

## Methodological Summary on the assessment of breaks in the timeseries of Greek Labour Force Survey

The adoption of the new Framework Regulation of Social Statistics (EU 2019/1700, IESS) and the Implementing Regulation (EE) 2019/2240 for the Labour Force Survey, introduced important changes in the survey methodology.

All these changes are likely to have an effect on survey estimates – an effect that will not reflect changes in the labor market but changes in the way data is collected and estimates are generated. As a result, it is expected that there can be a break in the timeseries of the Labor Force Survey's estimates.

### Main changes in Greek Labour Force Survey due to the adoption of the IESS and expected effects on survey estimates

The adoption of IESS introduced changes affecting a both the design and the implementation of the LFS survey. The main changes concern:

- Data collection (general use of computer-aided interviews)
- The formulation of questions related to the employment status of respondents during the reference week (due to the adoption of a model questionnaire prepared by Eurostat)
- The computation of the weighting factors
- The definition of employment and, in particular, the treatment of person reporting having a job during but not working even for one hour

The change in the treatment of absences from work during the reference week is expected to decrease the estimated number of employed, since an important part of the people that were considered as employed with the old definitions (for example, self-employed) can be considered as not employed according to the new definitions.

The same change will have an indirect effect on the estimated number of unemployed, since this part of the respondents that were considered employed in the old survey (and are considered as not employed with the current definitions) will be asked questions about job search and will be classified as unemployed.

The introduction of the new question on small job, is expected to increase the estimated number of employed.

### Revision of previous survey results

In order to obtain a break-free timeseries of the Labour Force Survey, the results of the survey for the period 2009 – 2020 were recalculated taking into account the new definitions and questions introduced in the survey with the adoption of IESS.

For all quarters, the new weighting procedure was applied<sup>1</sup>. This resulted in rather small differences in the estimated number of employed and more significant in the estimated number of unemployed.

In a next step, all persons responding in a previous survey were classified (if possible) as employed, unemployed or outside labour force according to the new definitions. This procedure resulted in the following classification of the persons participating in a previous survey:

<b>Classification in the previous survey</b>	<b>Classification under IESS</b>
Persons having work at least one hour	Employed
Persons reporting a job, but not working even 1 hour in reference week	Employed
	Not Employed
	Unknown
Unemployed	Unemployed
Outside Labour Force	Unknown

Persons that report absence from a job during the reference week cannot always be classified according to IESS definitions, since they did not answer to the same questions when they were interviewed. The same holds for persons outside labour force.

The problem of the classification of these groups of persons was assessed by using correction factors. These correction factors were computed at an aggregated level based on the results of the survey of the first quarter of 2021.

The following 3 types of correction factors were computed for various combinations of sex, age group, professional status, and reason of absence from work in the previous quarters.

$$\text{CorrF1} = \frac{\textit{persons reporting absence from job and not employed}}{\textit{all persons reporting absence from job}}.$$

(that is, the percentage of persons that are classified as not employed over all persons that report absence from job, according to 2021 1<sup>st</sup> quarter results)

$$\text{CorrF2} = \frac{\textit{persons reporting a casual job}}{\textit{persons not having work and not being absent from a job}}$$

(that is, the percentage of persons that report a small job over all persons that report not having a job, according to 2021 1<sup>st</sup> quarter results)

