

## Methodology of the conversion of the time series

### **A. Conversion of time series of overall Industrial producer price indices and Construction work price indices (conversion bridges are applied)**

Conversion between the time series of the price indices with a constant base before and after the revision is ensured by the coefficients (conversion bridges) either to the new base with the new structure from the year 2005 or to the original base with the original structure from the year 1999. For each time series of the indices (at all levels of CPA structural hierarchy) the coefficient is following number:

$$\text{coeff} = \frac{\text{index for Dec. 2006 with the base Dec. 2005 = 100 from new time series (on new structure y. 2005) / 100}{[\text{index for Dec. 2006} / \text{index for Dec. 2005}](\text{both indices from original time series, where Dec. 1999} = 100)}$$

This coefficient represents a difference between the development on the new and the original scheme between December 2005 and December 2006 for each index.

*I. Conversion of the original indices, valid till y. 2006, to a) new base December 2005 = 100 and to b) new index base average y. 2005 = 100*

- a) The indices of original time series with the base December 1999 = 100, which refer to the period 2001 – 2006 (see publication CZSO - Prices), will be transformed to the new base December 2005 = 100, valid since y. 2007, as follows (for each month selected within 2001 – 2006):

$$\frac{\text{index for the selected period with the base December 1999} = 100 \text{ from original time series}}{\text{index for December 2005 to the base December 1999} = 100 \text{ from original time series}} * \text{coeff} * 100 \quad (1)$$

Example of calculation of index for November 2006 with the new base December 2005 = 100

- original index for November 2006 with the base December 1999 = 100: 117.1
- original index for December 2005 with the base December 1999 = 100: 114.1
- coefficient to the appropriate time series : 0.999

$$\text{Index with the new base} = \frac{117.1}{114.1} * 0.999 * 100 = 102.5$$

Final index is therefore comparable with newly published indices since year 2007 having the base December 2005 = 100.

- b) Conversion to the new index base average y. 2005 = 100 will CZSO calculate from time series of type (1) above. Index for any time period within January 2001 and December 2006 to the new index base average y. 2005 = 100 can be calculate from the previously published data as follows (for each month selected within 2001 – 2006):

$$\frac{\text{index for the selected month with the base December 1999} = 100 \text{ from the original time series}}{\text{index for the average of the year 2005 with the base Dec. 1999} = 100 \text{ from the original time series}} * 100 \quad (2)$$

It is necessary to refer to the fact, that formula (2) gives the same results as the calculation from the series of type (1) only theoretically (if the calculations are done with un-rounded figures)

II. Conversion of the new indices, valid since y. 2007, to a) original base December 1999 = 100 and to b) original index base average 2000 = 100

- a) Continuation of the time series of price indices with the original base December 1999 = 100 (valid till y. 2006) will be ensured by linking of the new time series to the original time series as follows (for each month selected in 2007 or later period):

**index for the period y. 2007 (8...) with the base December 1999 = 100 =**

$$= \frac{\text{index for the period y. 2007 (8...) with the base December 2005 = 100 from the new time series}}{\text{coefficient}} * \quad (3)$$

**\* index for December 2005 with the base December 1999 = 100 from the original time series / 100**

Example of calculation of index for January 2007 to the base December 1999 = 100:

- new index for January 2007 with the base December 2005 = 100: 103.7
- original index for December 2005 with the base December 1999 = 100: 114.1
- coefficient to the appropriate time series: 0.999

$$\text{Basic index for January 2007 with the original base} = \frac{103.7}{0.999} * \frac{114.1}{100} = 118.4$$

- b) Similar procedure can be used also for conversion to the base average y. 2000 = 100:

**index for the period y. 2007 (8...) with the base average y. 2000 = 100 =**

$$= \frac{\text{index for appropriate period y. 2007 (8...) with the base December 2005 = 100 from the original time series}}{\text{coefficient}} *$$

**\* index for December 2005 with the base average y. 2000 = 100 from the original time series / 100**

(4)

Note: Using of the coefficients implicitly transforms the linking period December 2005 to December 2006. In other words, a published development of the original time series till December 2006, which is linked by the development of indices derived from the new calculation scheme, is retained.

