

Industrial relations and social dialogue
**Minimum wages for low-paid
workers in collective
agreements**



Minimum wages for low-paid workers in collective agreements



Research described in this report has been carried out in the context of the pilot project 'Role of the minimum wage in establishing the Universal Labour Guarantee'. This project was proposed by the European Parliament and delegated to Eurofound by the European Commission's Directorate-General for Employment, Social Affairs and Inclusion.



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Authors: Christine Aumayr-Pintar, Jakub Kostolny and Marco Seghesio (Eurofound); Janna Besamusca (Utrecht University)

Research manager: Christine Aumayr-Pintar

Research project: Pilot project on minimum wages (210207)

Contributors: Maria del Mar Cantero-Guerrero and Matthias Rasche (Eurofound)

Providers: Network of Eurofound Correspondents, WageIndicator Foundation, Central European Labour Studies Institute (CELSI) and Swedish National Mediation Office

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European Foundation for the Improvement of Living and Working Conditions

Telephone: (+353 1) 204 31 00

Email: information@eurofound.europa.eu

Web: www.eurofound.europa.eu

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Executive summary

Introduction

In 2020, the European Parliament requested the European Commission to carry out a pilot project on the role of the minimum wage in establishing the Universal Labour Guarantee. Eurofound was entrusted with the implementation of the pilot project (2021–2023). In the module of the project on which this report is based, the feasibility of an EU-wide database of minimum pay rates in collective agreements related to low-paid workers was explored. The main objectives of the module were (1) to select a representative sample of agreements covering low-paid workers, (2) to devise a common coding scheme for these agreements and (3) to capture the level of minimum pay in the most comparable way.

To this end, 24 sectors were selected in which in nearly all cases over 30% of workers belong to the lowest three earnings deciles and are therefore regarded as low paid. These sectors have an estimated number of 36.5 million low-paid employees aged 15 to 65. They represent around half of all low-paid employees in the 27 EU Member States in this age bracket, as per EU Labour Force Survey data.

Policy context

Collective bargaining is a key feature of the European social market economy. Most EU Member States have ratified the International Labour Organization's Right to Organise and Collective Bargaining Convention of 1949 (No. 98), and about half (14) have ratified the International Labour Organization's Collective Bargaining Convention of 1981 (No. 154). The 2017 European Pillar of Social Rights encourages social partners to autonomously conclude collective agreements. Improving the situation of low-paid employees has been a focus of the EU policy agenda for a long time, but gained renewed support in the course of the introduction of the directive on adequate minimum wages (Directive (EU) 2022/2041). Beyond statutory minimum wages, the directive stresses the importance of wage fixing in collective agreements and requires Member States with a collective bargaining coverage rate below 80% to provide action plans. For Member States without statutory minimum wages, the directive also contains reporting requirements on the lowest pay rates provided for in collective agreements covering low-wage earners and the share of workers covered by them. The Council Recommendation on strengthening social dialogue in the EU recommends that Member States, in close cooperation with social partners, enable collective bargaining and promote a higher level of collective bargaining coverage. It also encourages social partners to make agreements widely accessible, including by digital means and in public repositories.

Key findings

- Eurofound's pilot project confirmed the feasibility of establishing an EU-wide database of minimum pay regulated in collective agreements for low-paid workers. Based on 3,202 renewal texts, which cover over 43 million workers, time series with monthly observations of negotiated minimum pay between 2015 and 2022 could be created for more than two-thirds of the countries.
- Figures on worker coverage were relatively good: for 85% of agreements, it was possible to obtain estimates for the total number of workers covered. This figure drops to 72% when looking at the number of workers covered in the 24 low-paid sectors of interest. The largest data gaps were found in Germany, Luxembourg and Poland.
- Accessing collective agreement texts proved to be particularly difficult at company level. Access to texts was available for only 37% of the 243 agreements listed in the sampling stage – a much lower proportion than for sectoral (and regional) agreements, for which texts were available for more than three-quarters of the agreements.
- Some 13% of collective agreements identified at the listing stage do not contain any pay rates. Out of the sampled agreements, 12% contain only one minimum pay rate (most frequently in central and eastern European Member States). A total of 77% also regulate pay for higher-paid workers, so the highest rate in the agreement could also be retrieved.
- Agreements in the central and eastern European Member States relatively frequently refer explicitly to statutory minimum wages as the minimum payable rates, rather than including higher collectively agreed rates.
- In countries without statutory minimum wages, the absence of any wage floors due to the non-renewal of collective agreements was a very seldom detected and temporary phenomenon.
- On average, the highest nominal negotiated minimum was found in Danish agreements (€2,951), and the lowest in Bulgarian ones (€389). When differences in price levels between Member States (measured in purchasing power standard (PPS)) are taken into account, the average negotiated minimum wage provides the highest purchasing power for workers in Denmark (PPS 2,042) and Belgium (PPS 1,850), while the lowest purchasing power, equal to around a third of the highest average negotiated rates in the EU, was found in Bulgaria (PPS 663) and Croatia (PPS 698).
- Negotiated pay rates in valid and ultra-active agreements are sometimes outdated and may fall below the statutory minimum wage, in which case employers are obliged to pay the statutory rate. This

was particularly the case in collective agreements from Croatia, Poland, Portugal, Slovakia, Slovenia and Spain and to some extent in France and Germany.

Policy pointers

- Collective bargaining can be a vehicle for avoiding unduly low-paid labour; however, it may not always be sufficient. Findings from this project show that collective agreements do not always contain pay rates, and that pay rates frequently fall behind the statutory minimum wage. This can be ‘by design’, for example because industry agreements do not specify minimum wage levels (as observed in Sweden), leaving actual pay-setting to take place at different levels. However, it could also be indicative of a more limited role given to pay regulation in collective agreements.
- In more modern types of agreements, pay is not differentiated based on occupation or seniority but is linked to job demands in terms of skills, autonomy and responsibilities. While the differentiation of pay in agreements did not change much over the observed period, the project has shown that in a few countries and agreements such change is ongoing. Seniority and professions, nevertheless, remain the most widely used differentiators for collectively agreed pay.
- The accessibility of collective agreements remains an issue in a considerable number of countries. There is room for improvement, as recommended by the Council Recommendation on strengthening social dialogue in the EU.
- The fact that in some Member States many collective agreements are outdated highlights the role and importance of promoting and reinforcing collective agreements in pay-setting. In this context, statutory minimum wages have a key role to play in effectively protecting workers from unduly low pay in countries and sectors with a low collective bargaining rate and a low degree of organisation.
- In contrast to statutory minimum wages, which in the EU context usually provide one wage floor, collective agreements can also regulate the pay of medium- and higher-paid workers. However, this opportunity is not always taken and could be expanded in some countries and sectors.

Introduction

In 2020, the European Parliament requested the European Commission to carry out a pilot project on the role of the minimum wage in establishing the Universal Labour Guarantee. The European Commission decided to entrust Eurofound with the implementation of this project, running from 2021 to 2023. The purpose of this pilot project is to provide evidence in the form of data and research that can feed into the monitoring of the Commission's initiative on adequate minimum wages.

The project was delivered in three distinct modules:

- **Module 1:** Enforcement of minimum wages and compliance
- **Module 2:** Database on collectively agreed minimum wage rates related to low-paid workers
- **Module 3:** Minimum tariffs in collective agreements

The three main objectives were as follows:

- to provide a measurement of compliance with minimum wage regulations and discuss the methodological and policy issues related to this measurement (Module 1)
- to build a database on minimum wages in collective agreements (Module 2)
- to verify the presence of minimum tariffs in collective agreements (Module 3)

The work of all three modules was implemented in close collaboration with two expert groups (one for Module 1 and the other for Modules 2 and 3). These groups were composed of representatives of Eurofound's tripartite governing board, experts from international

organisations (the Organisation for Economic Co-operation and Development (OECD), the International Labour Organization and the European Commission, including its Joint Research Centre), researchers, and, in the case of the second group, providers of national data on collective agreements. The expert groups also had a role in validating the results of the project.

The focus of this report is to consolidate the information on the work done in Module 2, involving the piloting of a database of collective agreements related to low-paid workers. The results of the other project modules were published in separate reports (Eurofound, 2022a, 2023a).

This report starts in Chapter 1 with an overview of how the project module was implemented and subsequently presents in Chapter 2 the final concept, describing in more detail the process of identifying relevant collective agreements, including how the final sample of agreements to be included in full in the database was selected and how and which information was coded from the agreements. Chapter 3 presents descriptive statistics on the sample of collective agreements. Chapter 4 describes the measurement framework, including the conceptual definition of the pay rate status, how different indicators for measuring negotiated and applicable pay were developed and how a panel of observations was created to allow for time series comparisons. Chapter 5 summarises the figures on collectively agreed pay for low-paid workers, which can be derived from the database by applying the measurement framework. Chapter 6 reflects on the results of the pilot project module, in particular the strengths and weaknesses of the data collection, and proposes ways forward, before conclusions are drawn in Chapter 7.

