}\right\}\cdot\frac{M(y,m)}{100}$

[3] For product groups which were not included in the CPI measurements in 2020, series have been constructed using alternative reference periods. These formulas are, however, not described in the table.

A “combined” index variable

Statistics Sweden also publishes a so-called “combined index variable” which describes the price change between year *2020* and *either* December of year *y–1* or year *y–2*. For periods prior to *2005*, the variable represents the price development between *2020* and December of year *y–1*, and for *2005* and later it describes the development between *2020* and *y–2*. An alternative way to construct a chained index with reference year *2020=100* is therefore to multiply the combined variable with either the short-term (for years before 2005) or the monthly link of the period in question. In Table 1, the expressions enclosed in square brackets represent the combined index variable.

Aggregation

The four types of index links mentioned above are all published in the Statistical Database, together with the corresponding weights.[4] Users can use these links and weights to construct their own aggregates by weighting the links together for the groups they want to include.

Contribution to the rate of change

In addition to indices, weights, month-on-month and year-on-year rates of change, the Statistical Database also contains information of the contributions of individual product groups and aggregates to the total rates of change. Tables 2 and 3 (on the next page) describe how Statistics Sweden calculate these contributions. Here, $w_{M(y)}$ denotes the weights used in the aggregation of monthly links for year *y*, $w_{A(y)}$ the weights used to aggregate annual links for the same year, $w_{K(y)}$ the weights used for the short-term links and $w_{L(y)}$ those used for the long-term links. The notation *TOT* indicates reference to a *total* link (as opposed to a link for the specific product group or aggregate).

[4] For information on how the different weights are constructed, see the documentation “Statistikens framställning,” available on Statistics Sweden’s website [only in Swedish], or the references cited in footnote 1.

Table 2: Formulas for calculating contributions to the year-on-year rate of change.[5]

Year (y)	***Contribution***
…, 2004	$\frac{L^{TOT}(y-1)}{K^{TOT}(y-1,m)} \cdot \frac{w_K(y)\cdot[K(y,m)-100]}{1000} - \frac{100}{K^{TOT}(y-1,m)} \cdot \frac{w_K(y-1)\cdot[K(y-1,m)-100]}{1000} + \frac{100}{K^{TOT}(y-1,m)} \cdot \frac{w_L(y-1)\cdot[L(y-1)-100]}{1000}$
2005	$\frac{A^{TOT}(y-2)}{M^{TOT}(y-1,m)} \frac{w_M(y)\cdot[M(y,m)-100]}{1000} - \frac{100}{M^{TOT}(y-1,m)} \cdot \frac{w_M(y-1)\cdot[M(y-1,m)-100]}{1000} + \frac{100}{M^{TOT}(y-1,m)} \cdot \frac{w_A(y-2)\cdot[A(y-2)-100]}{1000} + R(m)$
2006, …	$\frac{A^{TOT}(y-2)}{M^{TOT}(y-1,m)} \cdot \frac{w_M(y)\cdot[M(y,m)-100]}{1000} - \frac{100}{M^{TOT}(y-1,m)} \cdot \frac{w_M(y-1)\cdot[M(y-1,m)-100]}{1000} + \frac{100}{M^{TOT}(y-1,m)} \cdot \frac{w_A(y-2)\cdot[A(y-2)-100]}{1000}$

[5] For 2005 an adjustment term is added to account for the effect of the methodological change that occurred between 2004 and 2005 (see footnote 1 for further details). This adjustment term has been calculated using the following formula: $R(m) = \frac{w_M(2005)}{1000} \cdot \frac{M^{TOT}(2005,m)\cdot A^{TOT}(2003)}{\sum_{n=1}^{12} M^{TOT}(2004,n)} \cdot \left(\frac{\sum_{n=1}^{12} K^{TOT}(2004,n)}{K^{TOT}(2004,m)} - \frac{\sum_{n=1}^{12} M^{TOT}(2004,n)}{M^{TOT}(2004,m)}\right)$

Table 3: Formulas for calculating contributions to the month-on-month rate of change.[6]

Year (y)	***Month (m)***	***Contribution***
…, 2004	**1**	$\frac{L^{TOT}(y-1)}{K^{TOT}(y-1,12)} \cdot \frac{w_K(y)\cdot[K(y,1)-100]}{1000} - \frac{100}{K^{TOT}(y-1,12)} \cdot \frac{w_K(y-1)\cdot[K(y-1,12)-100]}{1000} + \frac{100}{K^{TOT}(y-1,12)} \cdot \frac{w_L(y-1)\cdot[L(y-1)-100]}{1000}$
	2, …, 12	$\frac{100}{K^{TOT}(y,m-1)} \cdot \frac{w_K(y)\cdot[K(y,m)-K(y,m-1)]}{1000}$
2005	**1**	$\frac{A^{TOT}(y-2)}{M^{TOT}(y-1,12)} \cdot \frac{w_M(y)\cdot[M(y,1)-100]}{1000} - \frac{100}{M^{TOT}(y-1,12)} \cdot \frac{w_M(y-1)\cdot[M(y-1,12)-100]}{1000} + \frac{100}{M^{TOT}(y-1,12)} \cdot \frac{w_A(y-2)\cdot[A(y-2)-100]}{1000} + R$
	2, …, 12	$\frac{100}{M^{TOT}(y,m-1)} \cdot \frac{w_M(y)\cdot[M(y,m)-M(y,m-1)]}{1000}$
2006, …	**1**	$\frac{A^{TOT}(y-2)}{M^{TOT}(y-1,12)} \cdot \frac{w_M(y)\cdot[M(y,1)-100]}{1000} - \frac{100}{M^{TOT}(y-1,12)} \cdot \frac{w_M(y-1)\cdot[M(y-1,12)-100]}{1000} + \frac{100}{M^{TOT}(y-1,12)} \cdot \frac{w_A(y-2)\cdot[A(y-2)-100]}{1000}$
	2, …, 12	$\frac{100}{M^{TOT}(y,m-1)} \cdot \frac{w_M(y)\cdot[M(y,m)-M(y,m-1)]}{1000}$

[6] For 2005 an adjustment term is added to account for the effect of the methodological change that occurred between 2004 and 2005 (see footnote 1 for further details). This term has been calculated using the following formula:

$$R = \frac{w_M(2005)}{1000} \cdot \frac{M^{TOT}(2005,1)\cdot A^{TOT}(2003)}{\sum_{n=1}^{12} M^{TOT}(2004,n)} \cdot \left(\frac{\sum_{n=1}^{12} K^{TOT}(2004,n)}{K^{TOT}(2004,12)} - \frac{\sum_{n=1}^{12} M^{TOT}(2004,n)}{M^{TOT}(2004,12)}\right)$$

Appendix: Variable description (Statistical Database)

Variable name	***Explanation***	
Index	$I_{2020}^{y,m}$	Chained index (2020=100) [7]
Year-to-month index	$M(y,m)$	Monthly link
Year-to-month weights	w_M	Weight associated with the monthly link
Year-to-year index	$A(y)$	Annual link
Year-to-year weight	w_A	Weight associated with the annual link
Short term index	$K(y,m)$	Short-term link
Short term weight	w_K	Weight associated with the short-term link
Long term index	$L(y)$	Long-term link
Long term weight	w_L	Weight associated with the long-term link
Index start		The ”combined” index variable
Effect year		Contribution to the year-on-year rate of change
Effect month		Contribution to the month-on-month rate of change

[7] For products not included in the CPI measurements of year 2020, the chained index values use either December of year *y–1* as the base (for start years prior to 2005), or year *y–2* (for start years 2005 or later).