**Coefficients (conversion bridges) for the conversion of time series of industrial producer price index and monthly construction work price index**

Name	Coefficient
INDUSTRY TOTAL	0.9990
CONSTRUCTION WORK	1.0008

## **B. Conversion of time series of overall Agricultural producer and Market services price indices** **(conversion bridges are not applied)**

Coefficients (conversion bridges) applying to conversion between the time series of the price indices with a constant base before and after are not used. In the first revision publication for January 2007, the new time series of price indices calculated on the new weighting scheme is even published simultaneously with a backward validity for the period January 2005 to December 2006. This new time series of indices has only one price index base average y. 2005 = 100.

### *I. Conversion of the original indices, valid till December 2006, to the new index base average y. 2005 = 100*

The indices of original time series with the base December 1999 = 100, which refer to the period 1994 – 2006 (see publication 'CZSO – Prices' and 'Revision 2000 – time series converted by coefficients' for the period January 2001 – December 2006 and January 1994 – December 2000, respectively) will be transformed to the new base average y. 2005 = 100, valid since January 2007, as follows:

- 1) The original price indices for the period January 2005 - December 2006 lose their validity and will not be further used (with the exception of using the index for January 2005 to convert previous indices). The original ones are replaced by a newly published time series with the base average y. 2005 = 100 for the period above mentioned. For that reason it is not necessary to convert them.
- 2) For the period 1994 to December 2004 the following formula will be used:

**Index for the selected period with the base average y. 2005 = 100 =**

**= index for the selected period with the base December 1999 = 100 from the original time series \* (5)**

**\*  $\frac{\text{index for January 2005 with the base average y. 2005 = 100 from the new time series}}{\text{index for January 2005 with the base December 1999 = 100 from the original time series}}$**

Example of calculation of index for April 2004 with the new base average y. 2005 = 100:

- original index for April 2004 with the base December 1999 = 100:	112.8
- original index for January 2005 with the base December 1999 = 100:	111.9
- recalculated index for January 2005 with the new base average y. 2005 = 100:	100.1

**Basic index for April 2004 with the new base =  $112.8 * \frac{100.1}{111.9} = 100.9$**

Final index is therefore comparable with newly published indices since January 2007 having the base average y. 2005 = 100.

*II. Conversion of the new indices, valid since January 2007, to a) original base December 1999 = 100 and to b) original index base average 2000 = 100*

This conversion to the original bases is valid for all newly published base indices (indices both for the reference periods of January 2007 on later and even for the periods January 2005 – December 2006)

- a) Continuation of the time series of price indices with the original base December 1999 = 100 (originally valid till December 2006; after the release of new time series only valid till January 2005) will be ensured by linking of the new time series to the original time series as follows:

**index for the selected period in y. 2005 (6,7,8,...) with the base December 1999 = 100 =**

**= index for the selected period in y. 2005 (6,7,8,...) with the base average y. 2005 = 100 from the new time series \***

**\*  $\frac{\text{index for January 2005 with the base December 1999 = 100 from the original time series}}{\text{index for January 2005 with the base average y. 2005 = 100 from the new time series}}$**

**(6)**

Example of calculation of index of market services for January 2007 to the base December 1999 = 100:

- new index for January 2007 with the base average y. 2005 = 100: 103.3
- original index for January 2005 with the base December 1999 = 100: 111.9
- recounted index for January 2005 with the new base average y. 2005 = 100: 100.1

**Basic index for January 2007 with the original base =  $103.3 * \frac{111.9}{100.1} = 115.5$**

- b) Similar procedure can be used also for conversion to the original base average y. 2000 = 100:

**index for the period in y. 2005 (6,7,8,...) with the base average y. 2000 = 100 =**

**= index for the selected period in y. 2005 (6,7,8,...) with the base average y. 2005 = 100 from the new time series \* (7)**

**\*  $\frac{\text{index for January 2005 with the base average y. 2000 = 100 from the original time series}}{\text{index for January 2005 with the base average y. 2005 = 100 from the new time series}}$**