1 Implementation of the project module

One main objective of this project module is to obtain better data on pay set in collective agreements related to low-paid workers. Such information is currently not available: many Member States do not keep databases of collective agreements, and, if they do, usually there is no information on pay levels in these agreements. While these data are interesting per se, they are of particular interest for countries without statutory minimum wages, as they show the wage floors that exist for low-paid workers. This chapter provides an overview of the project's stages, describing how the project was implemented and how the online database was designed.

Overview of project stages

Module 2 of the project was planned to be implemented over three years. In early 2021, work started with the development of a preliminary conceptual and measurement framework. This work was done by a consortium of the Dutch non-profit organisation the WageIndicator Foundation and the Slovak Central European Labour Studies Institute, in close collaboration with Eurofound and an expert group. The consortium reached out to national data providers and organisations that keep registers of collective agreements, with a view to learning more about the scope of their data collections and to establishing their interest in and availability for supporting the project. It did so in two online workshops and several individual videocalls. The preliminary conceptual and measurement framework, and the results of the liaisons with national data providers, were published as working papers (Eurofound, 2022b, 2022c).

Unsurprisingly, the conceptual phase proved to be difficult: collective agreements are very heterogeneous, not only between countries and sectors but also within them. Coming up with a good approach to sampling and a framework for coding their content that resulted in a representative and comparable sample of agreements was a daunting task. The expert group discussed two alternative approaches to sampling and coding the content of agreements: the 'jobs'¹ approach and the 'sector' approach. The jobs approach focuses on a number

of low-paid jobs – specific professions in a specific sector – to select agreements and code related pay rates, while the sector approach involves selecting low-paid sectors and coding the minimum pay rates in agreements related to the sectors. More details on these two approaches are provided in the preliminary framework (Eurofound, 2022b).

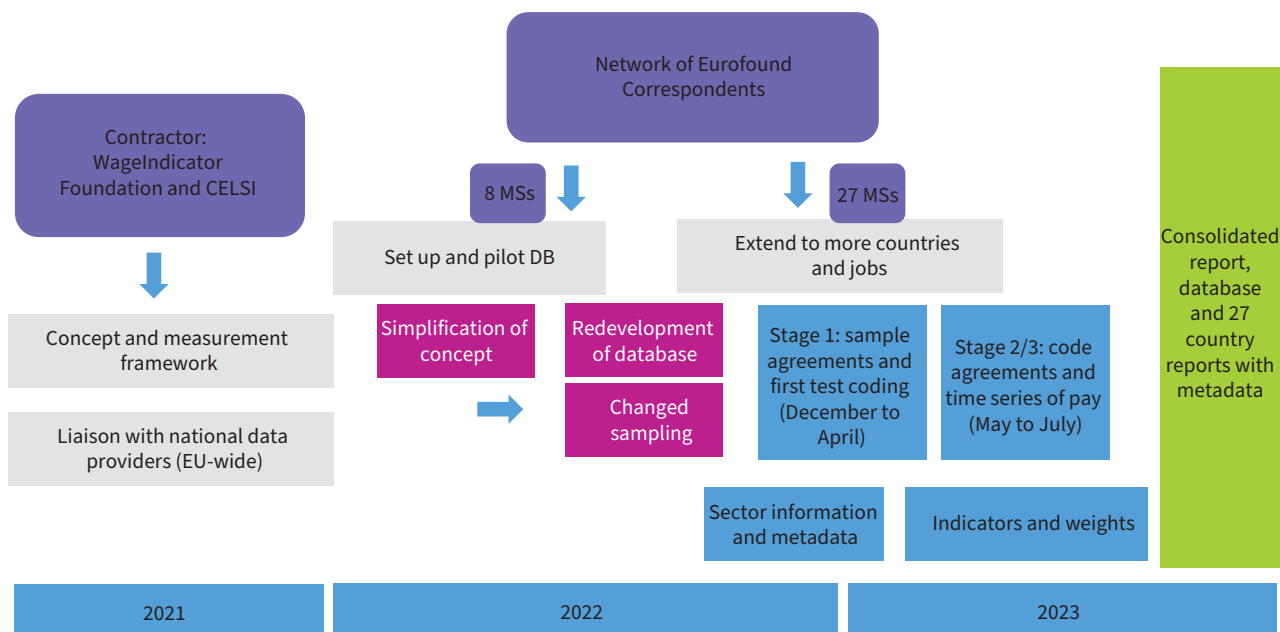
In early 2022 and following the agreement within the expert group that the feasibility of both approaches should be tested, Eurofound started to develop the first version of the online database, to be used in a 'mini-pilot'. This mini-pilot, running from June 2022 to September 2022, included eight EU Member States: Austria, Bulgaria, Denmark, Germany, Italy, Slovakia, Spain and Sweden. They represent different bargaining regimes and various degrees of fragmentation of collective bargaining. Countries without statutory minimum wages were purposefully overrepresented, and some were included based on the expectation that they were not the countries where agreements could be accessed most easily.

The results of the mini-pilot showed that the sector approach was more straightforward to implement than the jobs approach, as the latter was only meaningful for and possible to implement in a subset of the Member States. While 'professions' is a frequently used designation for wage groups in collective agreements, it is by no means used in all agreements. In addition, even in cases where references to professions were made, it turned out to be difficult to match the pay scale differentiators to selected jobs based on International Standard Classification of Occupations (ISCO) codes and the sectoral Nomenclature of Economic Activities (NACE) codes, without additional information and interpretation by the coder.

The majority of the expert group shared this opinion, so a decision was made to adopt the sector approach in the full implementation of the database. Further adaptations of the concept included the use of the NACE two-digit level for sampling, and the simplification of the sampling method towards a more pragmatic approach, due to a lack of data. More details on the changes made to the preliminary conceptual framework are given in [Box 1](#).

1 We use the term 'job' to refer to an occupation (based on International Standard Classification of Occupations (ISCO) codes) within a specific sector (based on Nomenclature of Economic Activities (NACE) codes).

Figure 1: Overview of the stages of the project module



Note: CELSI, Central European Labour Studies Institute; MS, Member State.
Source: Authors

Figure 1 summarises the main stages of the project module.

A collaborative effort in implementation

The implementation of this project module was a collaborative effort, involving input from a substantial number of organisations and individuals in different tasks and stages of the project. In chronological order, the contributions were as follows.

At the beginning of the pilot project, an expert group was set up. The task of this group was to support the implementation of the module over the whole duration of the project, advising on the conceptual framework, supervising the process and validating the findings. The group brought together EU-wide expertise in the field of collective bargaining and collective agreements. It was composed of members of trade unions and employer organisations and representatives of governments nominated by Eurofound’s Management Board, organisations managing national data registers of collective agreements, academic experts and experts from the International Labour Organization, and representatives of the OECD, the Joint Research Centre, the European Commission and Eurofound. The expert group met virtually on three occasions and in a hybrid format (in person in Dublin and online) once, and provided written inputs to the project on several occasions. A list of the members of this group is provided in Table A8 in Annex 2.

The consortium of the WageIndicator Foundation and the Central European Labour Studies Institute, led by Janna Besamusca (Utrecht University), was responsible in the initial stages of the project for the development of the preliminary conceptual and measurement framework. In

addition, members of the consortium participated in the expert group and were involved in assessing the quality of coded agreements. The consortium also organised workshops with organisations keeping national data registers of collective agreements. The organisations’ contribution to the project was invaluable, as many of the registers guaranteed access to texts and to structured metadata, which facilitated the identification and selection of relevant collective agreements. The organisations that supported the project are listed in Table A9 in Annex 2.

The bulk of the selection processes, documentation of national background information and coding work – that is, the inclusion of information obtained from the agreement texts in accordance with the conceptual framework and additional instructions – was carried out by the Network of Eurofound Correspondents. These institutions deployed researchers with expertise in industrial relations and an excellent knowledge of and access to relevant social partners in their countries. The researchers are listed in Table A10 in Annex 2.

Last but not least, the project was supported throughout by staff from the European Commission’s Directorate-General for Employment, Social Affairs and Inclusion and Eurofound’s Labour Market and Wages Unit, who provided valuable input, feedback and guidance from its inception to the validation of the results.

