Unemployment – Monthly data – Sources and Methods

Boyan Genev – *Eurostat Unit F3 - Labour market and lifelong learning, Team Leader - LFS Main Indicators and Monthly Unemployment Rate,*

Nevena Cholakova – *Eurostat Unit F3 - Labour market and lifelong learning, Statistical Officer - Monthly Unemployment Rate statistics*

Abstract

From its onset, the unemployment data presented by Eurostat has followed the definitions of the International Labour Organisation, applied in a time consistent and harmonized manner by the EU Labour Force Survey (for quarterly and annual data). For the higher frequency monthly data, additional techniques were introduced, especially when additional sources are used, which merit particular attention.

Various strategies are in place at the level of EU Member States to deal with the challenge of the higher frequency of the data series, revealing the need for a systematic overview of the quality of the statistics. Combining data sources also requires addressing the quality impact on the compiled statistics. Background knowledge of the unemployment data and a mixture of techniques and responsibilities are a key feature of the process flow of this indicator.

This paper presents in detail the legal requirement for the provision of information on sources and methods for the monthly unemployment data and describes the process of fulfilling this requirement. After specifying the qualitative framework in the Commission Implementing Regulation (EU) 2019/2241, the paper illustrates in technical terms how all the relevant elements were combined in a structured and understandable way. The current version of the document on Sources and Methods is annexed to this paper and represents a new and integral part of the landscape of information on the monthly unemployment statistics.

The work done in this area supports the hypothesis of high comparability among countries and underlines the statistical relevance at EU level. In addition, many statistical elements were made clearer to a wider public and to advanced users. The outcome enables future analyses of time series methods and enhances the qualitative comparisons among them. The paper also outlines the quality challenges involved and outlines possible interlinks between the qualitative descriptions already published and the time series features subject to future investigations.

Keywords: quality, monthly data, unemployment, methods

1. Introduction

For over a decade, various strategies have been in place at the level of EU Member States as regards the monthly reporting of unemployment figures. Initially, the majority of national figures were compiled by Eurostat, which provided methodological support at any stage in the process. In the years prior to 2021 – the year European statistics relating to persons and households, based on data at individual level collected from samples - Regulation (EU) 2019/1700 – entered into force, several countries were able to completely take over responsibility for the monthly unemployment statistics. Currently, nine EU Member States do not compile monthly unemployment statistics according to the ILO standards, while an additional five countries are only able to do so after using auxiliary information from the national employment authorities. However, 17 countries are able to compile and nationally disseminate monthly unemployment statistics based solely on the EU Labour Force Survey, that is by Regulation a continuous survey, covering all weeks and months of the year. Thus, the variety of sources for the monthly unemployment rate represents a rarely known feature of this unemployment indicator. While the choice of source has not changed dramatically over the years, the choice of the methods used has seen a far more visible evolution.

2. Problem statement – the user needs

As one of the Principle European Economic Indicators, the Monthly Unemployment Rate (MUR) has proven to be both reliable and relevant. From the start of the data series, the unemployment data presented by Eurostat have followed the definitions of the International Labour Organisation (ILO), applied in a time consistent and harmonized manner by the EU Labour Force Survey (LFS). The monthly data on unemployment benefit from this, however, their higher frequency (compared with annual and quarterly LFS data) introduces additional statistical techniques, in many cases combined with additional sources and/or methods that deserve particular attention.

The current Implementing Regulation (EU) 2019/2241 refers to monthly unemployment statistics, solely in the cases where figures are compiled based on the LFS. In those countries engaging in the regular production of monthly unemployment figures fully and solely based on the LFS, additional methods of smoothening the time series volatility are often needed. As mentioned above, 17 countries currently follow this compilation strategy – so called Option 1.

‘Monthly unemployment inputs’ are provided from those countries (Option 2), being able to transmit to Eurostat ‘only’ the number of unemployed persons registered in the Public Employment Service. ‘Monthly unemployment estimates’ are conducted, when the ILO unemployment standards are met by the countries in complementing the LFS data by monthly registered unemployment data (Option 3). Table 1 presents an overview of the official definitions used for the data delivery options in the monthly unemployment domain. Independently from the compilation options, the Implementing Regulation – being the first regulatory act in the area of monthly unemployment statistics – required information delivery on Sources and Methods.

Table 1: Overview of definitions for the data delivery in the Monthly Unemployment Domain

Groups of options	**Definitions according to Implementing Regulation (EU) 2019/2241**
Option 1	record of the number of employed and unemployed persons, in accordance with the ILO definition as implemented in the labour force domain under Regulation (EU) 2019/1700
Option 2	record of the number of unemployed persons registered in the Public Employment Services of the Member States
Option 3	combination of quarterly data based on the ILO definition, as implemented in the labour force domain under Regulation (EU) 2019/1700, and monthly registered unemployment

From a user perspective, it is of the utmost importance to be assured that all the methods/options outlined above represent the unemployment data in a harmonized and comparable manner. What are the statistical methods employed to ensure this and under what conditions do they result in meaningful data series? Even though all options of compilation result in the same concept of ILO unemployment standards, what differences from a statistical point of view could be observed when looking at the data? Finally, how are the choices of statistical sources, methods and features interlinked in advanced technical aspects?

3. The flexible approach – from initiation to cooperation

Until the beginning of 2022, data sources for MUR had only been mentioned in a schematic overview in the Statistics Explained article ‘Unemployment Statistics’. More precisely, countries had been listed according to the availability of their national LFS data files at the date of dissemination of the monthly figures.

While some information on the data sources had been made available regularly, the statistical methods in place had been communicated in less detail and frequency, usually by the updates of Eurostat's metadata page. Countries' participation in that process was limited, however a great deal of help was always provided by the National Statistical Institutes in the event of complex user requests or data compilation issues.

The combination of the new Regulation entering into force as well as more countries taking over the responsibility for data compilation and dissemination called for a more active participation from all sides involved in the statistical process. The aim was not only to list or document, but to actively explain, regularly update and clearly communicate the way in which the monthly unemployment statistics are produced.

Eurostat started the project of creating such an explanatory document by launching an iterative procedure of reflections and discussions with partners. At the very first stage of the reflection, Eurostat proposed for discussion a tabular form that lists all the important milestones in the statistical data production for MUR. It started with the option 1 countries – those with the LFS data extractions on monthly basis. The first bilateral discussions took place between Eurostat and some of the partners, largely confirming Eurostat's understanding of the production process for option 1.

Similarly, for options 2 and 3 country templates were prepared, however also including slots for data sources used as auxiliary variables. For those countries, Eurostat proposed a description of the steps performed in house as well as their timing and frequency.

For all three options, the vertical structure of the templates was defined by the chronology of the processing of the steps. Horizontally, the forms were divided into columns describing i) the Performing Institution, ii) the Description of the subject matter, and finally iii) the Frequency and timing of the operations.

The first official discussion on the topic of Sources and Methods for MUR took place in the June 2021 Labour Market Statistics (LAMAS) working group. There, it was discussed how to optimize the template's structure. Member States' delegates provided many valuable suggestions on how to fine tune the initial draft template.

Eurostat then finalized the templates for all the statistical options and asked the Member States to complete them, by the mutually agreed deadline of June 2022. Eurostat also indicated an

openness to respond to any further questions. Reminders were sent around the time of the deadline and questions on from the Member States were answered.

After receiving all completed templates, they were sorted by statistical option and compiled into a single document to facilitate access to this information for statistical users. In the following reflection phase, the individual templates were checked for coherence, completeness and consistency. In some cases, Member States were asked to elaborate further their methods or provide additional information such as links to relevant sources. Such re-iterations proved very efficient in order to present all necessary details in a uniform way.

Furthermore, Eurostat prepared an introduction to the document explaining the legal background. A schematic overview of the different statistical options was included, as well as some advanced interdependencies, focusing on data volatility and magnitude of revisions. Finally, all links provided by Member States were compiled in an extra table and are shown on the last page of this document, for the ease of users. The final document, presented here under item 6. Annex - Sources and Methods Portfolio, was published in October 2022 as part of the metadata for the MUR, fully accessible to the public. In parallel, a second copy was added to the methodology tab under the corresponding Statistics Explained article ‘Unemployment Statistics’.

4. Value added – enriching the landscape of qualitative information

Since the publication, Eurostat has been able to refer users to this document to answer their questions on the monthly unemployment rate.

A wide range of questions posed by external users can now be addressed by the document. A systematic answer can even be given to queries regarding comparisons between selected countries. Furthermore, confusion between administrative unemployment figures in the media and ILO based unemployment statistics can now be addressed and even prevented, as the separation is now visible at first glance.

In a similar way, in the event of questions from Member States, the document can be used to cross-reference methods of other countries in the same statistical option. This is particularly important when the partners in the European Statistical System are considering substantial changes. In such periods, methodologists analyse the compilation techniques used by their colleagues in detail. They usually aim at a more reliable data production process, better

timeliness and/or qualitative aspects and communication. Pressured by new needs or circumstances, statistical producers search for extensive documentation of similar processes and often approach Eurostat for advice. Table 2 illustrates the most typical examples of queries directed to Eurostat, for which the document on sources and methods for MUR has proved to be very helpful.

Table 2: Summary of frequently asked questions where the Sources and Methods - Portfolio document was used to support the reply

Type of institution	Illustrative wording of the questions
National Bank	• In the national media, the numbers presented on unemployed persons are different to those presented by Eurostat. • Why is this so and what is the source of Eurostat's figures? • How can the documentation of the own unemployment database be improved?
National Statistical Institute	• When we decide to review our methods, how can we know what country is using what method? • Are there any institutes that use similar software for the seasonal adjustment step? • What does Eurostat use as software and what are the parameters chosen?
Journalists	• Where can I find not only Eurostat's monthly unemployment figures but also the corresponding statistical reports of a particular country? • What national source does Eurostat use?

A smaller component illustrating monthly unemployment data techniques, in general terms, was already published several years ago. This is a technical summary on temporal disaggregation and benchmarking based on the modified proportional Denton method and the paper is also part of the relevant metadata. It describes how it is ensured that monthly levels of employed as well as unemployed persons are consistent with the quarterly numbers. It does not however explain why the so-called statistical benchmarking is necessary – and how often. In this context, the new document on sources and Methods for MUR also provides an excellent tool for serving the detailed analytical needs. The combination of the technical summary on benchmarking and the detailed documentation of methods for all countries using this technique answers the questions why, where and when these kinds of computations are performed.

When looking at a wider qualitative framework, advanced users often start their research by studying the regularly updated LFS quality reports. Here again, for all participating countries, detailed information is provided on the way LFS data is collected and compiled. The operations

described in the established LFS quality reports are however for quarterly and annual periodicity. The sources and methods document offers to those advanced studies the qualitative information needed to fully understand the interlink with the monthly unemployment data – the only LFS based time series with a monthly frequency for the time being.

Furthermore, the document being a final product of a cooperation between Member States and Eurostat significantly augmented the metadata for the monthly unemployment statistics. This is an important aspect of the architecture provided in relation to the data itself, as there has never been separate quality reporting established by a Regulation to Member States in the case of the MUR indicator.

Finally, it should be noted that the outcome of the work done so far does not only serve as documentation. The sources and methods document fills a gap in the provision of qualitative information and has therefore a high explanatory value. Therefore, it also stays as an integral part of the most frequently visited Statistics Explained article in relation to unemployment data. One additional element – described more in detail in the next chapter – is the forward orientation and the dynamics of the process. Although based on sound methodology, improvements in some sources and methods are likely to happen for the MUR indicator. Quality assessment and transparency of the changes need to be provided in such cases and Eurostat remains committed to use the existing documentation tools for doing so. In this context the presented outcome could be regarded as a good example of implementation of the principles of the European Statistics Code of Practice.

5. Outlook – the way forward

Since 2022, up to date documentation on sources and methods used for the MUR indicator is a substantial part of the information provided to statistical users and partners. It should not be regarded as a one-off process or as a single piece of information. Eurostat, as well as all statistical partners, are committed to providing updates – as early as possible – as soon as changes in the sources and/or methods involved in the indicator compilation occur. The Implementing Regulation requests proactive behaviour on the part of the compilers by communicating upcoming changes in methods two months in advance of actual implementation.

In order to keep the document, as included in the indicator's metadata, up to date within real time – practically on a monthly basis – Eurostat stays in permanent contact with the partners

using or providing the data. Moreover, potential new partners are always referred to the most recently available documentation for clarity and comparison. This is to ensure the quality of new developments and a timely and exhaustive documentation.

Advanced analysis of statistical data features will also be supported. Eurostat is required by the Implementing Regulation to carry out a detailed quality assessment exercise of the MUR indicator every three years. This includes performing, analysing and communicating technical parameters of the time series as published by Eurostat. These parameters or quality indicators of the MUR series are of high complexity and are predefined in Annex IV of the Implementing Regulation. Two groups of parameters are looked at: revisions and volatility.

To facilitate the understanding of the cause-consequence relationship, Eurostat will be using, among others, the sources and methods documentation. The aim is to show what sources and what methods cause what kind of time series behaviour, as observed in the headline unemployment series at country level. Consequently, such an analysis will enable conclusions at EU and EA level as regards revisions and volatility aspects of the monthly unemployment data. In this sense, the document on sources and methods in the monthly unemployment rate can be regarded as a significant achievement for assuring quality and accompanying change.

