Methodology of the calculation of monthly data from quarterly data of the Labour Force Sample Survey

The source for processing of monthly data on employment and unemployment are data from the Labour Force Sample Survey (LFSS). A modified regression composite estimation method, which is applied for the monthly data calculation in the LFS was selected from several options available for processing of monthly estimates from a quarterly survey.

The model is based on estimation, which can be applied for repeated surveys with partially overlapping samples. In general, monthly outcomes' drawback is the zero overlap within the month-on-month comparison. There are quarter-on-quarter and year-on-year overlaps generally in the LFSS. The model is therefore constructed the way to improve stability. The Czech model of rotation panel in the LFSS uses a sample in the survey five times for the period of 15 months (five quarters). Thus the rotation panel scheme generates approximately 80% overlap of quarters, which defines trend.

Scheme of the rotation panel in the Labour Force Sample Survey

Survey period	Inclusion period											
1. quarter 2012	a5	b4	c3	d2	e1							
2. quarter 2012		b5	c4	d3	e2	f1						
3. quarter 2012			c5	d4	e3	f2	g1					
4. quarter 2012				d5	**e4**	**f3**	**g2**	**h1**				
1. quarter 2013					**e5**	**f4**	**g3**	**h2**	i1			
2. quarter 2013						f5	g4	h3	i2	j1		
3. quarter 2013							g5	h4	i3	j2	k1	
4. quarter 2013								h5	i4	j3	k2	l1

a, b   sample,

1 to 5   wave (repetition)

▭   the quarter surveyed

▭   80% overlap in the previous quarter

The monthly data gathered in the reference period for the given month are the basis of the estimate. The reference period for a month usually covers all reference weeks, in which at least one day is a part of the reference month.

Schedule of reference periods for the monthly processing in 2013:

Month	Reference week	Period length
January	1-5	5 weeks
February	5-9	5 weeks
March	9-13	5 weeks
April	13-18	6 weeks
May	18-22	5 weeks
June	22-26	5 weeks
July	26-31	6 weeks
August	31-35	5 weeks
September	35-40	6 weeks
October	40-44	5 weeks
November	44-48	5 weeks
December	49-52 (1)	5 weeks

In order to be able to compare trends a subpopulation is constructed, which includes the same persons, who have been already measured in the previous quarter and in the current quarter simultaneously. In order to stabilise the estimate an auxiliary variable of the economic status is

employed, which reflects a quarter-on-quarter change in employment and unemployment that affects the final weights of the month sample. Information on the previous status three months ago for persons in the overlapping rotation group is measured and serves as an auxiliary variable in a weight adjustment. The weight adjustment is carried out the standard way to demographic variables (region, sex, age group).

This estimation method includes adjustment of already adjusted trend data by a factor of level, which is in the second step used to adjust the final weights for the given quarter.

Table of auxiliary variables employed to adjust weights:

Basic variables of the given estimate	Auxiliary variables based on information from the previous employment status (three months ago)	
Population by NUTS-3 region, by sex, and by age group (14 groups)	The employed 3 months ago by NUTS-3 region, by sex, and by age group (14 groups)	The unemployed 3 months ago by NUTS-3 region, by sex, and by age group (14 groups)

The seasonal adjustment applies the method of indirect adjustment when respective components are adjusted first (for instance, as the numbers of the employed or unemployed males of a certain age group). Subsequently, adjusted final rates of employment, unemployment, or inactivity are calculated from these already adjusted data. Eurostat recommends this approach for the sake of identical methodology for all Member States involved in the monthly processing.