Database development and set-up

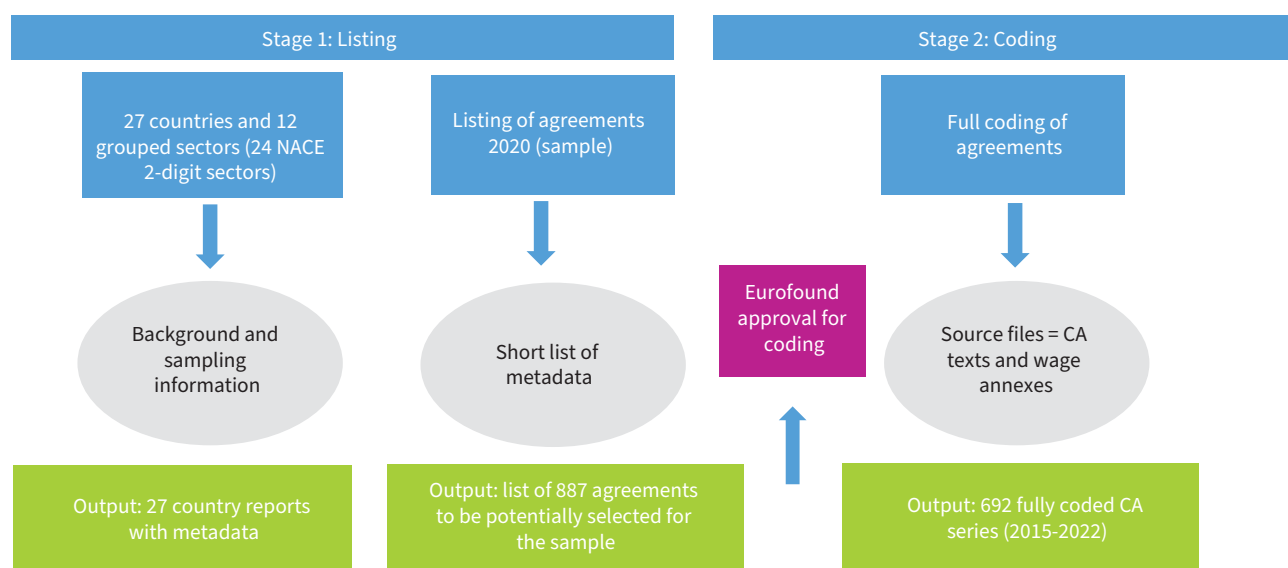
Developing and setting up the database was a complex task. To meet the need to capture and extract information at various levels of observation and the need to be able to adjust the data collection to conceptual needs, a relational database was set up using FileMaker software and in-house expertise, with the support of an external contractor.

The database is managed centrally by Eurofound staff, but remote access is provided for coders, to enable them to include the requested information, and internal and external quality controllers. Workflow processes are integrated, facilitating quality control in different stages of the population of the database and communication between the quality controllers and coders in relation to the inputted information.² The database was used to capture information in nearly all stages of the project.

In the first stage, metadata related to 12 grouped sectors of interest were captured, to support the sample identification and selection phase. In this stage, the database enabled the project team to capture 324 sheets of information (for the 12 sampled sectors in the 27

EU Member States (EU27)) regarding the selection of the sample in a structured manner. This included the contextual information used in sampling for the entire country and for each sector within a country, which could be extracted into country reports. Moreover, the workflow, as outlined in Figure 2, enabled the national correspondents to list all agreements in the sector and propose their inclusion in the database, add metadata regarding number of workers covered and inclusion of pay rates, and order the agreements based on their size and the proportion of all workers covered by collective bargaining within the sector they represent, to enable Eurofound to evaluate their inclusion in the representative sample of coded collective agreements in the database.

Figure 2: Simplified structure of the database's workflow for the listing and coding stage



Note: CA, collective agreement.

Source: Authors

² The database includes a workflow for quality control, with an internal comment box, and through statuses (draft, in quality control, in revision request and quality confirmed) coders and quality controllers can notify each other of the stage of completion of a task, such as the coding of a collective agreement or the provision of sectoral information.

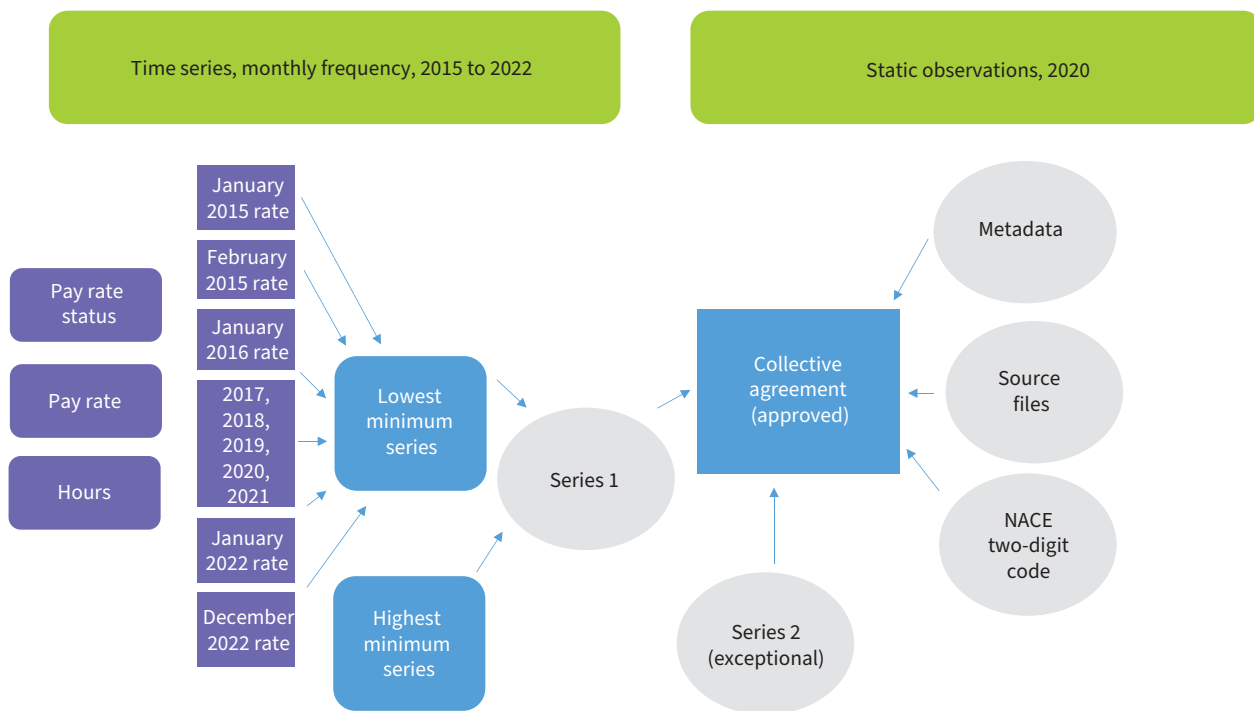
In the second stage (coding), the correspondents were asked to include additional information about the selected sample of collective agreements and the pay rates they include. Based on the findings from the mini-pilot, the structure of the database was simplified and made more user-friendly. A simplified structure of the data model is depicted in Figure 3. In most cases, neither collective agreement metadata nor metadata related to pay rates – recorded in a series of agreement texts – tend to change frequently over time. Therefore, information about collective agreements was captured only once instead of separately for each individual agreement text, with the possibility of recording any changes in information using a qualitative contextual text field. Moreover, the addition of a series for collective agreement texts with regional rates was enabled, to avoid the duplication of information.

The database was developed in a way that facilitated the prevention of errors, through the implementation of a series of quality checks, the inclusion of compulsory fields and the implementation of a process to ensure that text in numerical fields is correctly formatted. A specific example

of an improvement that prevented errors and gaps in the data was a new approach to capture the lowest minimum and the highest minimum pay series. The correspondents had to provide a pay rate and/or pay rate status (for more information, see the section ‘Pay rate status’) for each month, corresponding to different data points, to enable a complete set of information on the (non-)existence of pay rate information to be obtained.

The database, set up in FileMaker, provides direct access and a live connection to data through an Open Data Protocol application programming interface. The interface was established and data were loaded through a Microsoft Power BI dataflow, which makes the different tables of the database available in a workspace. Power BI was then used to transform all data (for more information, see the section ‘Conversion of rates’) so that they were expressed in a common frequency and currency. Power BI also allows the analysis of data and their extraction in other formats, such as Microsoft Excel spreadsheets or an integrated online presentation, based on a live connection with the database.

Figure 3: Simplified data model for the coding of collective agreements and pay rates



Source: Authors

2 | The concept

This chapter provides an overview of the concept for the database. It starts with a summary of the simplified concept. The summary includes a brief discussion of the changes made to the preliminary concept, which was tested in a small pilot project in eight countries in 2022. It then goes on to describe how the scope of the database was defined and how low-paid sectors were selected for inclusion. The process of accessing and sampling relevant agreements in the database and the method and rules for including information from these agreements form the main part of this chapter.