6. Annex – Sources and Methods Portfolio

SOURCES AND METHODS FOR MUR - PORTFOLIO

Table of contents

I. Introduction to Sources and Methods in the Monthly Unemployment Rate

Legal Basis

The legal basis for this document is the Commission Implementing Regulation (EU) 2019/2241 ('MUR implementing act'), which states that Member States should transmit to the Commission (Eurostat) a description of the sources and methods used to produce monthly unemployment data. Article 6 "Sources and methods" of the Regulation lists broadly the information needed from Member States and groups them by delivery option based on their methodological features:

Options	Reference in Regulation 2019/2241	List of Countries – according to the descriptions
Option 1 - MUR Statistics	Article 2 § (1), Article 3 § (2), Annex 1.	Czechia, Denmark, Germany, Estonia, Greece, Hungary, Italy, the Netherlands, Austria, Portugal, Romania, Finland and Sweden. Iceland, Norway, Switzerland and Turkey.
Option 2 – MUR Inputs	Article 2 § (3), Article 3 § (3), Annex 2.	Belgium, Bulgaria, Cyprus, Spain, Croatia, France, Luxembourg, Poland and Slovakia.
Option 3 – MUR Estimates	Article 2 § (4), Article 3 § (4), Annex 3.	Ireland, Latvia, Lithuania, Malta, Slovenia.

Option 1 countries are those where monthly unemployment statistics are compiled using monthly LFS data as a source. *Option 2* countries deliver 'monthly unemployment inputs' where countries provide registered unemployment counts and Eurostat compiles the monthly unemployment estimates, benchmarked on quarterly LFS data, on their behalf. For *Option 3* countries, 'monthly unemployment estimates' are transmitted, which are obtained on national level by benchmarking monthly indicators derived from administrative sources on quarterly LFS data and subsequently nowcasting the data up to reference point of interest.

In addition to the current presentation of Sources and Methods, Article 6 of the Regulation states that Member States shall inform the Commission (Eurostat) of any methodological changes and timely transmit an updated description.

Also related to the feature of the Monthly Unemployment Rate, Article 7 of the Regulation states that the quality of monthly unemployment data shall be monitored through a set of commonly agreed and uniformly applied indicators. According to a LAMAS decision in June 2022, this monitoring will be carried out in 2025 using indicators on revisions and volatility as laid out in the Annex of the Regulation.

Content & Structure of the document

In order to present their sources and methods for MUR, in 2022 the Member States filled in templates with a uniform structure, presented in tabular form, with different categories according to the country's delivery option. The submitted templates are presented in section two of this document.

In their columns, the templates include features such as the institution compiling the data, a description as well as the frequency and timing of each process as column names. In the different rows, countries listed the steps in the process of MUR data production – in chronological order – and described them in detail. These steps can be summarized in three different categories, called Chapters A, B and C.

Items in Chapter A refer to the availability and the inclusion of source data – and their features (A1, 2 and 3 depending the options of MUR). In Chapter B, the compilation steps are explained (B1) and the estimation procedures used for data points with missing LFS data (B2) are listed. The rows in Chapter C deal with the presentation of data: seasonal adjustment, national and Eurostat data availability (C1) and frequency of national dissemination (C2).

Following the individual countries' templates, Annex I presents all links to national sources and publications provided by the Member States.

Additional Information

Advanced users often analyze two aspects of the Monthly Unemployment Rate with caution – the volatility of the time series, as well as the revisions of the last data point(s). Both aspects can to a big extent be explained by the methods presented in the national descriptions. Too high volatility (often associated with *Option 1* countries) might for example be the result of the monthly sample sizes indicated in Chapter A of those countries' templates. Too low volatility might be result of decisions made in the Seasonal Adjustment area, presented in Chapter C.

Monthly unemployment data can be subject to revisions, caused by updates to the seasonally adjusted series whenever new monthly data are added; the inclusion of the most recent LFS data in the calculation process; update of seasonal adjustment models with complete annual data. The second of those reasons for revisions - the inclusion of quarterly LFS data, *directly concerns* the countries in *Options 2* and *3, and therefore each of them* indicate the timing for quarterly data inclusion in the last column of their template.

II. Descriptions of Sources & Methods

1. Option 1 Countries

1.1 Czechia			
Process Type	*Performing Institution*	*Description*	*Frequency & Timing*
A.1. Source data: monthly extractions from LFS	NSI	All data follow the ILO concept from the onset. LFS microdata (of the average sample size 13910 dwelling units per month) is aggregated every month for obtaining the number of people in each ILO status. Overall theoretical monthly sampling rate including non-response is 0.23%. The following month always overlaps the last week of the previous month. The first reference week of month April is the last reference week of month March. In April 2022, the average response rate was nearly equally distributed in each week, reaching the response rate of 69% to 70%. The response rate is an average of 1820 households each week and an average of 9700 households each month. An Oracle database is used.	Every month, between 21st - 26th day of the month following the reference month the source data is computed and considered as final
B.1. Monthly time series: compiling NSA data for the months covered by LFS data	NSI	Monthly weighting is applied using a regression composite estimate. The model is based on the estimate for repeated surveys with partially overlapping samples. At the end of the quarter, when quarterly LFS microdata are available, the monthly data in that quarter is updated and a calibration procedure is applied for monthly weighting. Monthly weighting is applied in accordance with the LFS calibration procedure. The output are absolute levels for employed and unemployed persons in the reference month.	Every month, as soon as new data from the processes A1 become available. The process is finalised before the 27th day of the month following the reference month.
C.1. Seasonal Adjustment – and presentation of headline indicators	NSI	TramoSeats, Specification RSAfull (without calendar effects) is used in JDemetra+. Indirect approach is in place, starting with the breakdowns. Presentation on Eurostat level – NSA, SA and TREND data are presented online. The headline figures in the Eurostat press release are the Seasonally Adjusted data.	Once a year, when Q4 data becomes available in the course of March. Updated models kept unchanged for 12 months.
C.2. National releases	NSI	The headline figures in the national press release are trend data. Presentation on the national database – only Seasonally Adjusted series and trend are presented. The national press release for April is available online on the website (the time series are part of the supplements) https://www.czso.cz/csu/czso/ari/rates-of-employment-unemployment-and-economic-activity-april-2022, with links to the following months. The current monthly figures are added to the table every month on website (they are not a time series) https://vdb.czso.cz/vdbvo2/faces/en/index.jsf?page=vystup-objekt&pvo=ZAMD006&f=TABULKA&z=T&katalog=30853&str=v467	MUR data are published on the 31th day of the month following the reference month. And on the same days as Eurostat press release.

1.2 Denmark			
Process Type	*Performing Institution*	*Description*	*Frequency & Timing*
A.1. Source data: monthly extractions from LFS	NSI	After error checking and automatic coding, the survey data is extracted according to the reference weeks of the month being compiled. Weights are then calibrated using the same sources as in the quarterly LFS, albeit at a more aggregated level due to the smaller sample size. The sample consists of either around 10.000 or 12.500 persons aged 15-74, according to whether the month contains 4 or 5 reference weeks. The response rate in 2022 has been between 40% and 50%. The output are absolute levels for employed and unemployed persons in the reference month.	Every month, on the 25th or 26th day of the month following the reference month the source data is computed and considered as final.
B.1. Monthly time series: compiling NSA data for the months covered by LFS data	NSI	The levels of unemployment and employment are benchmarked to the quarterly numbers using an additive Denton-Cholette method. The method is applied to the series disaggregated on male/female and below/above 25 years old. The additive property of the benchmarking method ensures consistency between the aggregate and the components. Aggregates on employment and unemployment are produced from the components.	Every month, as soon as new data from the processes A1 become available. The process is finalised before the 27th day of the month following the reference month.
C.1. Seasonal Adjustment – and presentation of headline indicators	NSI/Eurostat	Seasonal adjustment is performed (using the X-13 method using the JDemetra+ software) on the aggregated series, as the components are too noisy to exhibit clear seasonal patterns. In order to not cause inconsistencies in the disaggregated series, the seasonal pattern is assumed to be the same across the components. In practise, this means applying the seasonal factors of employment and unemployment to their respective components. As the population does not exhibit seasonality, the number of persons outside the labour force is calculated residually using the respective series, both for the seasonally and non-seasonally adjusted series. The trend component is calculated separately from the seasonal adjustment, using an HP filter.	Seasonal adjustment is applied every month and the series is adjusted backwards of a three year period.
C.2. National releases	NSI	Six time series are published in the table AKU111M in the Danish Statbank (https://www.statbank.dk/statbank5a/SelectVarVal/Define.asp?MainTable=AKU111M&PLanguage=1&PXSId=0&wsid=cftree); the unemployment rate, the employment rate and participation rate, both seasonally adjusted and not seasonally adjusted. Due to the large volatility of the series, no subcomponents are published.	The data are published along with the register unemployment on the last working day of the month following the reference month.

1.3 Germany			
Process Type	*Performing Institution*	*Description*	*Frequency & Timing*
A.1. Source data: monthly extractions from LFS	Federal Statistical Office, Germany	LFS microdata (of the average sample size 41.000 per month) is aggregated every month for obtaining the number of people in each ILO status. The datasets used for computing the monthly result of month May 2022 consist of 30% answers from the first reference week, 28% from the second, 24% from the third and 18% from the last week. Monthly weighting is applied in accordance to the LFS calibration procedure. The output are absolute levels for employed and unemployed persons in the reference month. A SAS database is used.	Every month, between 20st - 26th day of the month following the reference month. The source data is computed and considered as provisional, due to a quarterly and yearly update.
B.1. Monthly time series: compiling NSA data for the months covered by LFS data	Federal Statistical Office, Germany /Eurostat	The pure monthly LFS extraction of NSA data forms new NSA series that are processed in JDemetra+.	Every month, as soon as new data from the processes A1 become available. The process is finalised before the 28th day of the month following the reference month.
C.1. Seasonal Adjustment – and presentation of headline indicators	Federal Statistical Office, Germany /Eurostat	Presentation on Eurostat level – NSA and TREND data are presented online. TREND data is labelled as SA in the online database. The headline figures in the Eurostat press release are the TREND data. X13 ARIMA methodology is used for this purpose, in indirect approach. The models are automatically detected by JDemetra+.	Once a year, when Q4 data becomes available in the course of March. The X13 ARIMA models are automatically detected by JDemetra+. Updated models kept unchanged for 12 months.
C.2. National releases	Federal Statistical Office, Germany	The headline figures in the national press release are usually TREND data (X13 ARIMA), but NSA data are presented either. Press release: https://www.destatis.de/EN/Themes/Labour/Labour-Market/Unemployment/_node.html Database: Presentation in the national database include NSA series and two TREND data series	MUR data are published at the earliest on the 29th day of the month following the reference month.

		(X13 ARIMA and TREND BV 4.1.). https://www-genesis.destatis.de/genesis/online?sequenz=statistikTabellen&selectionname=13231&language=en#abreadcrumb	

1.4 Estonia			
Process Type	*Performing Institution*	*Description*	*Frequency & Timing*
A.1. Source data: monthly extractions from LFS	NSI	In Estonia ELFS microdata is aggregated every month for obtaining the number of people in each ILO status. The average response rate varies between 73,3% in the first reference week of month April 2021 and 74,0% in the last. The average sample size per month in the last 12 months is approximately 1.560 households. Considering the year of 2021, the average response rate varied between 66.5% in August and 74,6% in February Monthly weighting is applied in accordance with the LFS calibration procedure. The output are absolute levels for employed and unemployed persons in the reference month. A R software is used for aggregating data from Oracle database is used.	Every month, between 21st - 26th day of the month following the reference month the source data is computed and considered as final. For instance, on the 25th of May for the reference month of April, which corresponds to the 3MMA Mar-Apr-May. The estimates for the last reference month are provisional and revised in the subsequent data extraction, when it's considered final.
B.1. Monthly time series: compiling NSA data for the months covered by LFS data	NSI	Estonian LFS monthly data are 3 months moving averages, with the reference month being the middle month. With the most recent data point of the NSA monthly data, a forecast is made for one month ahead (as 3 months average). The methodology used is ETS AAN forecasting model of package 'forecast' in R. The input for forecasting is 3 months moving averages timeseries since 2009. In the same time, the forecasts made one month ago by the same methodology are revised.	Every month, as soon as new data from the processes A1 become available.
C.1. Seasonal Adjustment – and presentation of headline indicators	NSI	Seasonal adjustment is done using TRAMO-SEATS method ('tramoseats' function, specification RSA3 with default parameters) of package 'RJDemetra' in R and the indirect approach is in place, starting with the breakdowns. NSA, SA and TREND data are transmitted to Eurostat and the headline figures in the Eurostat press release are the Seasonally Adjusted data.	Models are kept unchanged.

C.2. National releases	NSI	MUR data is not published in the database and no press release is published.	MUR data is not published.

1.5 Greece			
Process Type	*Performing Institution*	*Description*	*Frequency & Timing*
A.1. Source data: monthly extractions from LFS	NSI	LFS microdata is aggregated every month for obtaining the number of people in each ILO status. Monthly weighting is applied in accordance with the LFS calibration procedure. In April 2022, the sample size used for the production of monthly results transmitted to Eurostat was 3.024 households, while the final monthly sample used in the production of LFS quarterly results was 4.269 households. The monthly response rate was 70,8%, ranging from a response rate of 59,8% in the first week to 72,5% in the last week. The output are absolute levels for employed and unemployed persons in the reference month. A SPSS database is used.	Every month, between 21st - 27th day of the month following the reference month the source data is computed and considered as final
B.1. Monthly time series: compiling NSA data for the months covered by LFS data	NSI/Eurostat	The pure monthly LFS extraction of NSA data forms new NSA series that are processed in JDemetra+.	Every month, as soon as new data from the processes A1 become available. The process is finalised before the 27th day of the month following the reference month.
C.1. Seasonal Adjustment – and presentation of headline indicators	NSI/Eurostat	TramoSeats, Specification RSA3 (without calendar effects) is used in JDemetra+. Indirect approach is in place, starting with the breakdowns. Presentation on Eurostat level – NSA, SA and TREND data are presented online. The headline figures in the Eurostat press release are the Seasonally Adjusted data.	Once a year, when Q4 data becomes available in the course of March. Updated models kept unchanged for 12 months.
C.2. National releases	NSI	In the National press release the headline indicator is the SA unemployment rate. The following are also presented: • SA unemployment rate by sex and age (15-24, 25-74) for the reference month in the last 6 years • SA and NSA employed, unemployed (stock) and unemployment rate for the last 6 years SA and NSA figures (employed, unemployed, inactive and unemployment rate) since 2004 are also available in Excel file https://www.statistics.gr/en/statistics/-/publication/SJO02/-	MUR data are published between the 10th and 18th day of the second month following the reference month (e.g. MUR for February 2022 was published in April 13, 2022).