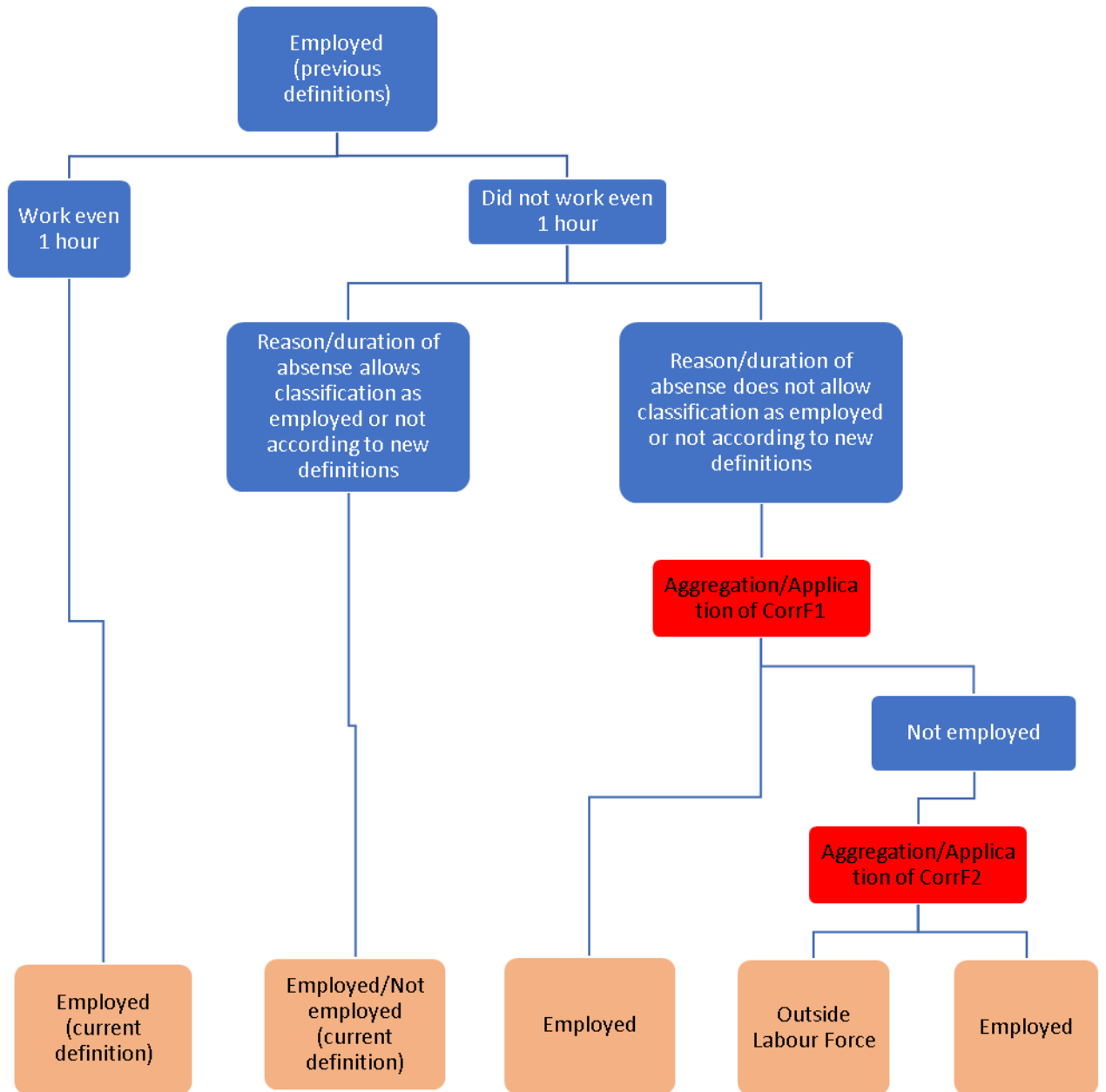
$$\text{CorrF3} = \frac{\textit{persons reporting have a job from which they were absent and are unemployed}}{\textit{persons reporting have a job from which they were absent and are not employed}}$$

(that is, the percentage of persons that are finally classified as unemployed though they reported having a job over all persons that report absence from job and they are not employed, according to 2021 1<sup>st</sup> quarter results)

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<sup>1</sup> From 2021, sample weights are applied for all members of the same household and in addition the results of the survey are now reduced to the estimated number of households in the country.

Revision procedure for employed



Revision procedure for not employed and not reporting having a job



## Revision results

Table 1.1 presents the revision results for the total number of employed by quarter, for the time period 2009 – 2020.