Brief overview of the simplified concept

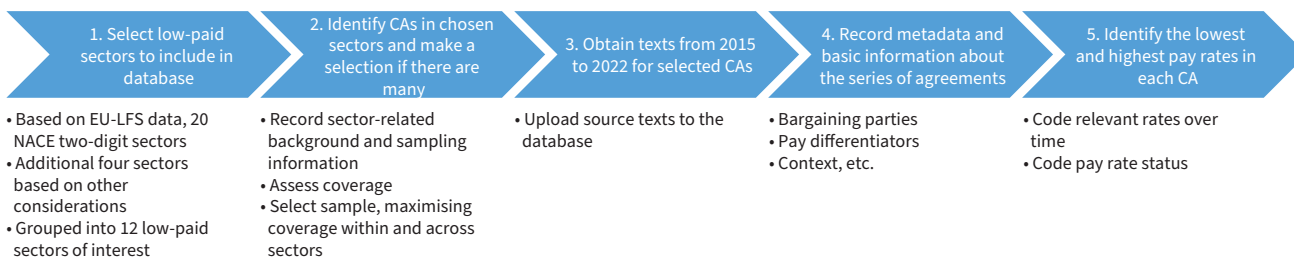
Based on the experience from the mini-pilot, the preliminary conceptual and measurement framework, as presented by Eurofound (2022b), was simplified. The main changes to the preliminary concept and reasons for these changes are described in more detail in [Box 1](#). The most significant change was the decision to adopt a sector approach to selecting relevant agreements and the identification of pay rates, instead of the jobs approach. In a nutshell and as depicted in [Figure 4](#), this approach includes the following stages.

1. Eurofound selected a set of NACE two-digit sectors that are considered to employ substantial shares of low-paid workers, and that employ significant numbers of workers.
2. For these low-paid sectors of interest, Eurofound's correspondents identified sectoral collective agreements that were valid or ultra-active³ in 2020 and could be included in the database, and provided sector-specific information on collective

bargaining (levels, parties, agreements) in these low-paid sectors, basic information on the coverage of these agreements and estimates of the proportion of workers covered by these agreements out of all workers covered by agreements in the sector. Based on this information and taking into account the available resources for the further coding of these agreements, Eurofound selected a sample of agreements. The sample was selected with the aim of maximising worker coverage within countries and sectors, while considering the representation of different bargaining levels where present and of significant importance.

3. Renewal texts for the selected agreements were retrieved and all relevant text sources (such as collective agreements and related wage tables and annexes, or other texts containing rates) were uploaded.
4. Coding – that is, the inclusion of qualitative and quantitative information retrieved from the agreements – was subsequently carried out by the correspondents. Some information was captured at the level of collective agreements (understood to be relatively unchanged over time and across renewals). The information collected reflects the status of collective agreements in 2020. Where necessary, updates to these metadata are provided in an explanatory box.
5. The key focus of the project is on the lowest minimum pay rate (for simplicity, also often referred to as the 'minimum rate') provided in the agreements. But it also identified the highest minimum pay rates of the same agreements. These data are recorded in a series of monthly observations from 1 January 2015 to 1 December 2022.

Figure 4: Overview of the simplified concept



Note: CA, collective agreement; EU-LFS, EU Labour Force Survey.

Source: Authors

3 A valid collective agreement is one that is in force based on the dates of validity indicated in the agreement. Depending on national rules or bargaining practices, collective agreements may remain 'ultra-active' and thus stay in force beyond their expiry date. This can relate to all or some of the provisions contained in the agreement. For a more extensive definition, see Eurofound's European Industrial Relations Dictionary at <https://www.eurofound.europa.eu/en/european-industrial-relations-dictionary/ultra-activity>

Box 1: Adaptation of the preliminary concept following the mini-pilot

The preliminary concept was devised in 2021, discussed on several occasions with the expert group and put to the test in the mini-pilot phase in early 2022. It was published as a working paper accompanying this report (Eurofound, 2022b). The main changes implemented following the mini-pilot are as follows.

1. The sampling method was changed from a jobs approach to a sector approach. Instead of identifying a sample of low-paid jobs (occupations in certain sectors, for example a cook in the hospitality sector) and retrieving rates from agreements that are related to these jobs, the main starting point for sample selection is the sector. Agreements are selected if they relate to a low-paid sector of interest, and the lowest and highest rates in the entire agreement are then coded (instead of the rates related to a specific job).
2. The sectoral unit of analysis was changed from NACE one-digit sectors to NACE two-digit sectors. In the absence of statistics on bargaining coverage by bargaining level for the low-paid sectors of interest, a more pragmatic sampling approach – which can be implemented in the absence of (good) statistics on workers covered in the low-paid sectors of interest – was applied. The sampling approach that was originally devised and presented in the preliminary concept note⁴ needed to be modified in favour of a more pragmatic approach that considered the incomplete nature of the information retrieved. In this approach, where complete registers of agreements from all bargaining levels exist, the distribution of agreements by bargaining level within a register should be considered.⁵ In addition, particularly for countries without complete registers, the Structure of Earnings Survey should be used as a guide to establish which bargaining levels should be included in each NACE one-digit sector–country cell.
3. A decision was made to include agreements without pay rates in the database (at least at the listing stage), to provide a more representative view of the data collection. Agreements with rates were, nevertheless, prioritised in the coding stage.
4. A workable rule was implemented for dealing with large agreements containing wage tables for multiple regions.
5. A less ambitious approach to the coding of wage components beyond basic pay was deployed.
6. Another approach to coding minimum pay rates was tested, distinguishing between rates for unqualified and qualified workers. However, this approach could only be implemented in a subset of countries and was subject to interpretation by coders. It therefore posed problems similar to those encountered with the jobs approach.

The rest of this chapter provides a more detailed description of each of the stages described previously, starting with a description of the main adaptations made to the preliminary concept (Box 1). It goes on to describe the simplified concept, including how the low-paid sectors of interest were selected and how agreements were identified, listed and selected. The chapter also provides information on the metadata documented as a basis for the selection of the sample. Finally, it describes in more detail the rules set for the process of coding information contained in the agreements.

Selection of low-paid sectors of interest

Following the decision to sample a set of NACE two-digit sectors instead of NACE one-digit sectors, the following approach was applied. It was adapted from the original concept outlined by Eurofound (2022b).

The point of departure was the customised extraction of data from Eurostat's EU Labour Force Survey (EU-LFS). The

data included the following for the group of workers who were employees aged between 15 and 65 years:

- the number of employees by NACE two-digit sector
- the proportion of employees in the lowest three earnings deciles in the sector

The extracted EU-LFS dataset is the most suitable, as it provides more detailed breakdowns than the publicly available microdatasets (at the NACE two-digit level rather than the NACE one-digit level) and allows the selection of more specific low-paid sectors of interest. The EU-LFS data has been standardised, cleaned and weighted, and aggregated for the EU27. A ranking of low-paid sectors was constructed directly from the extracted data without making further assumptions or merging data (unlike with the public microdata, for which it was necessary to construct national rankings and then an EU ranking) and while avoiding calculation errors.

Low-paid sectors were ranked based on the proportion of employees in the lowest three earnings deciles within the total wage distribution (10 deciles) in 2020. Employees aged 15–64 were included. For a considerable number of

⁴ The concept note envisioned the use of the Structure of Earnings Survey as a sampling frame, to establish which levels of bargaining are predominant or occur within a given country–sector cell. It suggested including only sectoral agreements in country–sector cells if more than 80% of workers covered in the cell were covered by sectoral agreements; including only company-level agreements if more than 30% of workers covered by agreements within the sector were covered by company-level agreements only; and including both types of agreements if more than 20% of workers were covered by company-level agreements and sectoral agreements.

⁵ The mini-pilot showed that the distribution captured in the register can deviate strongly from that in the Structure of Earnings Survey.

observations, the question regarding the income decile was either not available or not applicable in the dataset. Because of this, we first calculated the proportion of low-paid employees within the sector based on the observations that included the income decile information. Then we applied this ratio to estimate the total number of low-paid employees within the sector, including those with missing income-decile data. Based on this selection, a list of NACE one-digit and two-digit low-paid sectors was derived, as presented in [Table 1](#). The simple methodology depicted in [Figure 5](#) was applied in order to select the low-paid sectors of interest to be included in the database.

For each NACE two-digit sector, three rankings were calculated.