1.6 Hungary			
Process Type	*Performing Institution*	*Description*	*Frequency & Timing*
A.1. Source data: monthly extractions from LFS	NSI	Average sample size was 12.680 per month in the last 12 months. The average response rate for the first reference week of May was 77,8% and the average response rate for the last reference week of May was 52,3%. Monthly weighting is applied in accordance with the LFS calibration procedure. The output are absolute levels for employed and unemployed persons in the reference month. A SAS database is used.	Every month, between 21st - 26th day of the month following the reference month the source data is computed and considered as final.
B.1. Monthly time series: compiling NSA data for the months covered by LFS data	NSI/Eurostat	HSCO uses model estimation to calculate monthly employment and unemployment data from January 2023. "State space" models are used, supported by the monthly raw estimates of the LFS, as well as administrative data from the National Tax and Customs Administrations and the National Employment Service, to produce a more precise estimation of monthly data. Data are revised from January 2011 to December 2022.	Every month, as soon as new data from the processes A1 become available. The process is finalised before the 27th day of the month following the reference month.
C.1. Seasonal Adjustment – and presentation of headline indicators	NSI/Eurostat	JDemetra+ 2.2.0, TramoSeats, RSAFull with Hungarian calendar, direct approach; Last outliers; Presentation on Eurostat level – NSA, SA and TREND data are presented online. The headline figures in the Eurostat press release are the Seasonally Adjusted data. In HCSO we have a centralised, standardised modelling method for the seasonal adjustment of every time series. We use RSAFull method, which means we test that we should use any calendar effect during the adjustment or not. In LFS data there were no significant calendar effects, thus they are not in the models. But we tested it, so we used RSAFull method, not RSA3. In this case the results of the two methods are the same. We seasonal adjusted the total unemployment simultaneously with the breakdowns. That's why we mentioned direct approach.	Model revision once a year, before m1 data becomes available. Updated models kept unchanged for 12 months.
C.2. National releases	NSI	Currently we publish monthly model estimations and 3 MMA (seasonally not adjusted) unemployment indicators calculated from raw LFS data. The headline indicator is the 3MMA data. First releases: https://www.ksh.hu/gyorstajekoztatok/#/en/list/mun Economic activity of population aged 15–74 by sex, monthly: https://www.ksh.hu/stadat_files/mun/en/mun0097.html Economic activity of population aged 15–74 by sex, 3 months mean data: Economic activity of population aged 15–74 by sex, 3 months mean data	3MMA data are published on the 28th day of the month following the reference month.

1.7 Italy			
Process Type	*Performing Institution*	*Description*	*Frequency & Timing*
A.1. Source data: monthly extractions from LFS	NSI	LFS microdata (of the average sample size, in the last year, of 40.097 thousand individuals for month) is aggregated every month for obtaining the number of people in each ILO status. The response rate varies between 87% in the first reference week of month March 2022 and 85% in the last. Monthly weighting is applied in accordance with the LFS calibration procedure. The output are absolute levels for employed and unemployed persons in the reference month. A SAS database is used.	Every month, between 21st - 26th day of the month following the reference month the source data is computed
B.1. Monthly time series: compiling NSA data for the months covered by LFS data	NSI	The pure monthly LFS extraction of NSA data forms new NSA series that are processed in JDemetra+. NSA monthly data of the last quarter are revised as soon as the quarterly data are available. No forecasts are made.	Every month, as soon as new data from the processes A1 become available. The process is finalised before the 27th day of the month following the reference month.
C.1. Seasonal Adjustment – and presentation of headline indicators	NSI	TramoSeats, specification RSA3 (without calendar effects) is used in JDemetra+. Indirect approach is in place, starting from January 2004 breakdown. Presentation on Eurostat level – NSA and SA data are presented online. The headline figures in the Eurostat press release are the Seasonally Adjusted data. Italy does not release the Trend component, that is therefore excluded from any transmission.	Models are updated once a year, when January data becomes available (in the course of March). Updated models kept unchanged for 12 months.
C.2. National releases	NSI	The headline figures in the national press release are SA data. Presentation on the national database – both SA and NSA series are presented. The monthly SA and NSA data is available on dati.istat.it, the data warehouse of Istat, in section "Labour and wages/Labour offer", while monthly press releases are available on www.istat.it/en/archive/employment+and+unemployment	MUR data are published after 30 days from the end of the reference month.

1.8 The Netherlands			
Process Type	*Performing Institution*	*Description*	*Frequency & Timing*
A.1. Source data: monthly extractions from LFS	NSI	LFS microdata (with an average sample size of 19 thousand per month) is aggregated every month for obtaining the number of people in each ILO status. The response is uniformly distributed across the reference weeks. Monthly weighting is applied per wave. The output are absolute levels for employed and unemployed persons by sec and age in the reference month.	Example: Every month, the week after the last reference week of that month the source data is computed and considered as final
B.1. Monthly time series: compiling NSA data for the months covered by LFS data	NSI/Eurostat	Statistics Netherlands uses a multivariate structural time series (STS) model for the production of monthly labour force figures. The Labour Force Survey (LFS) is based on a rotating panel design. Each month a new sample enters the panel. Taking into account the most recent monthly data, the model is updated. The analysis is conducted with software developed in OxMetrics in combination with the subroutines of SsfPack 3.0, see Doornik (2009) and Koopman et al. (2008). For the most recent description of the model used, see https://www.cbs.nl/-/media/_pdf/2022/03/lfs-redesign-2021.pdf. The Labour Force Survey (LFS) is based on a rotating panel design. Each month a new sample enters the panel. This sample is observed five times at quarterly intervals. After the fifth interview round, the sample leaves the panel. As a result of the rotation scheme, each month data are collected in five independent samples, i.e. the sample of the first wave that enters the panel for the first time, the sample the second wave that entered the panel three months ago and that is observed for the second time, the sample of the third wave that entered the panel six months ago and is observed for the third time, etc. From this, a five dimensional time series can be constructed, which is the input of the STS model. This model is an extension of the model proposed by Pfeffermann (1991). The population parameter in the STS model is modelled with a so-called basic structural time series model, i.e. $\theta t = Lt + St + It$ with Lt a time-varying or dynamic trend model for the low frequency variation in the series of the population parameter, St a dynamic seasonal model for the monthly effects in the series and It a white noise component for the unexplained variation of the population parameter. For Lt the so-called smooth trend model and for St the trigonometric seasonal model are used, see Durbin and Koopman 2012, Ch. 3 for details.	Every month, as soon as new data from the processes A1 become available. The process is finalised before the third Thursday after the end of the reference month.

		The general way to fit the STS model, is to express the model in the so-called state space representation and apply the Kalman filter to obtain optimal estimates for the state variables, see e.g. Durbin and Koopman (2012). State variables are the variables that define the different components in the structural time series model, like the level of the trend, the variables that define the seasonal effects, the RGB etc. Filtered estimates for state variables for period t are based on the information available up to and including period. The NSA data are the filtered estimates for Lt +St.	
C.1. Seasonal Adjustment – and presentation of headline indicators	NSI/Eurostat	The trend/seasonal adjusted data are the filtered estimates for Lt. Hence, trend and seasonal adjusted data are identical. These trend/seasonally adjusted estimates are presented as the headline indicators.	The model is updated continuously, published estimates are not revised.
C.2. National releases	NSI	The headline figures in the national press releases are trend/seasonally adjusted data. In the national database – both NSA series and trend/seasonally adjusted data are presented.	MUR data are published on the third Thursday after the reference month.

1.9 Austria			
Process Type	*Performing Institution*	*Description*	*Frequency & Timing*
A.1. Source data: monthly extractions from LFS	NSI	LFS microdata with an average sample size of 7.500 households per month is aggregated every month for obtaining the number of people in each ILO status. The average response rate varies between approximately 95% in the first reference week of the reference month and about 85% in the last reference week of the reference month. Monthly weights are computed almost the same way as quarterly weights. Weights are calibrated with the iterative proportional fitting procedure, some of the quarterly calibration specifications are not used. The output are absolute levels for employed and unemployed persons in the reference month. The complete monthly LFS datasets are stored as SPSS-files.	Every month between the 21st and the 25th day of the month following the reference month current LFS data (from the ongoing quarterly survey) is used for computing monthly figures for the months of the latest unpublished quarter. Once the whole quarter is finalized all corresponding monthly figures are finally computed (the previous flash estimates are replaced by final monthly estimates).
B.1. Monthly time series: compiling NSA data for the months covered by LFS data	NSI/Eurostat	Pure monthly LFS data give the NSA flash values. NSA series contain flash- and final monthly figures, the latest months are based on incomplete LFS datasets. Once a LFS quarter is finalized, flash monthly NSA figures of this quarter are replaced by final monthly NSA figures (final monthly figures are adapted to fit the quarterly values).	Every month as soon as new data from the process A1 become available. The process is usually finalised before the 27th day of the month following the reference month (exception reference month November: due to public holidays, MUR figures are finished either earlier or later for about one week).
C.1. Seasonal Adjustment – and presentation of headline indicators	NSI/Eurostat	TramoSeats, specification RSA3 (without trading days) is used in R (package "persephone" which includes JDemetra+). For SA and TREND series the indirect approach is used, i.e. lowest subgroups are adjusted directly and all aggregates are computed out of it.	Once a year, with the first publication of January figures, SA models are evaluated and

		Presentation on Eurostat level: NSA, SA and TREND data are presented online. The headline figures in Eurostat press release are the seasonally adjusted figures.	updated. The models are left unchanged for 12 months.
C.2. National releases	NSI	The headline figures in the national web table are seasonally adjusted data as well as not adjusted data. SA and NSA series of monthly unemployment rates for total population (aged 15-74), men , women and young persons are presented, as well as the NSA total number of unemployed persons (aged 15-74). See https://statistik.gv.at/en/statistics/labour-market/unemployment/unemployed-seeking-work > Further data > ILO unemployment monthly results	MUR data are published the working day before the Eurostat press release on monthly unemployment. Usually this date lies between the 29th day of the month following the reference month and the 2nd day of the month after next.

1.10 Portugal			
Process Type	*Performing Institution*	*Description*	*Frequency & Timing*
A.1. Source data: monthly extractions from LFS	NSI	In Portugal, LFS microdata is aggregated every month for obtaining the number of people in each ILO status. Estimates correspond to three-months moving averages (for instance, the reference month of April comprises the months of March-April-May) and no forecast is included, although the data collection for the third month of the moving average is still incomplete. Therefore, the estimates for the last reference month are provisional and revised in the following month. Until the 4th quarter of 2020, the average gross sample size was of 22.572 dwellings per reference month. Between the 1st quarter of 2021 and the 1st quarter of 2022, the sample size was steadily increased in each quarter, corresponding to an average of 26.334 dwellings per reference month. From the 2nd quarter of 2022 onwards, the average gross sample size is of 30.096 dwellings. Considering the year of 2021, the average response rate varied between 50,4% in February and 54,2% in November. Monthly weighting is applied in accordance with the LFS calibration procedure. The output are absolute levels for employed and unemployed persons in the reference month. An Oracle database is used.	Every month, between 23rd - 26th day of the month following the reference month the source data is computed. For instance, on the 25th of May for the reference month of April, which corresponds to the 3MMA Mar-Apr-May. The estimates for the last reference month are provisional and revised in the subsequent data extraction, when it's considered final.
B.1. Monthly time series: compiling NSA data for the months covered by LFS data	NSI	Although the data collection for the third month of the moving average is still incomplete, no forecast is done. With the most recent data point of the NSA monthly data, a moving average is computed among three months, with the reference month being the middle one. At the same time, the previous reference month data is revised and considered final. STATA is used in this computation.	Every month, as soon as new data from the processes A1 become available, usually in the same business day or the following.
C.1. Seasonal Adjustment – and presentation of headline indicators	NSI	Seasonal adjustment is done using JDemetra+ according to Eurostat recommendations (TramoSeats, Specification RSA3 (without calendar effects)) and the indirect approach is in place, starting with the breakdowns. Due to the COVID-19 pandemic, between January 2020 and January 2022, fixed coefficients were used (January and February 2020 were initially published with JD+ seasonal adjustment but were afterwards revised with fixed coefficients after the beginning of Covid-19 pandemic). NSA, SA and TREND data are transmitted to Eurostat and the headline figures in the Eurostat press release are the Seasonally Adjusted data.	Once a year, when Q4 data becomes available in the course of February. Updated models are kept unchanged for 12 months.

C.2. National releases	NSI	The headline figures in the national press release are the Seasonally Adjusted data. However, non-seasonally adjusted data are also presented.	MUR data are published on the business day prior to the Eurostat released, usually in the last business day of the month following the reference month.