**Table 1.1 Revision results for the total number of employed**

QUARTER	INITIAL NUMBER OF EMPLOYED	FINAL ESTIMATION OF EMPLOYED	% DIFFERENCE FINAL-INITIAL	QUARTER	INITIAL NUMBER OF EMPLOYED	FINAL ESTIMATION OF EMPLOYED	% DIFFERENCE FINAL-INITIAL
2009a	4545,6	4523,2	-0.5	2015a	3504,4	3486,6	-0.5
2009b	4584,6	4585,4	0.0	2015b	3625,5	3628	0.1
2009c	4585,2	4591,6	0.1	2015c	3671,1	3686,8	0.4
2009d	4508,6	4492,9	-0.3	2015d	3641,7	3631,7	-0.3
2010a	4446	4414,9	-0.7	2016a	3606,3	3582	-0.7
2010b	4436,5	4427,3	-0.2	2016b	3702,6	3696	-0.2
2010c	4398	4391,2	-0.2	2016c	3736,7	3730,4	-0.2
2010d	4278,5	4263,3	-0.4	2016d	3648,6	3624,6	-0.7
2011a	4165,5	4135,8	-0.7	2017a	3659,3	3623,9	-1.0
2011b	4124,2	4120,7	-0.1	2017b	3791,4	3781,4	-0.3
2011c	4040,8	4039,2	0.0	2017c	3823,7	3823,8	0.0
2011d	3886,9	3865,5	-0.6	2017d	3736,3	3720,7	-0.4
2012a	3785	3749,3	-0.9	2018a	3723,8	3681,8	-1.1
2012b	3729,9	3712,1	-0.5	2018b	3860,4	3854,9	-0.1
2012c	3668	3653,9	-0.4	2018c	3894,2	3887,7	-0.2
2012d	3597	3562,3	-1.0	2018d	3833,7	3804,5	-0.8
2013a	3504,2	3465,1	-1.1	2019a	3814	3766,6	-1.2
2013b	3535	3524,4	-0.3	2019b	3956,4	3945,8	-0.3
2013c	3533,7	3523,4	-0.3	2019c	3971,9	3971,2	0.0
2013d	3479,9	3460,6	-0.6	2019d	3901,8	3893	-0.2
2014a	3483,7	3453,3	-0.9	2020a	3852,6	3731,4	-3.1
2014b	3539,1	3530,9	-0.2	2020b	3844	3490,9	-9.2
2014c	3586,9	3586,9	0.0	2020c	3926,8	3910,1	-0.4
2014d	3535,3	3526,2	-0.3	2020d	3878,5	3697,7	-4.7

During 2009-2019, the revision changes the initial results for employed from -1.2% to 0.4%. The average rate of change is -0,4%.

In the 4 quarters of 2020, the revisions are larger – an expected result due to the COVID pandemic and the increased number of persons reporting not having worked during the reference week but having a job.

Table 1.2 presents the revision results for the total number of unemployed by quarter, for the time period 2009 – 2020.

**Table 1.2 Revision results for the total number of unemployed**

QUARTER	INITIAL NUMBER OF EMPLOYED	FINAL ESTIMATION OF UNEMPLOYED	% DIFFERENCE FINAL-INITIAL	QUARTER	INITIAL NUMBER OF EMPLOYED	FINAL ESTIMATION OF UNEMPLOYED	% DIFFERENCE FINAL-INITIAL
2009a	476.7	489.9	2.8	2015a	1,272.5	1,273.5	0.1
2009b	455.6	460.7	1.1	2015b	1,180.1	1,180.1	0.0
2009c	477.9	478.8	0.2	2015c	1,160.5	1,154.8	-0.5
2009d	528.6	533.9	1.0	2015d	1,174.7	1,183.1	0.7
2010a	600.2	611.4	1.9	2016a	1,195.1	1,211.1	1.3
2010b	604.6	614.6	1.7	2016b	1,112.1	1,125.7	1.2
2010c	631.9	639.2	1.2	2016c	1,092.6	1,106.6	1.3
2010d	720.8	729.6	1.2	2016d	1,124.0	1,142.5	1.6
2011a	799.6	814.2	1.8	2017a	1,114.7	1,138.8	2.2
2011b	815.6	820.2	0.6	2017b	1,016.6	1,034.7	1.8
2011c	883.5	889.5	0.7	2017c	970.1	974.5	0.5
2011d	1,028.6	1,035.5	0.7	2017d	1,006.8	1,022.5	1.6
2012a	1,119.1	1,124.8	0.5	2018a	1,001.2	1,024.6	2.3
2012b	1,163.0	1,169.0	0.5	2018b	906.0	923.6	1.9
2012c	1,218.4	1,234.5	1.3	2018c	871.8	881.1	1.1
2012d	1,279.9	1,302.0	1.7	2018d	881.1	909.1	3.2
2013a	1,336.0	1,358.5	1.7	2019a	907.1	941.9	3.8
2013b	1,327.9	1,342.1	1.1	2019b	805.0	832.7	3.4
2013c	1,320.3	1,329.2	0.7	2019c	777.0	800.0	3.0
2013d	1,337.2	1,346.1	0.7	2019d	786.4	812.9	3.4
2014a	1,342.3	1,350.5	0.6	2020a	745.1	780.3	4.7
2014b	1,280.1	1,280.7	0.0	2020b	768.3	832.7	8.4
2014c	1,229.4	1,230.0	0.0	2020c	756.4	764.2	1.0
2014d	1,245.9	1,246.7	0.1	2020d	750.1	785.0	4.7