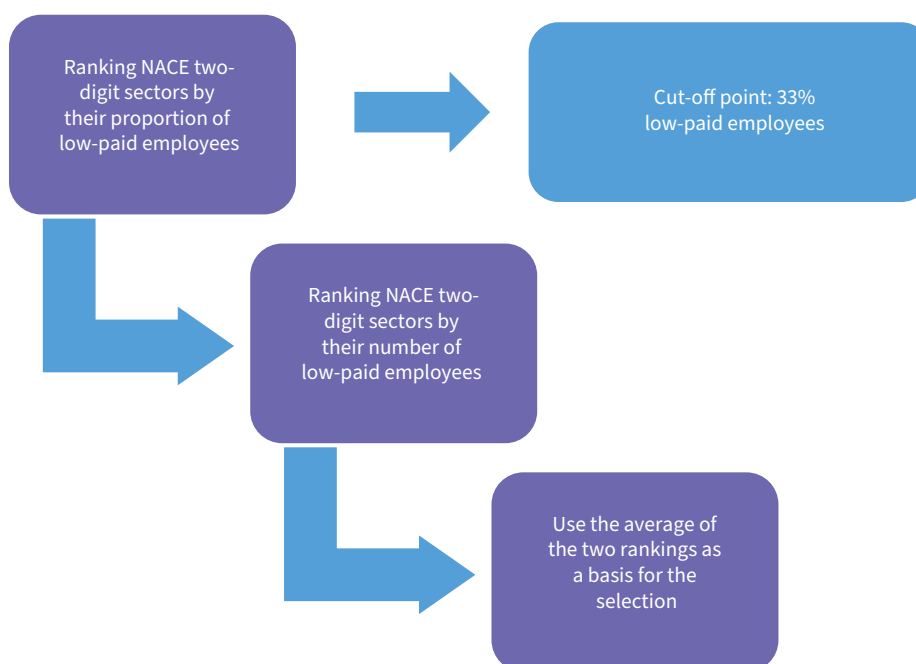
- The first is based on the proportion of low-paid employees in all 88 NACE two-digit sectors.
- The second is based on the number of low-paid employees in these sectors.

- The third ranking is an average of the first two, and therefore provides a ranked list of NACE two-digit sectors based on a combination of the share of low-paid employees and the number of employees in the sectors (grouped and ordered by the corresponding NACE one-digit sectors).

The cut-off point of a proportion of 33% of employees belonging to the first three earnings deciles was chosen, as this means that low-paid employees are somewhat overrepresented among all employees in the sector: if employees were equally distributed across all earnings deciles, the proportion of employees in the first three earnings deciles would be 30%.

Four further NACE two-digit sectors (grouped within two broader sectors) were added out of political interest: parts of the construction sector, and the land transport and warehousing and support activities for transportation sectors.⁶

Figure 5: Methodology for the identification and ranking of low-paid sectors of interest



Source: Authors

⁶ The construction sector and the land transport sector had already been included in the mini-pilot phase, for which a somewhat different sampling approach – based on the jobs approach – was applied.

Table 1: Low-paid sectors of interest selected for the pilot project database

NACE one-digit sector	Group name for the database	NACE two-digit code	NACE two-digit sector	Estimated size of the low-paid segment (number of employees in the EU27 (thousands))	Share of low-paid workers** (%)	Share of women employees in the sector (%)	Share of low-paid women among all woman employees in the sector (with information on income)** (%)
A - Agriculture, forestry and fishing	Agriculture	01	Crop and animal production, hunting and related service activities	4,076.7	58	34	67
C - Manufacturing	Manufacture of food, leather, textiles and clothes	10	Manufacture of food products	1,388.1	35	43	49
		13	Manufacture of textiles	213.8	36	51	48
		14	Manufacture of wearing apparel	511.4	52	81	57
		15	Manufacture of leather and related products	190.0	43	59	50
F - Construction*	Construction, excluding civil engineering	41	Construction of residential and non-residential buildings*	822.7	22	9	29
		43	Specialised construction activities*	1,792.6	24	10	46
G - Wholesale and retail trade; repair of motor vehicles and motorcycles	Retail	47	Retail trade, except of motor vehicles and motorcycles	8,312.1	52	63	59
H - Transportation and storage	Postal services and couriers, land transport and warehouses	49	Land transport and transport via pipelines*	1,120.7	21	15	36
		52	Warehousing and support activities for transportation*	536.5	21	26	31
		53	Postal and courier activities	459.6	33	39	37
I - Accommodation and food service activities	Hospitality	55	Accommodation	949.3	49	61	56
		56	Food and beverage service activities	4,153.4	66	51	73
N - Administrative and support service activities	Business support services	78	Employment activities	309.4	40	57	46
		80	Security and investigation activities	393.5	35	17	45
		81	Services to buildings and landscape activities	2,230.5	65	54	81
		82	Office administrative, office support and other business support activities	513.5	43	59	51
Q - Human health and social work activities	Residential and social care	87	Residential care activities	1,651.7	41	82	43
		88	Social work activities without accommodation	2,515.6	52	82	54

NACE one-digit sector	Group name for the database	NACE two-digit code	NACE two-digit sector	Estimated size of the low-paid segment (number of employees in the EU27 (thousands))	Share of low-paid workers** (%)	Share of women employees in the sector (%)	Share of low-paid women among all woman employees in the sector (with information on income)** (%)
R – Arts, entertainment and recreation	Arts, gambling and sports	90	Creative, arts and entertainment activities	341.9	38	46	40
		92	Gambling and betting activities	117.8	40	49	45
		93	Sports activities and amusement and recreation activities	696.1	53	43	63
S – Other service activities	Personal services	96	Other personal service activities	1,778.4	63	74	71
T – Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use	Domestic personnel	97	Activities of households as employers of domestic personnel	1,420.4	81	89	83

* These sectors were added to the list. They would not have been considered ‘next in line’ based on the described methodology but were considered to be of interest because they were related to the topic.

** The share of low-paid workers was derived based on the number of employees belonging to the first three earnings deciles in relation to all employees for which earnings decile data were available. In this regard, for a varying share of employees across sectors, no information on earnings deciles was available.

Source: Authors, based on the EU-LFS and NACE Rev. 2

Thus, the 20 low-paid sectors of interest selected based on this methodology⁷ have proportions of low-paid workers (belonging to the three lowest earnings deciles) ranging from 33% (postal and courier activities) to 81% (domestic personnel) of employees in the sector. In the median sector, 46% of employees are in the low-paid deciles. Together, the 20 low-paid sectors have an estimated 32.2 million low-paid employees.

These are 37–54% of all low-paid⁸ employees in the EU27 aged between 15 and 64 years, increasing to 42–62%, as per the EU-LFS sample (36.5 million low-paid employees), if the four additional sectors of interest are added.

Analysing the data by gender shows that women are overrepresented among the low-paid workers in each of the 24 sectors. This overrepresentation⁹ is particularly high in land transport (21% of workers are low paid, while 36% of women are low paid) and in specialised construction activities (24% of workers are low paid and 46% of women

are low paid). The overrepresentation is insignificant in residential care activities (41% of workers are low paid and 43% of women are low paid), social work activities without accommodation (52% of workers are low paid and 54% of women are low paid) and creative, arts and entertainment activities (38% of workers are low paid and 40% of women are low paid).

Identification and listing of agreements

The identification and listing of agreements and obtaining access to their texts was a challenging part of the project in a number of Member States, partly owing to an absence of (complete) registers of agreements and partly because access to registers or agreements was denied. In countries with sectoral and less fragmented bargaining, the identification of agreements was easier than in countries

⁷ Excluding those that were added. For those, the proportion of low-paid workers is lower.

⁸ Estimates are presented in ranges, as there are a considerable number of employees for whom no sectoral NACE two-digit information and no income deciles are available.

⁹ Defined as the difference between the share of low-paid women among all women in the sector and the share of low paid in the sector (see Table 1).

with predominantly company-level bargaining and/or otherwise fragmented bargaining.

National registers and other archives of collective agreements

Throughout the project, organisations maintaining national registers of collective agreements were approached to establish how existing collections of collective agreements could be used to obtain a representative sample of agreements for each sector to be included in the database. Agreements were assigned to the sectors based on NACE two-digit codes, where available. In practice, there are several obstacles to the sampling process.

- Not all countries have (complete) registers, or provide access to them.

- Not all registers have structured sets of metadata on collective agreements (in particular, NACE codes and information on agreements' coverage of workers).
- In nearly all cases, it is impossible to obtain precise data on the coverage of workers within a (NACE two-digit) sector from the official register.

In the inception phase of the project, initial contact was made with nearly all potential providers of collective agreements, and the outcomes of a mapping exercise to determine the scope and accessibility of the registers for the purposes of this project were established and documented by Eurofound (2022c).

In the actual implementation of the project, the organisations keeping registers or other data collectors in [Table 2](#) provided invaluable input, directly to Eurofound and/or indirectly through the national correspondents.