1.11 Romania			
Process Type	*Performing Institution*	*Description*	*Frequency & Timing*
A.1. Source data: monthly extractions from LFS	NSI	For Romania, LFS microdata is aggregated every month for obtaining the number of people in each ILO status. Average sample size per month in the last 12 months was 14.500 persons aged 15-74 years. In the March 2022, the response rate varies between 88.0% for the first week and 86.8% for the last week. Monthly weighting is similar to the quarterly one but a reduced calibration scheme (NUTS2 * sex * urban/rural * 4 age groups) is used. The output are absolute levels for employed and unemployed persons in the reference month.	Data is computed every month between 21st and 26th day of the month following the reference month and is considered as provisional. NAS data for the 3 months of the quarter are revised once the quarterly results are available.
B.1. Monthly time series: compiling NSA data for the months covered by LFS data	NSI/Eurostat	The pure monthly LFS extraction are exponentially smoothed (in R) before processing in JDemetra+.	Every month, as soon as new data from the processes A1 become available. The process is finalised before the 27th day of the month following the reference month.
C.1. Seasonal Adjustment – and presentation of headline indicators	NSI/Eurostat	TramoSeats, Specification RSA3 (without calendar effects) is used in JDemetra+. Indirect approach is in place, starting with the breakdowns. Presentation on Eurostat level – NSA, SA and TREND data are presented online. The headline figures in the Eurostat press release are the Seasonally Adjusted data.	After the quarterly benchmark to the quarterly results, the NSA, SA and trend data are frozen until February – next year, when seasonally adjusted and trend series are revised due to re-estimation of the parameters of the ARIMA model.
C.2. National releases	NSI	The headline figures in the national press release are SA data. https://insse.ro/cms/en/content/ilo-unemployment-89 Presentation on the national database – NSA, SA and trend series are presented. http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table	MUR data are published nationally in the same day as Eurostat (except with few occasions – due to national holydays).

1.12 Finland			
Process Type	*Performing Institution*	*Description*	*Frequency & Timing*
A.1. Source data: monthly extractions from LFS	NSI	The average monthly sample size (n_s) for persons aged 15 to 74 (excluding conscripts) in the last 12 months (2021M05-2022M04) is 12.254. The average monthly number of respondents (n_r) for persons aged 15 to 74 (excluding conscripts) in the last 12 months (2021M05-2022M04) is 6.120. The response rate for persons aged 15 to 74 (excluding conscripts) varies between 50.2 % in the first reference week of 2022M04 and 47.3 % in the last. The average response rate for persons aged 15 to 74 (excluding conscripts) for all reference weeks of 2022M04 is 48.9 %. The production of the single month estimates uses the standard generalised regression (GREG) estimation and calibration techniques. Since 2021, the monthly estimation weight is constructed by a new weighting model, which includes more comprehensive auxiliary data (sex, age group, region, job-seeker status, reference week, main type of economic activity, level of education, native language and monthly salary). The output are absolute levels for employed and unemployed persons in the reference month. A SAS database is used.	Every month, following the end of the data collection and production process, when the reference month the source data is computed and considered as final.
B.1. Monthly time series: compiling NSA data for the months covered by LFS data	NSI/Eurostat	NA (No statistical changes will be done before seasonal adjustment)	
C.1. Seasonal Adjustment – and presentation of headline indicators	NSI/Eurostat	JDemetra+ software and TRAMO/SEATS method. General model specification RSAfull with national calendar, but no calendar effects are used for the MUR time series. Partial concurrent adjustment is performed with outlier tests for the last 12 months. Direct adjustment is performed for each series. Presentation on Eurostat level: NSA, SA series and trend data are presented online. The headline figures for Finland in the Eurostat press release are the Trend data.	Seasonal adjustment models are revised once per year during spring. Model parameters are re-estimated every month, impacting the full seasonally adjusted and trend time series.
C.2. National releases	NSI	The headline figures in the national press release are the trend data and the non-seasonal adjusted data. Press releases and information regarding upcoming releases are available at https://www.stat.fi/en/statistics/tyti. Presentation on the national database: NSA, SA series and trend are presented.	MUR data are normally published 17 working days after the reference period of the reference month.

1.13 Sweden			
Process Type	*Performing Institution*	*Description*	*Frequency & Timing*
A.1. Source data: monthly extractions from LFS	NSI	LFS microdata is aggregated every month for obtaining the number of people in each ILO status. The average response rate varies between 46.8 % in the first reference week of month April 2022 and 44.7 % in the last. Monthly weighting is applied in accordance with the LFS calibration procedure. The estimation in the LFS builds on a regression estimator with auxiliary information from Statistics Sweden's registers TPR and the Employment Register as well as information from the Swedish Public Employment Service (Af). The output are absolute levels for employed and unemployed persons in the reference month. A SAS database is used for calculations and storage. Sample size in April 2022 was 16.445 persons. Average sample size per month in the last 12 months was 14.925 persons. The average response rate for the first reference week of the last reference month, April 2022, was 46.8 percent, both genders. For women it was 52.8 percent and for men 46.3 percent. The average response rate for the last reference week of the last reference month, April 2022, was 44.7%, both genders. For women it was 43.9% and for men 45.4%.	Data collection is normally completed 14 days after the end of the last reference week of the month. After another three days, tables are published and the Statistical Database is updated for both the month and, where relevant, quarter.
B.1. Monthly time series: compiling NSA data for the months covered by LFS data	NSI/Eurostat	No transformations are performed on monthly raw data.	
C.1. Seasonal Adjustment – and presentation of headline indicators	NSI/Eurostat	Additive decomposition with Henderson and seasonal filters chosen automatically by X-12-ARIMA. Automatic outlier identification is not used. Calendar corrections are based on persons/hours absent from work. Automatic model specification in X12-ARIMA with maximum one differentiation of seasonal and non-seasonal part of series. The model updates policy is concurrent. Presentation on Eurostat level – NSA, SA and TREND data are presented online. The headline figure in the Eurostat press release is the TREND.	Every month as soon as new data from the processes A1 become available.

C.2. National releases	NSI	The headline in the national press release is based on NSA data and trend data. Labour force surveys, Sweden: https://www.scb.se/en/finding-statistics/statistics-by-subject-area/labour-market/labour-force-surveys/labour-force-surveys-lfs/ Files containing seasonally adjusted series and trend data for employment and unemployment (only in Swedish): https://www.scb.se/hitta-statistik/statistik-efter-amne/arbetsmarknad/arbetskraftsundersokningar/arbetskraftsundersokningarna-aku/pong/tabell-och-diagram/sasongrensade-data/sasongrensade-serier-justerad-for-tidsseriebrott-manad/	MUR data are published in the second half of the month following the reference month.

1.14 Norway			
Process Type	*Performing Institution*	*Description*	*Frequency & Timing*
A.1. Source data: monthly extractions from LFS	NSI	LFS microdata (of the average sample size 7.337 per month) is aggregated every month for obtaining the number of people in each ILO status. The average response rate varies between 79% in the first reference week and 70% in the last. Monthly weighting is applied in accordance with the LFS calibration procedure. The output are absolute levels for employed and unemployed persons in the reference month. A SAS database is used.	Every month, between 17th - 26th day of the month following the reference month the source data is computed. After computing the source data for the third month of the quarter, the source data for all the months in that quarter are considered as final.
B.1. Monthly time series: compiling NSA data for the months covered by LFS data	NSI/Eurostat	The monthly LFS estimates are based on calibration of monthly LFS data and high-quality register data. The monthly LFS-estimates before 2021 are adjusted for the break in the LFS due to the 2021-redesign. This forms new NSA series consistent with the 2021-redesign of the LFS that are processed in the software SAS EG. For details please see Documents 2022/3.	Every month, as soon as new data from the processes A1 become available. The process is finalised before the 27th day of the month following the reference month.
C.1. Seasonal Adjustment – and presentation of headline indicators	NSI/Eurostat	X13-ARIMA-SEATS (latest Linux version) is used. Indirect approach is in place, starting with the breakdowns. The ARIMA-selection procedure pickmdl{} is preferably used, with the TRAMO-like procedure automdl{} only as an alternative. RegARIMA-models without calender effects and automatic outlier detection for the model-span from April 2022 with high critical value are used. NSA, SA and TREND data are presented online by Eurostat. However, due to the sample size and rotation pattern in the Norwegian LFS, seasonally adjusted (SA) pure monthly are too volatile to give reliable change estimates. Trend cycle estimates are therefore our headline indicator for Eurostat. The Corona crisis period in Norway, March 2020 – March 2022, is handled by treating each observation as outliers, specified as level shifts. This means that the "trend" will coincide with the seasonally adjusted figures, and not be very smooth. Therefore, the published trend figures are post-smoothed with a 3-months moving average(3MMA) for	Once a year, when data for a full calendar year becomes available in the course of January/February. Model structures and filters are kept unchanged between annual reviews (partial concurrent adjustment).

		the Corona-period.	
C.2. National releases	NSI	For the time being, the headline figures in the national press release are 3 months moving averages (3MMA) of seasonally adjusted data and only these data are presented in the national database. There are plans to change the national headline figures to trend data.	MUR data are published before the 28th day of the month following the reference month.

2. Option 2 countries

2.1 Belgium			
Process Type	*Performing Institution*	*Description*	*Frequency & Timing*
A.2. Source data: registered unemployment counts	National Employment Agency (NEA) – department of Statistics, Budget and Studies	Administrative category of registered unemployed persons used for MUR: Demandeurs d'emploi inoccupés (DEI) *Variables | Documentation | ONEM* The registration of job seekers is a regional competence, as is their statistical representation. Nevertheless, the NEA is still responsible for the collection of these data from the Regional Institutions, and for the distribution of the national statistics. Regional description 'Registered Unemployed' are persons actively undertaking or keeping a registration as a jobseeker in one of the bureaus of the Regional Employment Offices in the 3 Regions and the German-Speaking Community. The Regions determine the criteria of the population independently of each other and of the NEA. The criteria differ per Region: see table. For further details, please contact the regions. No statistical Adjustment performed. No backwards revisions of previous months.	Every month, between 5st - 10th day of the month following the reference month
A.3. Source data: quarterly LFS data files as benchmarks	Eurostat	LFS microdata are aggregated every quarter for obtaining the average number of people employed and unemployed according to the ILO standards. Those are quarterly averages in absolute numbers, not adjusted.	Every three months, after the delivery and validation of the LFS microdata to Eurostat. Q1 data available in June, Q2 in September, Q3 in December, Q4 data available in March the year after.
B.1. Monthly time series: compiling NSA data for the months covered by LFS data	Eurostat	Applying the Modified Denton Method, with minimizing Proportional First Differences (part of the JEcotrim package of JDemetra+), quarterly LFS data are disaggregated to monthly figures. The indicator variable for the Unemployment Levels are the registered unemployment counts. The indicator variable for the Employment Levels is a constant. As an option, forecasting one quarter ahead LFS data could be used before disaggregating – as input. The final product are disaggregated time series on monthly basis, up to the final month of the available LFS quarter.	Every month, as soon as new data from the process A2 become available.

B.2. Monthly estimations for the months not covered by LFS data	Eurostat	For the months not covered by available LFS data, Employment data are forecasted in JDemetra+. For Unemployment levels, the Ratio between registered counts and monthly NSA statistics is forecasted. For both types of data, the Bottom-Up approach is used. Finally, the unemployment rate is computed up to the reference month for which registered data are available and the process is being repeated every month. Forecasting models updated every three months after A3-data availability. Forecasting models identification is performed in JDemetra+.	Every month, after B1-process is finished.
C.1. Seasonal Adjustment – and presentation of headline indicators	Eurostat	TramoSeats, Specification RSA3 (without calendar effects) is used in JDemetra+ for both the Unemployment as well as Employment series. Indirect approach is in place, starting with the breakdowns. Presentation on Eurostat level – NSA, SA and TREND data are presented online. The headline figures in the press release are the Seasonally Adjusted data.	Once a year, when Q4 data becomes available in the course of March. Updated SA models kept unchanged for 12 months.
C.2. National releases	National Employment Agency (ONEM)	No MUR publication at national level. The National Employment Agency publishes the raw data of Registered Unemployed, as described under A.2. No seasonal adjustment performed. *Chômeurs demandeurs d'emploi | Documentation | ONEM*>	Registered data are published every month, between 5th – 10th day of the second month following the reference month.

2.2 Bulgaria			
Process Type	*Performing Institution*	*Description*	*Frequency & Timing*
A.2. Source data: registered unemployment counts	Public Employment Agency (and name of Directorate)	Unemployment counts as presented by the National Employment Agency. National description 'Registered Unemployed' are persons actively undertaking or keeping a registration in one of the bureaus of the Employment Agency in the country. The criteria are the following: "Unemployed" is a person who, when registering with the National Employment Agency, is not working, is looking for a job, is ready to start work within 14 days of his notification by the National Employment Agency. "Job-seeking person" means any person who has not refused meetings with employers organised by a local office of the National Employment Agency and has independently visited employers for employment. No statistical Adjustment performed. No backwards revisions of previous months. *Агенция по заетостта | Агенция по заетостта (government.bg)*	Every month, between 15st - 20th day of the month following the reference month
A.3. Source data: quarterly LFS data files as benchmarks	Eurostat	LFS microdata are aggregated every quarter for obtaining the average number of people employed and unemployed according to the ILO standards. Those are quarterly averages in absolute numbers, not adjusted.	Every three months, after the delivery and validation of the LFS microdata to Eurostat. Q1 data available in June, Q2 in September, Q3 in December, Q4 data available in March the year after.
B.1. Monthly time series: compiling NSA data for the months covered by LFS data	Eurostat	Applying the Modified Denton Method, with minimizing Proportional First Differences (part of the JEcotrim package of JDemetra+), quarterly LFS data are disaggregated to monthly figures. The indicator variable for the Unemployment Levels are the registered unemployment counts. The indicator variable for the Employment Levels is a constant. As an option, forecasting one quarter ahead LFS data could be used before disaggregating – as input. The final product are disaggregated time series on monthly basis, up to the final month of the available LFS quarter.	Every month, as soon as new data from the process A2 become available.
B.2. Monthly estimations for the months not covered by	Eurostat	For the months not covered by available LFS data, Employment data are forecasted in JDemetra+. For Unemployment levels, the Ratio between registered counts and monthly NSA statistics is forecasted. For both types of data, the Bottom-Up approach is used.	Every month, after B1-process is finished.