The effect of the revision in the number of unemployed is bigger: For the time period 2009 – 2019 the number of unemployed changes for -0.5% to 3.8%.

The change is again quite larger in the four quarters of 2020 and especially in the second quarter.

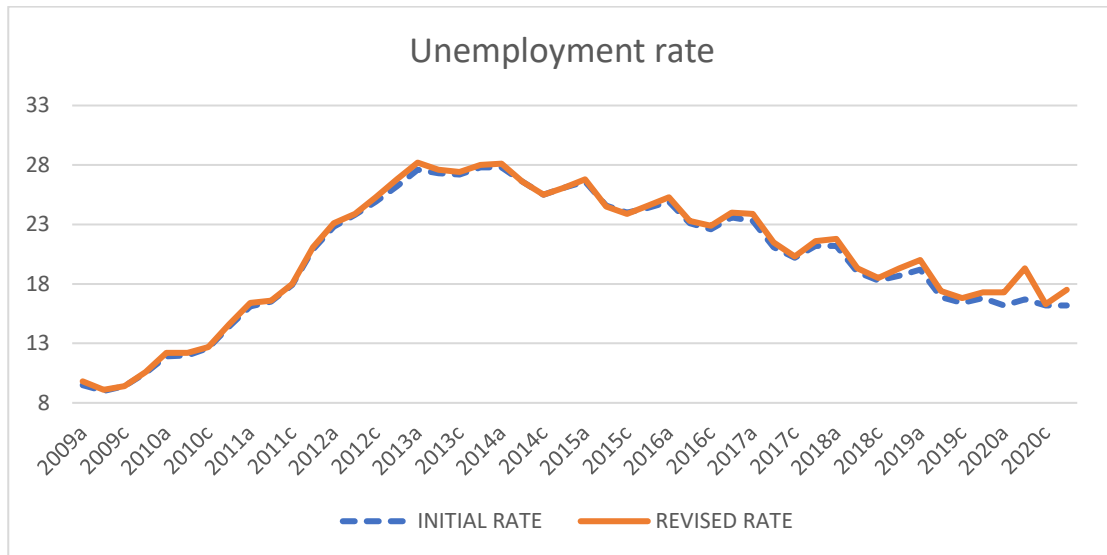
### Effect on unemployment rate

The change in the estimates of the number of employed and unemployed affects the estimated unemployment rate.

In most quarters, the final revised unemployment rate is higher than the initial. From 2009 to 2019 the change in the unemployment rate is on average 0.3% In 2020, the impact of the revision

is stronger: the total unemployment rate increases on average by 1.3 percentage points. The largest increase is recorded in the 2nd quarter of 2020 (2.6%).

**Graph 1 Revision effect on unemployment rate**



The final revised series result from the combination of the new weighting methodology and the application of correction factors at the aggregated level of certain combinations of sex, age group and professional status. The observed changes in the time period 2009-2019 are small while significant revisions occur only in the year 2020, a period characterized by the effects of the COVID pandemic on the labour market.