Table 2: Overview of information obtained from national data providers

Country	Institution and name of database	Type of provision	Availability of metadata in the national register
Austria	According to the law, CAs must be registered with the Federal Ministry of Social Affairs, Health, Care and Consumer Protection (Bundesministerium für Soziales, Gesundheit, Pflege und Konsumentenschutz). However, the Austrian Trade Union Federation runs a database of all CAs in Austria (KVSystem), which includes current and historical CAs and has better search functions.	Access was provided to the entire database, including all sectoral CAs in Austria and their full texts.	NACE two-digit codes: sector provided, partially corresponding to the NACE classification Worker coverage: not available, but close to 100% may be assumed generally
Belgium	According to the law, agreements must be registered with the Federal Public Service Employment, Labour and Social Dialogue (Service public fédéral Emploi, Travail et Concertation sociale).	Access was provided to the entire database, containing all the CAs.	NACE two-digit codes: not available Worker coverage: it is only specified whether it is subject to extension mechanisms
Bulgaria	According to the law, CAs must be registered with the Ministry of Labour and Social Policy (Министерство на Труда и Социалната Политика). The National Institute for Conciliation and Arbitration develops and maintains an integrated database of CAs, which was the main source of data for the project.	Branch and sectoral agreements are publicly available, but access to selected anonymised company-level agreements was also provided subject to the signing of a non-disclosure agreement.	NACE two-digit codes: not available Worker coverage: not available
Croatia	According to the law, CAs must be registered with the Ministry of Labour, Pension System, Family and Social Policy (Ministarstvo rada, mirovinskog sustava, obitelji i socijalne politike). However, the register is not accessible online. As an alternative, the Union of Autonomous Trade Unions of Croatia also keeps a register (<i>Kolektivni ugovori</i>), which was used for the project.	Access was provided to the trade union database; however, it does not contain all existing CAs.	NACE two-digit codes: not available Worker coverage: not available

Country	Institution and name of database	Type of provision	Availability of metadata in the national register
Cyprus	According to the law, CAs must be registered with the Department of Labour Relations of the Ministry of Labour and Social Insurance.	Information was obtained from the Cyprus Labour Institute, part of the trade union the Pancyprian Federation of Labour.	NACE two-digit codes: not available Worker coverage: not available
Czechia	The Ministry of the Interior (Ministerstvo práce a sociálních věcí) keeps a register of CAs.	Access was provided to the register; however, it does not contain company-level agreements.	NACE two-digit codes: available only for agreements subject to extensions Worker coverage: not available
Denmark	No database or register exists.	Information was found through desk research and collaboration with social partners.	NACE two-digit codes: NA Worker coverage: NA
Estonia	The Ministry of Social Affairs (Sotsiaalministeerium) has a register of CAs.	Although a national register exists, it is not regularly updated and not fully accessible. Information from the register was retrieved through collaboration with the Ministry of Social Affairs. In addition, information was found through desk research and collaboration with social partners.	NACE two-digit codes: not available Worker coverage: available only for some agreements
Finland	Generally, binding CAs are registered in a database managed by the Ministry of Justice. Other agreements are published by the Ministry of Social Affairs and Health, but they are not publicly available.	Generally binding agreements are available in the FinLex database of CAs. Non-binding agreements were found through desk research.	For generally binding agreements: NACE two-digit codes: available Worker coverage: available For non-generally binding agreements: NACE two-digit codes: not available Worker coverage: not available
France	According to the law, CAs must be registered with the Directorate-General for Labour (Direction Générale du Travail) of the Ministry of Labour, Employment and Economic Inclusion (Ministère du Travail de l'Emploi et de l'Insertion). All agreements were published on the government's website (www.legifrance.gouv.fr).	Full access was provided to all sectoral agreements.	NACE two-digit codes: available Worker coverage: not available, but these data are provided by DARES (the official statistical institute of France)
Germany	According to the law, CAs must be registered with the Federal Ministry of Labour and Social Affairs (Bundesministerium für Arbeit und Soziales) and with the highest labour authorities of each individual <i>Bundesland</i> (federal state). The collective agreement archive (<i>Tarifarchiv</i>) of the Institute of Economic and Social Research at the Hans-Böckler-Stiftung is also available.	The <i>Tarifarchiv</i> is maintained by the Eurofound correspondent, and therefore full access (including to the full text of the agreements) was provided. However, for data protection reasons, the full texts were not uploaded to the database.	NACE two-digit codes: available Worker coverage: not available

Country	Institution and name of database	Type of provision	Availability of metadata in the national register
Greece	According to the law, CAs must be registered with the Department of Collective Agreements of the Ministry of Labour and Social Affairs (Τμήμα Συλλογικών Συμβάσεων και Συλλογικής Οργάνωσης).	The register is kept by the Ministry of Labour, which records all the collective labour agreements. Their texts are posted separately on the website of the Ministry of Labour and Social Affairs (https://ypergasias.gov.gr/sylogikes-rythmiseis-ergasias/). The agreements are also uploaded to the website of the Organization of Mediation and Arbitration (https://www.omed.gr/el/sylogikes-rythmiseis).	NACE two-digit codes: not available Worker coverage: not available. However, estimates of worker coverage could be obtained from the ERGANI information system of the Ministry of Labour and Social Affairs The Hellenic Statistical Authority Labour force survey is a second source of information on employment
Hungary	According to the law, agreements must be registered with the Ministry of Economic Development (Gazdaságfejlesztési Minisztérium). The register is available on the official governmental website (http://www.mkir.gov.hu).	The register is accessible; however, it is outdated and is not completely reliable. Relevant information was received mainly from social partners.	NACE two-digit codes: available Worker coverage: not available. Although no information on worker's coverage was provided by the register, figures were obtained through desk research
Ireland	There is no requirement to register CAs in Ireland, except for employment agreements (of which there are five). These are registered with the Labour Court.	A list of five registered employment agreements is available, but the full texts are not published.	NACE two-digit codes: not available Worker coverage: not available
Italy	According to the law, CAs must be filed and coded by the National Council for Economics and Labour.	The CA database contains all national sectoral CAs in the private and public sectors, and is publicly available, including by means of CA codes. The CA codes, which are assigned by the National Council for Economics and Labour, are also used by the National Institute for Social Security in order to verify that social security contributions due are regularly paid. In particular, it is mandatory to indicate the CA code on the individual payslip, and it is digitally linked to the National Institute for Social Security's dataset concerning social security contributions.	NACE two-digit codes: available Worker coverage: Partially available. Coverage is provided for all private sectors except agriculture and domestic work. Coverage for the public sector is not provided
Latvia	NA (only three sectoral agreements exist in Latvia).	The sectoral agreements are publicly available, but there is no register or database for company-level agreements, which are not publicly accessible.	NACE two-digit codes: not available Worker coverage: not available
Lithuania	According to the law, CAs must be registered with the Ministry of Social Security and Labour (Socialinės apsaugos ir darbo ministerija).	The register is publicly available and contains most of the active CAs at all levels of bargaining.	NACE two-digit codes: not available Worker coverage: not available
Luxembourg	According to the law, CAs must be registered with the Inspectorate of Labour and Mines (Inspection du travail et des mines).	Branch and sectoral agreements are publicly available, but company-level agreements could not be accessed (information about a new agreement is available through the website of a trade union but the full text is not available).	NACE two-digit codes: availability depends on the sector of activity Worker coverage: available, but not for every single agreement
Malta	According to the law, CAs must be registered with the Department for Industrial and Employment Relations of the government.	The register is not publicly available.	NACE two-digit codes: not available Worker coverage: not available

Country	Institution and name of database	Type of provision	Availability of metadata in the national register
Netherlands	According to the law, CAs must be registered in the database of CAs of the Ministry of Social Affairs and Employment (Ministerie van Sociale Zaken en Werkgelegenheid).	The database contains all CAs registered with the ministry and is fully accessible.	NACE two-digit codes: available Worker coverage: available
Poland	According to the law, multi-employer CAs must be registered and stored by the Ministry of Family, Labour and Social Policy, while single-employer CAs are registered and stored by the regional labour inspectorates, located in 16 provincial cities across Poland.	Agreements are only stored in paper form but are accessible in person. The Ministry of Family, Labour and Social Policy was visited to review multi-company CAs. Regional labour inspectorates where a relatively large number of company-level CAs were registered – that is, the inspectorates in Warsaw (15 relevant agreements) and Katowice (18 relevant agreements) – were also visited.	NACE two-digit codes: not available Worker coverage: not available
Portugal	According to the law, CAs must be registered in the <i>Pesquisa das Convenções Coletivas</i> , a tool for searching for CAs in the online archive of the Directorate-General for Employment and Industrial Relations of the Ministry of Labour Ministry of Labour, Solidarity and Social Security.	The database is publicly available.	NACE two-digit codes: available Worker coverage: not available
Romania	According to the law, CAs must be registered with the Ministry of Labour and Social Solidarity (Ministerul Muncii și Solidarității Sociale).	The database is accessible; however, it only includes multi-employer CAs. Single-employer agreements are kept by the Labour Inspectorate, but they are not publicly available.	NACE two-digit codes: available Worker coverage: not available
Slovakia	According to the law, sectoral CAs must be registered with the Ministry of Labour, Social Affairs and Family of the Slovak Republic (Ministerstvo práce, sociálnych vecí a rodiny Slovenskej republiky).	The national register is freely accessible and provides the text of sectoral CAs. Collective agreements were also obtained from government websites, social partners and websites of individual companies.	NACE two-digit codes: not available Worker coverage: not available
Slovenia	According to the law, sectoral CAs must be registered with the Ministry of Labour, Family, Social Affairs and Equal Opportunities. A database of the Association of Free Trade Unions of Slovenia is also available.	The two databases are publicly accessible.	NACE two-digit codes: not available Worker coverage: not available
Spain	According to the law, CAs must be registered with the Ministry of Labour and Social Economy (Ministerio de Trabajo y Economía Social).	The database contains all agreements (both sector level and company level) and is publicly accessible.	NACE two-digit codes: available Worker coverage: available
Sweden	There is no legal requirement for CA registration. However, the Swedish National Mediation Office has the right to request CAs from the negotiating parties and keeps a register of concluded agreements.	The Medlingsinstitutet performed the coding work itself.	NACE two-digit codes: created for this project Worker coverage: not available. The number of workers is partially estimated; however, the estimates may be based on different definitions, making them unreliable

Notes: CA, collective agreement; NA, not applicable.