LFS data		Finally, the unemployment rate is computed up to the reference month for which registered data are available and the process is being repeated every month. Forecasting models updated every three months after A3-data availability. Forecasting models identification is performed in JDemetra+.	
C.1. Seasonal Adjustment – and presentation of headline indicators	Eurostat	TramoSeats, Specification RSA3 (without calendar effects) is used in JDemetra+ for both the Unemployment as well as Employment series. Indirect approach is in place, starting with the breakdowns. Presentation on Eurostat level – NSA, SA and TREND data are presented online. The headline figures in the press release are the Seasonally Adjusted data.	Once a year, when Q4 data becomes available in the course of March. Updated SA models kept unchanged for 12 months.
C.2. National releases	NSI & Public Employment Agency	No Monthly Unemployment publication at national level as regards ILO standards. The National Employment Agency publishes the row data of Registered Unemployed, as described under A.1. The National Statistical Institute does not publish data of Registered Unemployed. No seasonal adjustment performed. Агенция по заетостта | Агенция по заетостта (government.bg)	Registered data are published on the first working day of the month following the reference month.

2.3 Cyprus			
Process Type	*Performing Institution*	*Description*	*Frequency & Timing*
A.2. Source data: registered unemployment counts	District and Local Labour Offices of the Department of Labour	The number of registered unemployed concerns the persons aged 15 years and over who apply at the District and Local Labour Offices of the Department of Labour to seek employment and are registered as unemployed. These persons have to be able and available for work and must be actively looking for a job. The monthly number of registered unemployed concerns the persons who during the last day of the month have an active application for seeking employment. The number of registered unemployed does not include self-employed or persons who seek part-time employment, nor persons who seek employment in certain areas or for a specific employer. No statistical Adjustment performed. No backwards revisions of previous months. National sources: https://www.cystat.gov.cy/en/SubthemeStatistics?s=43 https://cystatdb.cystat.gov.cy/pxweb/en/8.CYSTAT-DB/8.CYSTAT-DB__Labour%20Market__	The 3rd working day of the month following the reference month
A.3. Source data: quarterly LFS data files as benchmarks	Eurostat	LFS microdata are aggregated every quarter for obtaining the average number of people employed and unemployed according to the ILO standards. Those are quarterly averages in absolute numbers, not adjusted.	Every three months, after the delivery and validation of the LFS microdata to Eurostat. Q1 data available in June, Q2 in September, Q3 in December, Q4 data available in March the year after.
B.1. Monthly time series: compiling NSA data for the months covered by LFS data	Eurostat	Applying the Modified Denton Method, with minimizing Proportional First Differences (part of the JEcotrim package of JDemetra+), quarterly LFS data are disaggregated to monthly figures. The indicator variable for the Unemployment Levels are the registered unemployment counts. The indicator variable for the Employment Levels is a constant. As an option, forecasting one quarter ahead LFS data could be used before disaggregating – as input. The final product are disaggregated time series on monthly basis, up to the final month of the available LFS quarter.	Every month, as soon as new data from the process A2 become available.
B.2. Monthly estimations for the months not covered by	Eurostat	For the months not covered by available LFS data, Employment data are forecasted in JDemetra+. For Unemployment levels, the Ratio between registered counts and monthly NSA statistics is forecasted. For both types of data, the Bottom-Up approach is used.	Every month, after B1-process is finished.

LFS data		Finally, the unemployment rate is computed up to the reference month for which registered data are available and the process is being repeated every month. Forecasting models updated every three months after A3-data availability. Forecasting models identification is performed in JDemetra+.	
C.1. Seasonal Adjustment – and presentation of headline indicators	Eurostat	TramoSeats, Specification RSA3 (without calendar effects) is used in JDemetra+ for both the Unemployment as well as Employment series. Indirect approach is in place, starting with the breakdowns. Presentation on Eurostat level – NSA, SA and TREND data are presented online. The headline figures in the press release are the Seasonally Adjusted data.	Once a year, when Q4 data becomes available in the course of March. Updated SA models kept unchanged for 12 months.
C.2. National releases	Statistical Service of Cyprus (CYSTAT) and the Department of Labour	The Statistical Service of Cyprus (CYSTAT) publishes data on the Registered Unemployed persons and their characteristics (e.g. age, sex, educational attainment as well as NACE and ISCO of previous job). Related links: https://www.cystat.gov.cy/en/SubthemeStatistics?s=43 https://cystatdb.cystat.gov.cy/pxweb/en/8.CYSTAT-DB/8.CYSTAT-DB__Labour%20Market__ The Department of Labour also publishes data on the Registered Unemployed persons. Related link: http://www.mlsi.gov.cy/mlsi/dl/dl.nsf/page9b_gr/page9b_gr?OpenDocument	Data on the Registered Unemployed persons are published on the 3rd working day of the month following the reference month.

2.4 Spain			
Process Type	*Performing Institution*	*Description*	*Frequency & Timing*
A.2. Source data: registered unemployment counts	Public Employment Agency – 'Servicio Público de Empleo Estatal (SEPE). https://www.sepe.es/HomeSepe/en/ Subdirección General de Estadística e Información'	Unemployment counts as presented by the National Employment Agency. National description 'Registered Unemployed' are persons actively undertaking or keeping a registration in one of the bureaus of the Employment Agency in the country (Claim of employment). The figures correspond to pending claims of employment at the end of the reference month excluding the following: -Persons in employment: those who apply for a job to make it compatible with the current one or change it for the one they have, those who are suspended or have their working hours reduced due to an employment regulation file, those who are working in social collaboration and those that reconcile a part-time job and unemployment allowances. - Persons not immediately available for work or in an incompatible situation with the same: retirees, pensioners of absolute disability or severe disability, people over 65 years of age, workers in a situation of temporary disability, maternity or medical leave, official regulated education students, provided they are under the age of 25 years old or applicants for their first job, and vocational training students national, when their teaching hours exceed twenty weekly, have a scholarship support and are first job seekers. - Persons who exclusively demand a job with specific characteristics. such as the following: employment at home, for a period of less than three months, of less than 20 hours a week, to work abroad and the persons who register at the Public Employment Offices as a prerequisite for participate in a selection process for a specific job. - Temporary agricultural workers who are beneficiaries of the special unemployment subsidy that they are receiving it or that, having exhausted it, a period has not elapsed greater than one year from the date of birth of the right. - Claimants who reject job placement actions appropriate to their characteristics. and those whose demand is suspended, as long as they remain in that situation. Those claimants excluded from registered unemployment appear under the denomination 'Pending claims not included in registered unemployment' These statistical criteria were stated in 11th March 1985 ministerial order : https://www.boe.es/buscar/doc.php?id=BOE-A-1985-4112 No statistical Adjustment performed. No backwards revisions of previous months.	Every month, referring to the situation of the last day of the month.

A.3. Source data: quarterly LFS data files as benchmarks	Eurostat	LFS microdata are aggregated every quarter for obtaining the average number of people employed and unemployed according to the ILO standards. Those are quarterly averages in absolute numbers, not adjusted.	Every three months, after the delivery and validation of the LFS microdata to Eurostat. Q1 data available in June, Q2 in September, Q3 in December, Q4 data available in March the year after.
B.1. Monthly time series: compiling NSA data for the months covered by LFS data	Eurostat	Applying the Modified Denton Method, with minimizing Proportional First Differences (part of the JEcotrim package of JDemetra+), quarterly LFS data are disaggregated to monthly figures. The indicator variable for the Unemployment Levels are the registered unemployment counts. The indicator variable for the Employment Levels is a constant. As an option, forecasting one quarter ahead LFS data could be used before disaggregating – as input. The final product are disaggregated time series on monthly basis, up to the final month of the available LFS quarter.	Every month, as soon as new data from the process A2 become available.
B.2. Monthly estimations for the months not covered by LFS data	Eurostat	For the months not covered by available LFS data, Employment data are forecasted in JDemetra+. For Unemployment levels, the Ratio between registered counts and monthly NSA statistics is forecasted. For both types of data, the Bottom-Up approach is used. Finally, the unemployment rate is computed up to the reference month for which registered data are available and the process is being repeated every month. Forecasting models updated every three months after A3-data availability. Forecasting models identification is performed in JDemetra+.	Every month, after B1-process is finished.
C.1. Seasonal Adjustment – and presentation of headline indicators	Eurostat	TramoSeats, Specification RSA3 (without calendar effects) is used in JDemetra+ for both the Unemployment as well as Employment series. Indirect approach is in place, starting with the breakdowns. Presentation on Eurostat level – NSA, SA and TREND data are presented online. The headline figures in the press release are the Seasonally Adjusted data.	Once a year, when Q4 data becomes available in the course of March. Updated SA models kept unchanged for 12 months.
C.2. National releases	Public Employment Agency – 'Servicio Público de Empleo Estatal	No unemployment publication at national level as regards ILO standards. The National Employment Agency (Servicio Público de Empleo Estatal-SEPE) publishes the row data of Registered Unemployed, as described under A.2. Summary statistics | public employment service State (sepe.es)-Registered Unemployment Also data on Total Claimants/Job seekers (including also those excluded of Registered	Registered data are published the second working day after the end of the reference month.

	(SEPE). https://www.sepe.es/HomeSepe/en/ Subdirección General de Estadística e Información.	Unemployment, by reason of exclusion) is available at the same time. Summary statistics | public employment service State (sepe.es)-Job Seekers No seasonal adjustment performed.	

2.5 Croatia			
Process Type	*Performing Institution*	*Description*	*Frequency & Timing*
A.2. Source data: registered unemployment counts	Croatian Employment Service (Department of Analytics, Statistics, Research and Business Reporting)	Unemployment counts as presented by the Croatian Employment Service. Registered Unemployed (national description: Registrirane nezaposlene osobe) are persons aged from 15 to 65, fully or partly capable of working, without a job, who are active job seekers and available for work, who meet the requirements stipulated in the provisions of the Labour Market Act and are on the Croatian Employment Service register at the end of the reporting month. According to the Labour Market Act (Article 10), the unemployed person has been defined as follows: in the sense of this Act, an unemployed person is a person capable or partly capable of working, aged between 15 and 65, without a job, who is not employed or self-employed, who is actively searching for a job and is available for work, provided that: • He/she has not made monthly earnings gained from providing services according to special regulations or has not made monthly earnings, that is, other income in accordance with the income tax regulations, taking into account the data on paid obligatory insurance contributions received from the Central Registry of Affiliates, the amount of which is higher than the average unemployment benefit paid in the previous calendar year. • He/she has not registered a trading company or other legal entity, i.e. does not own more than a 25 % share in a trading company or other legal entity. • He/she is not a member of a cooperative or a cooperative manager. • He/she is not a president or member of the management board, neither executive chairman of a company nor director of a cooperative. • He/she is not the owner of a registered handicraft, freelance, farming or forestry business. • He/she does not perform any domestic work nor subsidiary occupation according to special regulations. • He/she is not a private agriculture insuree according to the pension regulations. • He/she is not employed according to special regulations. • He/she is not a pension beneficiary (disability pension beneficiaries due to professional working disability, i.e. pension beneficiaries entitled to disability pension due to partial loss of work ability, as well as family pension beneficiaries, who do not receive the pension, are excluded). • He/she does not meet the conditions for old-age retirement. • He/she is not entitled to extended pension insurance on the basis of fixed-term	Every month, on the 10th day of the month *(except weekends and holidays when the update is the first following working day)* for the previous month.

		contract for permanent seasonal jobs. • He/she does not participate in the social inclusion programme on the basis of the findings and opinion of the Centre for Professional Rehabilitation on temporary unemployability. • He/she is not a regular pupil or student. No statistical Adjustment performed. No backwards revisions of previous months.	
A.3. Source data: quarterly LFS data files as benchmarks	Eurostat	LFS microdata are aggregated every quarter for obtaining the average number of people employed and unemployed according to the ILO standards. Those are quarterly averages in absolute numbers, not adjusted.	Every three months, after the delivery and validation of the LFS microdata to Eurostat. Q1 data available in June, Q2 in September, Q3 in December, Q4 data available in March the year after.
B.1. Monthly time series: compiling NSA data for the months covered by LFS data	Eurostat	Applying the Modified Denton Method, with minimizing Proportional First Differences (part of the JEcotrim package of JDemetra+), quarterly LFS data are disaggregated to monthly figures. The indicator variable for the Unemployment Levels are the registered unemployment counts. The indicator variable for the Employment Levels is a constant. As an option, forecasting one quarter ahead LFS data could be used before disaggregating – as input. The final product are disaggregated time series on monthly basis, up to the final month of the available LFS quarter.	Every month, as soon as new data from the process A2 become available.
B.2. Monthly estimations for the months not covered by LFS data	Eurostat	For the months not covered by available LFS data, Employment data are forecasted in JDemetra+. For Unemployment levels, the Ratio between registered counts and monthly NSA statistics is forecasted. For both types of data, the Bottom-Up approach is used. Finally, the unemployment rate is computed up to the reference month for which registered data are available and the process is being repeated every month. Forecasting models updated every three months after A3-data availability. Forecasting models identification is performed in JDemetra+.	Every month, after B1-process is finished.
C.1. Seasonal Adjustment – and presentation of headline indicators	Eurostat	TramoSeats, Specification RSA3 (without calendar effects) is used in JDemetra+. Indirect approach is in place, starting with the breakdowns. Presentation on Eurostat level – NSA, SA and TREND data are presented online. The headline figures in the press release are the Seasonally Adjusted data.	Once a year, when Q4 data becomes available in the course of March. Updated SA models kept unchanged for 12 months.

C.2. National releases	Croatian Bureau of Statistics & Croatian Employment Service	No Monthly Unemployment publication at national level as regards ILO standards. The Croatian Employment Service publishes the row data of Registered Unemployed, as described under A.1. The Croatian Bureau of Statistics publishes the same data. No seasonal adjustment performed.	Registered data are published on the 10th day of the month (except weekends and holidays when the publication is the first following working day) for the previous month. It includes updating the online database, publishing the Monthly Statistics Bulletin and other information on registered unemployment (https://www.hzz.hr/en/statistics/).

2.6 France			
Process Type	*Performing Institution*	*Description*	*Frequency & Timing*
A.2. Source data: registered unemployment counts	Pôle emploi	Registered unemployed are job seekers actively undertaking or keeping a registration in Pôle emploi. Job seekers are divided into different administrative category : - A: job seekers required to carry out positive job search acts, unemployed; - B: jobseekers required to carry out positive job search acts, having performed a short reduced activity (78 hours or less during the month); - C: jobseekers required to carry out positive job search acts, having exercised a long reduced activity (more than 78 hours during the month); - D: jobseekers not required to carry out positive job search acts (due to an internship, training, illness, etc.), unemployed ; - E: job seekers not required to carry out positive job search acts, employed (beneficiaries of assisted contracts, business creator, etc.). Seasonally adjusted and raw data are published. Raw data are not revised. Seasonal adjustement is performed with JDemetra+ and seasonal coefficients are estimated in April each year. The seasonally adjusted series are thus revised once a year. National source is available here : https://statistiques.pole-emploi.org/stmt/publication	Every month, the 8th working day after the 15th of the month
A.3. Source data: quarterly LFS data files as benchmarks	Eurostat	LFS microdata are aggregated every quarter for obtaining the average number of people employed and unemployed according to the ILO standards. Those are quarterly averages in absolute numbers, not adjusted.	Every three months, after the delivery and validation of the LFS microdata to Eurostat. Q1 data available in June, Q2 in September, Q3 in December, Q4 data available in March the year after.
B.1. Monthly time series: compiling NSA data for the months covered by LFS data	Eurostat	Applying the Modified Denton Method, with minimizing Proportional First Differences (part of the JEcotrim package of JDemetra+), quarterly LFS data are disaggregated to monthly figures. The indicator variable for the Unemployment Levels are the registered unemployment counts. The indicator variable for the Employment Levels is a constant. As an option, forecasting one quarter ahead LFS data could be used before disaggregating – as input. The final product are disaggregated time series on monthly basis, up to the final month of the available LFS quarter.	Every month, as soon as new data from the process A2 become available.

B.2. Monthly estimations for the months not covered by LFS data	Eurostat	For the months not covered by available LFS data, Employment data are forecasted in JDemetra+. For Unemployment levels, the Ratio between registered counts and monthly NSA statistics is forecasted. For both types of data, the Bottom-Up approach is used. Finally, the unemployment rate is computed up to the reference month for which registered data are available and the process is being repeated every month. Forecasting models updated every three months after A3-data availability. Forecasting models identification is performed in JDemetra+.	Every month, after B1-process is finished.
C.1. Seasonal Adjustment – and presentation of headline indicators	Eurostat	TramoSeats, Specification RSA3 (without calendar effects) is used in JDemetra+ for both the Unemployment as well as Employment series. Indirect approach is in place, starting with the breakdowns. Presentation on Eurostat level – NSA, SA and TREND data are presented online. The headline figures in the press release are the Seasonally Adjusted data.	Once a year, when Q4 data becomes available in the course of March. Updated SA models kept unchanged for 12 months.
C.2. National releases	Pôle emploi & Dares	The national employment agency (Pôle emploi) and the statistical office of the ministry of labour (Dares) publish data on registered unemployment, as described under A.1. Seasonally adjusted and raw data are published. The monthly statistics are simply published in the form of data tables. Quarterly data (April, July, October and January) are the subject of a detailed commented publication. The indicator variable for the registered unemployment level is the registered unemployment counts by category. Information is available here: https://dares.travail-emploi.gouv.fr/donnees/les-demandeurs-demploi-inscrits-pole-emploi-France-metro	Every month, the 8th working day after the 15th of the month Quarterly data published the month after the end of the quarter.

2.7 Luxembourg			
Process Type	*Performing Institution*	*Description*	*Frequency & Timing*
A.2. Source data: registered unemployment counts	Public Employment Agency	Unemployment counts as presented by the National Employment Agency. National description 'Registered Unemployed' are persons actively undertaking or keeping a registration in one of the bureaus of the Employment Agency in the country. These are resident job seekers. Seasonal adjustment jDemetra+ for headline unemployment rate. No backwards revisions of previous months.	Every month, between 15st - 20th day of the month following the reference month
A.3. Source data: quarterly LFS data files as benchmarks	Eurostat	LFS microdata are aggregated every quarter for obtaining the average number of people employed and unemployed according to the ILO standards. Those are quarterly averages in absolute numbers, not adjusted.	Every three months, after the delivery and validation of the LFS microdata to Eurostat. Q1 data available in June, Q2 in September, Q3 in December, Q4 data available in March the year after.
B.1. Monthly time series: compiling NSA data for the months covered by LFS data	Eurostat	Applying the five-quarter moving average of LFS raw data, quarterly LFS data are disaggregated to monthly figures. The indicator variable for the Unemployment Levels are the registered unemployment counts. Ratios between the registered Unemployment counts (moving average) and LFS quarterly levels (moving average) are used for benchmarking the Unemployment levels. For the Employment levels, the three months of the quarter are all set equal to the LFS average of the available LFS quarter. The final product are disaggregated time series on monthly basis, up to the final month of the available LFS quarter.	Every month, as soon as new data from the process A2 become available.
B.2. Monthly estimations for the months not covered by LFS data	Eurostat	For months where no LFS quarters are available, the last estimated monthly ratio is carried forward for the Unemployment series. Employment levels for months with no LFS quarters available, are computed by projecting the latest monthly value using the growth rate of 12 months ago.	Every month, after B1-process is finished.
C.1. Seasonal Adjustment – and presentation of headline indicators	Eurostat	For series of Unemployment, TramoSeats, Specification RSA3 (without calendar effects) is used in JDemetra+. For the series of Employment, a centred moving average is used for seasonal adjustment, as a formula (based on 6 months, weighted).	Once a year, when Q4 data becomes available in the course of March. Updated SA models kept

		For both types of series, the indirect approach is in place, starting with the breakdowns. Presentation on Eurostat level – NSA, SA and TREND data are presented online. The headline figures in the press release are the Seasonally Adjusted data.	unchanged for 12 months.
C.2. National releases	NSI & Public Employment Agency	No REGULAR Unemployment publication at national level as regards ILO standards. The National Employment Agency publishes the row data of Registered Unemployed, as described under A.1. The National Statistical Institute publishes the same data. Seasonal Adjustment is performed using JDemetra+ for headline unemployment rate. **The number of jobseekers continues to fall**	:

2.8 Poland			
Process Type	*Performing Institution*	*Description*	*Frequency & Timing*
A.2. Source data: registered unemployment counts	Ministry of Family and Social Policy (Labour Market Department)	Registered unemployment is measured according to national legislation and its definition differs from ILO unemployment concept. Labour offices use the definition of the unemployed according to the Act of 20 April 2004 on Promotion of Employment and Labour Market Institutions (uniform text Journal of Laws 2021 item 1100 - is available on the Ministry of Family and Social Policy website (only in Polish): https://psz.praca.gov.pl/rynek-pracy/akty-prawne/) in which as unemployed are classified: persons who are at least 18 years old and have not reached the retirement age (women 60 years, men 65 years) are not employed and not performing any income-generating work, able and ready to take full-time employment or in case he/she is a disabled person — capable and ready to take employment at least half the full work-time required within a given occupation or service, not attending any full-time school with the exception of schools for adults, (or taking extra curriculum exam converting this school curriculum as well as those studying at the stage II sectoral vocational school and post-secondary school, providing full-time, evening or weekend education) or tertiary schools in the evening or weekend education system and registered in the powiat labour office corresponding to the person's permanent or temporary place of residence and seeking employment or any other income-generating work with additional provisions concerning the sources of income, included in the mentioned law. No statistical adjustment is performed. There is no backwards revisions of previous months.	Every month, between 15st - 20th working day of the month following the reference month
A.3. Source data: quarterly LFS data files as benchmarks	Eurostat	LFS microdata are aggregated every quarter for obtaining the average number of people employed and unemployed according to the ILO standards. Those are quarterly averages in absolute numbers, not adjusted.	Every three months, after the delivery and validation of the LFS microdata to Eurostat. Q1 data available in June, Q2 in September, Q3 in December, Q4 data available in March the year after.
B.1. Monthly time series: compiling NSA data for the months covered by LFS data	Eurostat	Applying the Modified Denton Method, with minimizing Proportional First Differences (part of the JEcotrim package of JDemetra+), quarterly LFS data are disaggregated to monthly figures. The indicator variable for the Unemployment Levels are the registered unemployment counts. The indicator variable for the Employment Levels is a constant. As an option, forecasting one quarter ahead LFS data could be used before	Every month, as soon as new data from the process A2 become available.

		disaggregating – as input. The final product are disaggregated time series on monthly basis, up to the final month of the available LFS quarter.	
B.2. Monthly estimations for the months not covered by LFS data	Eurostat	For the months not covered by available LFS data, Employment data are forecasted in JDemetra+. For Unemployment levels, the Ratio between registered counts and monthly NSA statistics is forecasted. For both types of data, the Bottom-Up approach is used. Finally, the unemployment rate is computed up to the reference month for which registered data are available and the process is being repeated every month. Forecasting models updated every three months after A3-data availability. Forecasting models identification is performed in JDemetra+.	Every month, after B1-process is finished.
C.1. Seasonal Adjustment – and presentation of headline indicators	Eurostat	TramoSeats, Specification RSA3 (without calendar effects) is used in JDemetra+. Indirect approach is in place, starting with the breakdowns. Presentation on Eurostat level – NSA, SA and TREND data are presented online. The headline figures in the press release are the Seasonally Adjusted data.	Once a year, when Q4 data becomes available in the course of March. Updated SA models kept unchanged for 12 months.
C.2. National releases	Statistics Poland Statistics Poland Ministry of Family and Social Policy	National data on unemployment according to ILO standards are based on the Polish LFS results and are available only on quarterly basis. These data are disseminated on the Statistics Poland website among others in: - the News Release (as preliminary results): https://stat.gov.pl/en/topics/labour-market/working-unemployed-economically-inactive-by-lfs/employed-unemployed-and-economically-inactive-persons-preliminary-lfs-results-in-the-fourth-quarter-of-2021,8,42.html - the publication "Labour Force in Poland" available on: https://stat.gov.pl/en/topics/labour-market/working-unemployed-economically-inactive-by-lfs/labour-force-survey-in-poland-3rd-quarter-of-2021,2,43.html Data on registered unemployment in Poland are published on the Statistics Poland website, among others on:https://stat.gov.pl/en/topics/labour-market/registered-unemployment/ Data on registered unemployment are also published on the website of the Ministry of Family and Social Policy (available only in Polish): https://psz.praca.gov.pl/rynek-pracy/statystyki-i-analizy/bezrobocie-rejestrowane.	Data on unemployment by LFS are published as preliminary results about 45 working days after the end of the reference quarter. Data on registered unemployment are published about 20 working days after the end of the reference month.

2.9 Slovakia			
Process Type	*Performing Institution*	*Description*	*Frequency & Timing*
A.2. Source data: registered unemployment counts	Ministry of Labour, Social Affairs and Family of the Slovak Republic (Information and Communication Technology Statistics Department)	Unemployment counts are collected and presented by the Central Office of Labour, Social Affairs and Family belonging to the Ministry of Labour, Social Affairs and Family of the Slovak Republic. In the context of the Employment Services Act 'Registered unemployed' are persons keeping a registration in one of the bureaus of the Central Office of Labour, Social Affairs and Family in the country and willing to actively seek job opportunities. The main criteria are the following: - The person is not an employee or self-employed in the Slovak Republic or abroad - The person is not temporarily unable to work - The person does not carry out a gainful activity for which the wage or remuneration exceeds the amount stipulated by law - The person is more than 16 years old and is not a student of the follow-up study - The person is not entitled to the maternity benefit - The person does not reach a pensionable age - The person does not repeatedly cooperate with the Central Office of Labour No statistical Adjustment performed. No backwards revisions of previous months. *Monthly unemployment in 2022*	Every month, between 20th – 22nd day of the month following the reference month
A.3. Source data: quarterly LFS data files as benchmarks	Eurostat	LFS microdata are aggregated every quarter for obtaining the average number of people employed and unemployed according to the ILO standards. Those are quarterly averages in absolute numbers, not adjusted.	Every three months, after the delivery and validation of the LFS microdata to Eurostat. Q1 data available in June, Q2 in September, Q3 in December, Q4 data available in March the year after.