Source: Authors

Rules for listing agreements of 2020 for each sector

The sampling approach that was originally devised and presented in the preliminary concept note needed to be modified in favour of a more pragmatic approach that considered the incomplete nature of the information retrieved. There was no EU-wide data source that could be used as a sampling frame reflecting the distribution of collective bargaining coverage across sectors and countries, and in most Member States no national statistics existed that could be used for this purpose. Therefore, the following rules were applied.

- Where complete registers of agreements from all bargaining levels existed, the distribution of agreements by bargaining level within the registers was considered.
- In addition, particularly for countries without complete registers, the Structure of Earnings Survey was used as a guide to establish which bargaining levels were included in each NACE one-digit sector-country cell.

Once the bargaining levels to be included for each sector in each country were established, agreements related to each

sector of interest were identified by the correspondents and listed in the database. The rules related to this listing are shown in [Table 3](#).

In the stage of identifying and listing collective agreements, correspondents were asked to upload the source text valid in 2020, along with the start and end dates of the agreement, and were asked to provide only basic (meta)data, including:

- the title of the agreement in English and the national language
- which of the 24 NACE two-digit low-paid sectors of interest the agreement covered
- estimates of the number of workers covered by the agreement (before extension, where applicable)
- estimates of the number of workers covered by the agreement in the low-paid NACE two-digit sectors selected (before extension)
- an assessment of the quality of the coverage estimates
- the level of bargaining at which the agreement was concluded
- whether the agreement included wage rates

Table 3: Guidance for listing agreements

Theme	Rule	Explanation
Sampling period	List agreements that were valid or ultra-active in 2020.	Valid agreements have a start and/or end date in 2020. However, agreements that had already expired in 2020 can be included if, according to national rules, their pay rates remain valid and applicable.
Bargaining level	For countries with complete registers and information on worker coverage, use the distribution in the database as guidance for listing agreements from different levels. If one level is predominant (of all workers covered, roughly 80% or more are covered by agreements at this level), list only agreements from this level. For countries without complete registers, use local knowledge/expertise to identify the most important levels and agreements.	
Pay rates included	List all collective agreements, even if they contain no provisions on pay.	This allows a better overview and a more complete picture of bargaining coverage in general.
Sector-relatedness	The agreements can be related to any of the 24 NACE two-digit low-paid sectors of interest, covering workers therein. In the likely case that agreements also relate to other sectors, they should be listed. Priority should be given to agreements that cover the largest number of workers in the low-paid sector of interest.	This rule captures the reality of collective bargaining agreements, which are seldom 'congruent' with the NACE categorisation but are often determined by their members' affiliations.
Stop rule: number of agreements included	No specific stop rule for the listing phase was given, neither in terms of the number of agreements (in total and per sector) nor in the form of strict percentage thresholds of workers covered. Coders were asked to list as many as feasible, at their discretion, for fragmented contexts, and provide more agreements when bargaining was fragmented. Priority was given to larger agreements with higher coverage.	Countries and sectors are heterogeneous in terms of the fragmentation of bargaining. Setting a specific absolute number for each sector could have resulted in underrepresentation in fragmented contexts and vice versa. It turned out that a percentage threshold of workers covered – an arguably better measure – could not be reliably implemented in the absence of complete figures on worker coverage within the low-paid sectors of interest. Asking coders to maximise worker coverage appeared to be the most pragmatic method.

Source: Authors

- whether access to a series of texts for the agreement valid between 2015 and 2022 was already available, or, if not, the likelihood of obtaining such access
- any qualitative information to contextualise the agreement

In addition, correspondents were asked to rank the importance of these agreements in terms of relevance to the database. Although agreements were ranked at the discretion of the correspondents, their main instruction was to prioritise agreements covering the greatest numbers of low-paid workers in the sectors of interest. Other criteria for the ranking included the existence of wage rates and the likelihood of obtaining access to the texts.

An overview of the variables is provided in the codebook accompanying the report (Eurofound, 2023c).

By August 2023, the database contained a total of 885 listed agreements with the basic information obtained in this stage of the project.

Documentation of sectoral metadata

The sample of collective agreements in the database must be selected and understood in the context of the entire bargaining landscape in the sector. To this end, country-specific reports documenting the necessary background information and metadata were compiled. They are published alongside this report as working papers. This exercise was carried out in the first stage of extending the database to all countries, in parallel to the identification and listing of agreements that could be

included. At this stage, the information in the following sections was captured by sector. The 24 NACE two-digit low-paid sectors of interest were grouped into 11 project-specific aggregate sectors and a multisectoral aggregate, containing agreements that could not be allocated to one predominant grouped sector:

- 1 – agriculture
- 2 – manufacture of food, leather, textiles and clothes
- 3 – construction, excluding civil engineering
- 4 – retail
- 5 – postal services and couriers, land transport and warehouses
- 6 – hospitality
- 7 – business support services
- 8 – residential and social care
- 9 – arts, gambling and sports
- 10 – personal services
- 11 – domestic personnel
- 12 – multisectoral agreements

See [Table 1](#) for the breakdown of the aggregate sectors into the 24 low-paid sectors of interest.

Qualitative sectoral metadata

For each of the aggregate sectors, the coders were asked to provide the qualitative information listed in [Table 4](#).

Table 4: Qualitative background information and metadata provided in the first stage of identification of agreements for sectoral country metadata reports

Qualitative background information and metadata	Questions
Background	<p>Background information on the bargaining landscape in the sector was collected based on the following questions.</p> <ul style="list-style-type: none"> ○ Are there many or few actors and who are they? ○ What are the main bargaining levels and how do they relate to each other? ○ How many agreements are estimated to be related to the sector? ○ What is the estimated collective bargaining coverage within the sector according to national sources? ○ Is any further information available on collective bargaining in the sector (since 2015) that is important for understanding the data?
Sampling	<p>Information on how the sectors of interest were sampled was collected based on the following questions.</p> <ul style="list-style-type: none"> ○ Was there access to sector-related coverage figures for workers for each agreement, or could information be obtained on which agreements were the largest in terms of worker coverage in the sector? ○ Which of the identified agreements does the coder propose to include in the final sample? ○ If agreements from different levels (e.g. sector and company) are listed, are any of the workers covered simultaneously covered by both (and would this result in double counting in the coverage figures)? ○ Are major agreements missing from the listed sample (i.e. because further information or texts could not be accessed)? ○ Is any other important information available on the sampling method (in particular, when no figures are available to explain the listed selection)?

Source: Authors

Quantitative sectoral metadata

In addition to the qualitative sectoral metadata, the coders were asked to provide a quantitative picture of collective bargaining coverage in the sector. In the absence of complete registers in many countries, and owing to the availability of only rough estimates on worker coverage for different agreements and data gaps, the figures were taken during the sample selection phase with a ‘pinch of salt’ and were not published. In addition, they were complemented by additional rough estimates of coverage rates resulting from coders’ ordinaly coded assessments. Table 5 lists the quantitative sectoral metadata captured at this stage.