B.1. Monthly time series: compiling NSA data for the months covered by LFS data	Eurostat	Applying the Modified Denton Method, with minimizing Proportional First Differences (part of the JEcotrim package of JDemetra+), quarterly LFS data are disaggregated to monthly figures. The indicator variable for the Unemployment Levels are the registered unemployment counts. The indicator variable for the Employment Levels is a constant. As an option, forecasting one quarter ahead LFS data could be used before disaggregating – as input. The final product are disaggregated time series on monthly basis, up to the final month of the available LFS quarter.	Every month, as soon as new data from the process A2 become available.
B.2. Monthly estimations for the months not covered by LFS data	Eurostat	For the months not covered by available LFS data, Employment data are forecasted in JDemetra+. For Unemployment levels, the Ratio between registered counts and monthly NSA statistics is forecasted. For both types of data, the Bottom-Up approach is used. Finally, the unemployment rate is computed up to the reference month for which registered data are available and the process is being repeated every month. Forecasting models updated every three months after A3-data availability. Forecasting models identification is performed in JDemetra+.	Every month, after B1-process is finished.
C.1. Seasonal Adjustment – and presentation of headline indicators	Eurostat	TramoSeats, Specification RSA3 (without calendar effects) is used in JDemetra+ for both the Unemployment as well as Employment series. Indirect approach is in place, starting with the breakdowns. Presentation on Eurostat level – NSA, SA and TREND data are presented online. The headline figures in the press release are the Seasonally Adjusted data.	Once a year, when Q4 data becomes available in the course of March. Updated SA models kept unchanged for 12 months.
C.2. National releases	Statistical Office of the Slovak Republic	Harmonised monthly unemployment rates according to IESS legislation are not published at national level. Quarterly data based on LFS is published on the NSI website as well as in the statistical products with the LFS results. *Unemployment in the 4th quarter of 2021* The Central Office of Labour, Social Affairs and Family publishes data on Registered unemployed, as described under A.2, on its website. Statistical Office of the Slovak Republic disseminates average data on registered unemployment for the reference year via the website and The Statistical Yearbook. No seasonal adjustment performed. *DATAcube ; Statistical Yearbook of the Slovak Republic 2021*	Every three months Once a year as of March 31st following reference year

3. Option 3 countries

3.1 Ireland			
Process Type	*Performing Institution*	*Description*	*Frequency & Timing*
A.2. Source data: registered unemployment counts	Public Employment Agency	'Live Register' counts as transmitted to the CSO by the Department of Social Protection (DSP). 'Live Register' are persons actively undertaking or keeping a registration with the DSP. https://www.cso.ie/en/releasesandpublications/ep/p-lr/liveregisterjanuary2024/ The criteria are the following: The Live Register is not designed to measure unemployment. It includes part-time workers (those who work up to three days a week), seasonal and casual workers entitled to Jobseeker's Benefit (JB) or Jobseeker's Allowance (JA). Unemployment is measured by the Labour Force Survey. No statistical Adjustment performed. No backwards revisions of previous months.	Every month, between 1st - 7th day of the month following the reference month
A.3. Source data: quarterly LFS data files as benchmarks	NSI	LFS microdata are aggregated every quarter for obtaining the average number of people employed and unemployed according to the ILO standards. Those are quarterly averages in absolute numbers, not adjusted.	The Central Statistics Office (CSO) uses the latest available quarterly Labour Force Survey (LFS) benchmarks when compiling the MUE release, ahead of the LFS publication date. Q1 data available in April, Q2 in July, Q3 in October, Q4 data available in January the year after.
B.1. Monthly time series: compiling NSA data for the months covered by LFS data	NSI	Applying the Proportional Denton Method, with minimising Proportional First Differences, quarterly LFS data are disaggregated to monthly figures. The indicator variable for the Unemployment Levels are the 'Live Register' recipient series counts. The indicator variable for the Employment Levels is a constant.	Every month, as soon as new data from the process A2 become available.
B.2. Monthly estimations for the months not covered by LFS data	NSI	For the months not covered by available LFS data, an extrapolation method for forecasting is applied where the year-on-year change observed at the previous month is applied to the current time period. For monthly unemployment, the ratio between registered counts and monthly NSA statistics is forecasted using a seasonal ARIMA model using the FORECAST package in R. The provisional estimates are then calculated by multiplying these factors by the available registered unemployment figures. This process is repeated every month.	Every month, after B1-process is finished.

C.1. Seasonal Adjustment – and presentation of headline indicators	NSI	X12 is used in WinX13. Direct approach is in place for each series. Presentation: NSA, SA and TREND data are transmitted to Eurostat. The SA are presented online. NSA were presented from March 2020 to February 2022. The headline figures in the press release are the Seasonally Adjusted data.	Once a year, when Q4 data becomes available by the beginning of February. Updated SA models kept unchanged for 12 months. From March 2020 onwards the seasonal models have been updated on a month-to-month basis.
C.2. National releases	NSI & Public Employment Agency	https://www.cso.ie/en/releasesandpublications/ep/p-mue/monthlyunemploymentjanuary2024/ The link contains the release. There are links within it regarding technical notes etc… The CSO publishes the MUE at national level as regards ILO standards. Only seasonally adjusted series are published by 4 categories (Male/female under 25 years, Male/Female 25 years and over).	MUE data are published on the Wednesday following the final Thursday of the previous month. The results published are for the month prior.

3.2 Latvia			
Process Type	*Performing Institution*	*Description*	*Frequency & Timing*
A.2. Source data: registered unemployment counts	SEA (State Employment Agency of Latvia)	Unemployment counts as presented by the SEA. National description 'Registered unemployed' are persons at working age keeping a registration in one of the bureaus of the SEA in the country and granted status of unemployed. No statistical adjustment performed. No backwards revisions of previous months.	Every month, between 8th - 10th day of the month following the reference month
A.3. Source data: quarterly LFS data files as benchmarks	CSB (Central Statistical Bureau of Latvia)	LFS microdata are aggregated every quarter for obtaining the average number of people employed and unemployed according to the ILO standards. Those are quarterly averages in absolute numbers, not adjusted.	Every three months, after the delivery and validation of the LFS microdata to Eurostat. Q1 data available in May, Q2 in August, Q3 in November, Q4 data available in February the year after.
B.1. Monthly time series: compiling NSA data for the months covered by LFS data	CSB	In program R applying the 'chow-lin-minrss-quilis' method with function 'td' from package 'temdisagg', quarterly LFS data are disaggregated to monthly figures. The indicator variable for the unemployment series are the registered unemployment counts. The indicator variable for the Employment series are the registered unemployment counts and a constant. For example, to temporally disaggregate LFS quarterly estimates (totals) of unemployed males aged from 15-24 monthly registered unemployed males aged from 15-24 is used as an indicator. To temporally disaggregate LFS quarterly estimates (totals) of employed males aged from 15-24 monthly registered unemployed males aged from 15-24 is used as an indicator + constant is included in the model. The final product are disaggregated time series on monthly basis.	Every month, as soon as new data from the process A2 (and A3 in May, August, November and February) become available.
B.2. Monthly estimations for the months not covered by LFS data	CSB	Described in B1. For the most recent months (for which the LFS data are not yet available), the monthly figures are forecasted using the 'chow-lin-minrss-quilis' method.	Every month, as soon as new data from the process A2 (and A3 in May, August, November and February) become available.

C.1. Seasonal Adjustment – and presentation of headline indicators	CSB	Method TramoSeats, airline model ARIMA (0, 1, 1) (0, 1, 1) (without calendar effects) is used in JDemetra+. Presentation: NSA, SA and TREND data are presented online and transmitted to Eurostat. The headline figures in the press release of CSB are the unadjusted data.	The data is updated every month using 'last outliers' approach. SA models updated once a year, when Q4 data becomes available in the course of February.
C.2. National releases	CSB & SEA	The SEA publishes the data on registered unemployed, as described under A.1. The CSB publishes monthly estimations as described under B1 and B2. No seasonal adjustment performed.	Registered data are published by SEA between 8th - 10th day of the month following the reference month. Monthly estimations are published by CSB on 17th – 20th day of the month following the reference month.

3.3 Lithuania			
Process Type	*Performing Institution*	*Description*	*Frequency & Timing*
A.2. Source data: registered unemployment counts	Employment Service Under the Ministry of Social Security and Labour of the Republic of Lithuania	Unemployment counts as presented by the National Employment Service Under the Ministry of Social Security and Labour of the Republic of Lithuania (Employment Service). National description 'Registered Unemployed' are persons actively undertaking or keeping a registration in one of the bureaus of the Employment Service in the country. The criteria are the following: persons from the age of 16 years to the retirement age established by the Law on State Social Insurance Pensions of the Republic of Lithuania; does not work under an employment contract; not self-employed; does not study according to general education programs, except for persons who study according to adult primary, basic and secondary education programs. No statistical Adjustment performed. No backwards revisions of previous months.	Every month, between 1st - 16th day of the month following the reference month
A.3. Source data: quarterly LFS data files as benchmarks	NSI Statistics Lithuania	LFS microdata are aggregated every quarter for obtaining the average number of people employed and unemployed according to the ILO standards. Those are quarterly averages in absolute numbers, not adjusted.	Every three months, when LFS quarterly data is ready. Q1 data available in May, Q2 in August, Q3 in November, Q4 data available in February the year after.
B.1. Monthly time series: compiling NSA data for the months covered by LFS data	NSI Statistics Lithuania	When LFS (quarterly) data is ready, all 3 months of that quarter are revised using temporal disaggregation methods. Method AR(1) MAX LOG (type – INDEX) is used, where average of 3 months (employed or unemployed persons) should be equal to quarter value from LFS. Registered unemployment serves as a related series for temporal disaggregation. For calculations Ecotrim 1.01 is used. The final product are disaggregated time series on monthly basis, up to the final month of the available LFS quarter.	Every month, as soon as new data from the process A2 become available.
B.2. Monthly estimations for the months not covered by LFS data	NSI Statistics Lithuania	When LFS (quarterly) data is not ready at reference month, regression models are used to prepare provisional monthly unemployment rates. In these models employed and unemployed persons for each age group and gender serve as dependent variables and monthly registered unemployment (for same age group and gender) is a main independent variable. In order to capture the peaks of monthly registered unemployment,	Every month, after B1-process is finished.

		also 2 dummy variables are included to each model. Finally, the unemployment rate is computed up to the reference month for which registered data are available and the process is being repeated every month. Forecasting models updated every three months after A3-data availability. Forecasting models identification is performed in JDemetra+.	
C.1. Seasonal Adjustment – and presentation of headline indicators	NSI Statistics Lithuania	For the monthly unemployment statistics. The program JDemetra + (version 2.2.2) is used to eliminate the influence of seasonality and number of working days. The TRAMO / SEATS method is applied. The Ecotrim program is used to balance the data. The elimination model is reviewed annually at the end of the year. NSA, SA and TREND data are and transmitted to Eurostat. The headline figures in the press release are the Seasonally Adjusted data.	Once a year, when Q4 data becomes available in the course of February. Updated SA models kept unchanged for 12 months.
C.2. National releases	Statistics Lithuania and Employment Service	The National Employment Service publishes the row data of Registered Unemployed in persons, as described under A.2. Statistics Lithuania publishes monthly unemployment rate in percent. Statistics Lithuania publishes seasonal adjustment monthly unemployment rate and no seasonal adjustment unemployment rate. Monthly unemployment figures releases: Seasonally adjusted unemployment rate - https://osp.stat.gov.lt/en/statistiniu-rodikliu-analize?hash=0bc7a29d-fe9b-43f3-950e-cce513e2c4f7 Not seasonally adjusted unemployment rate - https://osp.stat.gov.lt/en/statistiniu-rodikliu-analize?hash=bfa1c23b-195b-41d3-9162-e833b2b1f51b	Registered data are published every month, between 1st - 16th day of the month following the reference month. Seasonal adjustment monthly unemployment rate and no seasonal adjustment unemployment rate are published on last working day of the month.

3.4 Malta			
Process Type	*Performing Institution*	*Description*	*Frequency & Timing*
A.2. Source data: registered unemployment counts	Public Employment Agency - JobsPlus	REGISTERED UNEMPLOYMENT The unemployment counts are taken from Malta's Public employment services - JobsPlus. National description 'Registered Unemployed' are persons actively undertaking or keeping a registration in JobsPlus in Malta. Registered unemployed are either registered under Part I criteria or Part II and defined as follows: **Part I** of the unemployment register: those registering under Part I are either new job seekers who have left school, re-entrants into the labour market or individuals who have been made redundant by their former employers. **Part II** of the unemployment register: those registering under Part II are either workers who have been dismissed from work due to disciplinary action, left work out of their own free will, refused work or training opportunities or were struck off the register after an inspection by Law Enforcement personnel. No statistical adjustment is performed on the data. No backward revisions of previous months. Monthly publications of the registered unemployment data are found in the following link: *https://nso.gov.mt/en/News_Releases/View_by_Unit/Unit_C2/Labour_Market_Statistics/Pages/Registered-Unemployment.aspx* REGISTERED EMPLOYMENT The employment counts are taken from Malta's Public employment services - JobsPlus. National description 'Registered Employed' are persons in employment based on administrative records held at Jobsplus. Active engagements and terminations are recorded administratively.	Registered unemployment is available every month, between 15th – 20th day of the month following the reference month Every month registered employment count data is

		Full-time and part-time status is determined by the employer's declaration (or that made by a self-employed person) in the engagement form which is required to be sent to Jobsplus upon commencement of employment. No statistical adjustment is performed on the data. Backward revisions of previous months are available once a year Monthly publications of the registered employment data are found in the following link: *https://nso.gov.mt/en/News_Releases/View_by_Unit/Unit_C2/Labour_Market_Statistics/Pages/Registered-Employment.aspx*	available approximately, following the 6 months after the reference month
A.3. Source data: quarterly LFS data files as benchmarks	NSO	The Labour Force Survey (LFS) is carried out on an ongoing basis using a quarterly gross sample of 3,200 private households. The objective is to have a continuous assessment of labour market trends with figures used in the compilation of the MUR referring to persons aged 15 to 74 years and living in private households during the reference period. All criteria used for this survey match international methodologies used by the International Labour Organisation (ILO) of employment and unemployment. LFS microdata are aggregated every quarter for obtaining the average number of people employed and unemployed according to the ILO standards as defined below. Definitions: **Employed persons:** all persons aged 15 to 74 years who, during the reference week, were in one of the following categories: • worked for at least 1 hour for pay or profit, including contributing family workers and paid casual work. • persons with a job or business who were temporarily not at work during the reference week but had an attachment to their job, including: (a) persons not at work due to holidays, working time arrangements, sick leave, maternity or paternity leave; (b) persons in job-related training or formal education; (c) persons on parental leave, either receiving and/or being entitled to job-related income or benefits, or whose parental leave is expected to be 3 months or less; (d) seasonal workers during the off-season, where they continue to regularly perform tasks and duties for the job or business, excluding fulfilment of legal or administrative obligations;	Every three months, after the delivery and validation of the LFS microdata to Eurostat. Q1 data available in May, Q2 in August, Q3 in November, Q4 data available in February the year after.

		(e) persons temporarily not at work for other reasons where the expected duration of the absence is 3 months or less. **Unemployed persons:** The sum of persons aged 15 to 74 years who, during the LFS reference week, satisfied the following criteria: • without work • actively seeking work during the previous 4 weeks: i.e. had either carried out activities in the four-week period ending with the reference week to seek paid employment or self-employment or found a job to start within a period of at most 3 months from the end of the reference week. Examples of active job search include contacting Jobsplus, studying job advertisement or placing or updating CVs online. • currently available for work: i.e. available for paid employment or self-employment before the end of the 2 weeks following the reference week. No statistical adjustment is performed on the data. Backward revisions of previous quarters are done yearly to adjust for the weights as benchmarked with the revised population figures. Quarterly publications of the LFS data are found in the following link: *https://nso.gov.mt/en/News_Releases/View_by_Unit/Unit_C2/Labour_Market_Statistics/Pages/Labour-Force-Survey.aspx*	
B.1. Monthly time series: compiling NSA data for the months covered by LFS data	NSO	The Modified Denton method is a disaggregation method which uses an indicator (registered data) to disaggregate low frequency (LFS data) into high frequency data. Monthly time series employment and unemployment data are compiled when applying the Modified Denton Method. This method uses minimisation of the Proportional First Differences (part of the JEcotrim package of JDemetra+), with quarterly LFS data which are then disaggregated to monthly figures. The indicator variable for the Unemployment Levels are the registered unemployment counts. The indicator variable for the Employment Levels are the registered employment counts. Both indicator variables are described in A.2 sources. The method applied is the multiplicative model with the average as type of temporal aggregation. This monthly disaggregated series produces the Non-Seasonally Adjusted (NSA) figures for the employment and unemployment series till the latest LFS quarterly data available.	Every month, as soon as new data from the process A2 become available.

B.2. Monthly estimations for the months not covered by LFS data	NSO	For the months not covered by available LFS data, Employment data are forecasted using weekly information of engagements and terminations of registered employment counts. For Unemployment levels, the Ratio between registered counts and monthly NSA statistics is forecasted. However, in 2021, forecasted unemployment data is also supplemented with weekly information using engagements and terminations of registered employment counts. Forecasting models updated every three months after A3-data availability. Forecasting models identification is performed in JDemetra+. During 2021, because of the COVID period, the labour market scenarios and dynamics were constantly changing and are highly dependent on the policy measures being adopted at a national level. These changes affect the reliability of the mathematical models used to project monthly LFS estimates and hence forecasts were complemented with nowcasted registered figures.	Every month, soon after B1-process is finished.
C.1. Seasonal Adjustment – and presentation of headline indicators	NSO	For the MUR, the indirect approach is used and seasonal adjustments are carried out on the NSA levels and not on the rates directly. The seasonal adjustments is done in JDemetra+ using TramoSeats, Specification RSA3 (without calendar effects). New models for seasonal adjustment are identified, following the release of LFS data for the last quarter of each year. Models are identified and fixed each year, but coefficients of ARIMA models could be estimated each month. Information is available at NSA, SA and TREND data which are transmitted to Eurostat. Nationally, NSA and SA are published online. The headline figures in the press release are the Seasonally Adjusted data.	Once a year, when Q4 data becomes available in the course of March. Updated SA models kept unchanged for 12 months.
C.2. National releases	NSO	The Monthly Unemployment Rate (MUR) data based on ILO standards is published monthly online, including a time series of the NSA and SA from 2010. The headline figures in the press release are the Seasonally Adjusted data. Monthly publications of the MUR data are found in the following link: https://nso.gov.mt/en/News_Releases/View_by_Unit/Unit_C2/Labour_Market_Statistics/Pages/Unemployment-Rate.aspx The National Statistical Office (NSO) publishes the raw data of Registered Unemployed,	Every month MUR data is published approximately, between 20th – 30th day of the month following the reference month Every month registered unemployment count data is published

		as described under A.2. No seasonal adjustment performed. Monthly publications of the registered unemployment data are found in the following link: *https://nso.gov.mt/en/News_Releases/View_by_Unit/Unit_C2/Labour_Market_Statistics/Pages/Registered-Unemployment.aspx* The National Statistical Office (NSO) publishes the raw data of Registered Employed, as described under A.2. No seasonal adjustment performed. Monthly publications of the registered employment data are found in the following link: *https://nso.gov.mt/en/News_Releases/View_by_Unit/Unit_C2/Labour_Market_Statistics/Pages/Registered-Employment.aspx*	approximately, between 20th – 30th day of the month following the reference month Every month registered employment count data is published approximately, between 20th – 30th day of the month following the 6 months after the reference month

3.5 Slovenia			
Process Type	*Performing Institution*	*Description*	*Frequency & Timing*
A.2. Source data: registered unemployment counts	Public Employment Agency (and name of Directorate)	Registered unemployed persons are job-seekers who are not employed, self-employed, are not managerial staff in a partnership or in single-person companies with limited liability and in institution, are not farmers, are not retired, pupils, apprentices, students or participating in adult education younger than 26 years old, are capable of work, are registered with the Employment Service of Slovenia (ESS), are actively seeking employment and are willing to take appropriate or suitable employment offered by the ESS or other providers of job brokerage services. Unemployed persons capable of employment are those aged 15 to 65 years who are not completely unable to work according to the Pension and Disability Insurance Act or regulations on vocational rehabilitation and employment of persons with disabilities. No statistical Adjustment performed. No backwards revisions of previous months.	Every month, between 15st - 20th day of the month following the reference month
A.3. Source data: quarterly LFS data files as benchmarks	NSI	LFS microdata are aggregated every quarter for obtaining the average number of people employed and unemployed according to the ILO standards. Those are quarterly averages in absolute numbers, not adjusted.	Every three months, after the validation and delivery of the LFS microdata to Eurostat. Q1 data available in June, Q2 in September, Q3 in December, Q4 data available in March the year after.
B.1. Monthly time series: compiling NSA data for the months covered by LFS data	NSI	Applying the Modified Denton Method, with the average type of benchmarking constraint, the multiplicative benchmarking and first order difference (part of the benchmarking plug-in nbdemetra-benchmarking-2.2.2.nbm in JDemetra+ 2.2.3), quarterly LFS data are disaggregated to monthly figures. The indicator variable for the Unemployment Levels are the registered unemployment counts. The indicator variable for the Employment Levels are the counts from persons in employment by register sources. The final product are disaggregated time series on a monthly basis, up to the final month of the available LFS quarter.	Every month, as soon as new data from the process A.2. become available.
B.2. Monthly estimations for the months not covered by LFS data	NSI	For the months not covered by available LFS data, the Unemployment levels are benchmarked in JDemetra+ 2.2.3. But Employment levels are benchmarked and forecasted in JDemetra+ 2.2.3; only the last month is forecasted, using the same models as in C.1.	Every month.

C.1. Seasonal Adjustment – and presentation of headline indicators	NSI	For each of the 8 breakdown time series, specification is manually chosen. Method TRAMO/SEATS is used in JDemetra+ 2.2.3. Indirect approach is in place, starting with the breakdowns. Presentation: NSA, SA and TREND data are presented online and transmitted to Eurostat. The headline figures in the press release are the Seasonally Adjusted data. E.g. https://www.stat.si/StatWeb/en/News/Index/10361, https://pxweb.stat.si/SiStatData/pxweb/en/Data/-/0762013S.px/	Each month, after the data becomes available. SA models are usually kept unchanged (sometimes outliers have to be changed …).
C.2. National releases	NSI & Public Employment Agency	The unemployment publication at national level as regards ILO standards are published quarterly from LFS data (https://www.stat.si/StatWeb/en/News/Index/10364). The National Employment Agency publishes the row data of Registered Unemployed, as described under A.1. (https://english.ess.gov.si/). No seasonal adjustment performed.	Registered data are published on the first working day of the month following the reference month.

III. Annex I – Links to national sources/publications

Belgium
- *Variables | Documentation | ONEM* - *Chômeurs demandeurs d'emploi | Documentation | ONEM*
Bulgaria
- *Агенция по заетостта | Агенция по заетостта (government.bg)* - Агенция по заетостта | Агенция по заетостта (government.bg)
Czechia
- https://www.czso.cz/csu/czso/ari/rates-of-employment-unemployment-and-economic-activity-april-2022, - https://vdb.czso.cz/vdbvo2/faces/en/index.jsf?page=vystup-objekt&pvo=ZAMD006&f=TABULKA&z=T&katalog=30853&str=v467
Denmark
- https://www.statbank.dk/statbank5a/SelectVarVal/Define.asp?MainTable=AKU111M&PLanguage=1&PXSId=0&wsid=cftree
Germany
- https://www.destatis.de/EN/Themes/Labour/Labour-Market/Unemployment/_node.html - https://www-genesis.destatis.de/genesis/online?sequenz=statistikTabellen&selectionname=13231&language=en#abreadcrumb
Estonia
- https://www.stat.ee/en/node/258682
Ireland
- https://www.cso.ie/en/releasesandpublications/ep/p-lr/liveregisterjanuary2024/ - https://www.cso.ie/en/releasesandpublications/ep/p-mue/monthlyunemploymentjanuary2024/
Greece
- https://www.statistics.gr/en/statistics/-/publication/SJO02/-
Spain
- Summary statistics | public employment service State (sepe.es)-Registered Unemployment - Summary statistics | public employment service State (sepe.es)-Job Seekers - https://www.boe.es/buscar/doc.php?id=BOE-A-1985-4112 (statistical criteria)
France
- https://statistiques.pole-emploi.org/stmt/publication - https://dares.travail-emploi.gouv.fr/donnees/les-demandeurs-demploi-inscrits-pole-emploi-France-metro
Croatia
- https://www.hzz.hr/en/statistics/
Italy
- www.istat.it/en/archive/employment+and+unemployment - dati.istat.it
Cyprus
- https://www.cystat.gov.cy/en/SubthemeStatistics?s=43

- https://cystatdb.cystat.gov.cy/pxweb/en/8.CYSTAT-DB/8.CYSTAT-DB__Labour%20Market__ - http://www.mlsi.gov.cy/mlsi/dl/dl.nsf/page9b_gr/page9b_gr?OpenDocument
Latvia
- Latvian unemployment rate in the 1st quarter 7.3 % | Oficiālās statistikas portāls
Lithuania
- https://osp.stat.gov.lt/en/statistiniu-rodikliu-analize?hash=0bc7a29d-fe9b-43f3-950e-cce513e2c4f7 - https://osp.stat.gov.lt/en/statistiniu-rodikliu-analize?hash=bfa1c23b-195b-41d3-9162-e833b2b1f51b
Luxembourg
- The number of jobseekers continues to fall
Hungary
- https://www.ksh.hu/gyorstajekoztatok/#/en/list/mun - https://www.ksh.hu/stadat_files/mun/en/mun0097.html - Economic activity of population aged 15–74 by sex, 3 months mean data
Malta
- https://nso.gov.mt/en/News_Releases/View_by_Unit/Unit_C2/Labour_Market_Statistics/Pages/Unemployment-Rate.aspx - *https://nso.gov.mt/en/News_Releases/View_by_Unit/Unit_C2/Labour_Market_Statistics/Pages/Registered-Unemployment.aspx* - *https://nso.gov.mt/en/News_Releases/View_by_Unit/Unit_C2/Labour_Market_Statistics/Pages/Registered-Employment.aspx*
Netherlands
- https://www.cbs.nl/-/media/_pdf/2022/03/lfs-redesign-2021.pdf - https://www.cbs.nl/en-gb/labour-and-income/labour-and-social-security - https://opendata.cbs.nl/statline/ - /CBS/en/dataset/80590eng/table?dl=6AC94
Austria
- https://statistik.gv.at/en/statistics/labour-market/unemployment/unemployed-seeking-work
Poland
- https://stat.gov.pl/en/topics/labour-market/working-unemployed-economically-inactive-by-lfs/employed-unemployed-and-economically-inactive-persons-preliminary-lfs-results-in-the-fourth-quarter-of-2021,8,42.html - https://stat.gov.pl/en/topics/labour-market/working-unemployed-economically-inactive-by-lfs/labour-force-survey-in-poland-3rd-quarter-of-2021,2,43.html - https://stat.gov.pl/en/topics/labour-market/registered-unemployment/ - https://psz.praca.gov.pl/rynek-pracy/statystyki-i-analizy/bezrobocie-rejestrowane
Portugal
- https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_destaques&DESTAQUESdest_boui=540398485&DESTAQUESmodo=2
Romania
- https://insse.ro/cms/en/content/ilo-unemployment-89 - http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table
Slovenia

- https://www.stat.si/StatWeb/en/News/Index/10361 - https://pxweb.stat.si/SiStatData/pxweb/en/Data/-/0762013S.px/ - https://www.stat.si/StatWeb/en/News/Index/10364 - https://english.ess.gov.si/
Slovakia
- *Monthly unemployment in 2022* - *Unemployment in the 4th quarter of 2021* - *DATAcube* - *Statistical Yearbook of the Slovak Republic 2021*
Finland
- https://www.stat.fi/en/statistics/tyti
Sweden
- https://www.scb.se/en/finding-statistics/statistics-by-subject-area/labour-market/labour-force-surveys/labour-force-surveys-lfs/ - https://www.scb.se/hitta-statistik/statistik-efter-amne/arbetsmarknad/arbetskraftsundersokningar/arbetskraftsundersokningarna-aku/pong/tabell-och-diagram/sasongrensade-data/sasongrensade-serier-justerad-for-tidsseriebrott-manad/
Norway
- https://github.com/statisticsnorway/SeasonalAdjustmentCorona - National press release - National database