Estimated proportion of covered workers captured by agreements in the database

Because of the expected incompleteness of the information on coverage, as reported above, the coders were asked to give a rough assessment of two key figures:

- the proportion of agreements listed for the sector in relation to all sectoral agreements, including an assessment of whether the listed agreements include:
 - virtually all agreements related to the NACE two-digit sectors of interest
 - a good selection of the most important agreements
 - some of the agreements
 - a small fraction of the agreements
- the proportion of workers covered by the listed agreements for the sector in relation to workers covered by all sector-related agreements. This variable is an estimate of whether, of the workers in the NACE two-digit sectors of interest who are covered by a collective agreement, the listed agreements are most likely to capture:
 - nearly all workers (90% to 100%)

Table 5: Quantitative information on bargaining coverage provided in the first stage of identification of agreements for sectoral country metadata reports

Figure	Bargaining coverage figures	Description	Consistency rules
A	Total number of employees in the NACE two-digit sectors of interest who are not excluded from collective bargaining	In this figure, workers who by definition or in accordance with national legislation or common practice cannot be covered (potentially) by collective bargaining are excluded. Depending on the country/sector context, these could be civil servants or self-employed workers, for instance.	Not applicable.
B	Total number of employees in the NACE two-digit sectors of interest estimated to be covered by collective bargaining	This figure includes the number of workers covered by a collective bargaining agreement out of all employees working in the NACE two-digit sectors of interest (A). All types of agreements, including those without wage clauses, are considered.	B must be smaller or equal to A.
C	Number of employees covered by the listed agreements in total	This figure is determined from the coverage information obtained from agreements submitted for the sector.	C is likely to be larger than D if the listed agreements extend beyond the NACE two-digit sectors of interest.
D	Number of employees covered by the listed agreements in the NACE two-digit sectors of interest	This figure is obtained from the coverage information from agreements submitted for the NACE two-digit sectors.	D is normally smaller than or equal to B (except if double counting of workers is expected, for example if sectoral- and company-level agreements exist in parallel, and workers are covered by both).
E	Estimated bargaining coverage in the NACE two-digit sectors of interest ($E = B/A \times 100$ (%))	This figure is the percentage of employees in the NACE two-digit sectors of interest estimated to be covered by collective bargaining out of all employees in the sectors of interest who are not excluded from collective bargaining.	E is normally larger than or equal to F.
F	Estimated bargaining coverage of the listed agreements in the sector ($F = D/A \times 100$ (%))	This figure is the percentage of employees covered by the listed agreements in the NACE two-digit low-paid sectors of interest out of all employees in the sectors of interest who are not excluded from collective bargaining.	F is normally smaller than or equal to E.
G	Proportion of low-paid sectoral employees covered by the listed agreements ($G = D/B \times 100$ (%))	This figure is the percentage of employees covered by the listed agreements in the NACE two-digit low-paid sectors of interest out of all employees in the sectors of interest who are estimated to be covered by collective bargaining.	Normally G is less than 100%, unless there is double counting of workers covered by different listed agreements (see D).

Source: Authors

- most workers (50% to 89%)
- a significant fraction of workers (20% to 49%)
- a small sample of workers (less than 20%)
- Different methods may be used by different parties (including the social partners) when estimating and reporting figures on the worker coverage of collective agreements.

The second figure should be equivalent to figure G in Table 5. In addition, if the listed sample was deemed complete and numbers of workers covered in the sector are available for all agreements, figure G must fall within the range assessed by the coder. Note that the figure is not equivalent to the sectoral bargaining coverage (i.e. the number of workers covered by agreements in the sector). Box 2 provides some numerical examples to facilitate the generation and interpretation of these figures.

This assessment is not straightforward in practice, for several reasons.

- Concrete figures (or even good estimates of) the total number of workers covered by collective agreements in the sectors are sometimes absent.
- Collective agreements often overlap across many (often small) sectors, and, even if the total number of workers covered by an agreement is available, the number of workers covered by the agreement in a sector may be unknown.
- The (grouped) sectors of interest included in this study are relatively small, and in many cases no reliable figures for the total number of workers/employees are available.

Therefore, the figures have to be taken with a pinch of salt.

On a more positive note, the size of collective bargaining agreements (in terms of the number of workers covered by them) is often rather unevenly distributed, and the ‘most important’ agreements are usually known to the local experts. And it was possible for coders to provide informed rankings of agreements based on the (estimated) number of workers covered in the sectors.

Figure 6 summarises the situation across the 297 sector-country cells (i.e. 11 grouped sectors of interest, excluding multisectoral agreements,¹⁰ for the EU27). Out of these 297 cells, in 42 cases (14%) no collective agreements are believed to exist, and in a further 27 cells (9%) agreements exist but are not available, bringing the total number of sector-country cells with listed agreements to 228. Out of the 228 country-sector cells for which it was possible to assess the proportion of covered worker captured, the agreements are estimated to capture nearly all covered workers in 65 cases (29%), most covered workers are captured in 70 cases (31%), and in 58 cases (25%) a significant fraction of covered workers are captured by the listed agreements. In only a minority of country-sector cells, the listed sample represents only a small sample of covered workers (35 cases or 15% of those

Box 2: Numerical examples of interpreting the proportion of covered workers captured in the database

The various figures presented in Table 5 are not very intuitive. In industrial relations research, the collective bargaining coverage rate is a key variable: it is essentially the number of workers who are covered by collective agreements in relation to the total number of workers who could be covered by agreements. For example, consider a sector that is composed of 1,000 employees who could be covered by collective agreements (because they have the right to be covered – that is, they are not excluded from collective bargaining). In this sector, there are two agreements, one covering 400 workers and the other covering 200 workers. In this case, the aggregate sectoral collective bargaining coverage rate is 60% (figure E in Table 5 = $(400 + 200)/1,000 \times 100 = 60\%$). This variable is key to understanding how well workers in a sector (or country) are covered by collective bargaining.

For the database, the key objective is to identify a sample of agreements that is representative of the countries included. Collective bargaining coverage is very different across countries and sectors. It is therefore necessary to ensure that the agreements in the database cover a good proportion of the workers covered by collective agreements in each country/sector. We do so by focusing on figure G. Assume that in the sector from the previous example we know that 1,000 workers could be covered by collective bargaining, but only the second agreement, covering 200 workers, could be retrieved and listed in the database. In order to understand how well the listed sample reflects the reality of bargaining, we must consider the proportion of all covered workers that the agreements in the database capture. To calculate this, we need to estimate how many workers are covered in the sector in total. A best guess could be that 600 to 800 workers are covered in total. In this case, the proportion of covered workers captured by agreements listed in the database would be 25% to 33% (figure G = $(200/800 \times 100)$ to $(200/600 \times 100)$).

Note in this regard that the collective bargaining coverage rate is irrelevant to determining whether the sample of listed agreements captures a large share of workers covered by collective bargaining in the relevant sector: if for a sector with a low bargaining coverage (for example, only 10% of 1,000 workers (100 workers) are believed to be covered) an agreement capturing 90 workers is listed in the database, the proportion of covered workers captured can be regarded as very high, and assessed as ‘nearly all’ workers (90% to 100%) (figure G = $90/100 \times 100 = 90\%$).

¹⁰ Multisectoral agreements that could not be linked to one predominant project sector aggregate were only listed in a minority of Member States, including, first and foremost, Finland (for the public sector) and Slovenia, while one multisectoral agreement each was found in Belgium, Cyprus and Italy.

country–sector cells for which an assessment could be made).

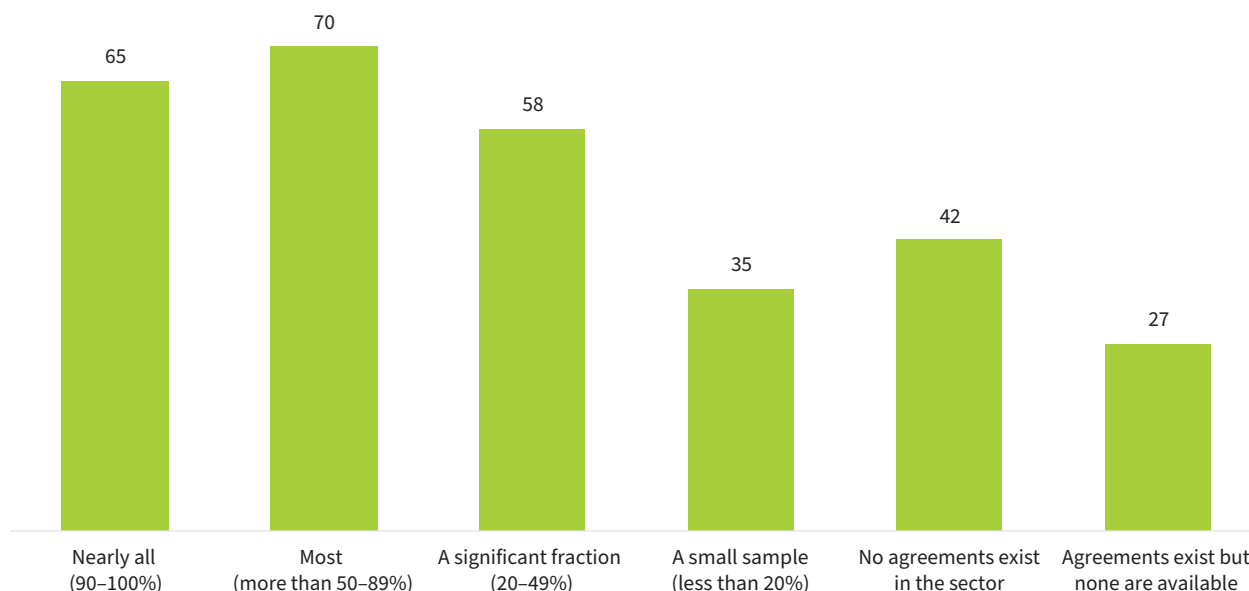
In this sense, the agreements listed in the database can be considered highly representative of the bargaining coverage of the low-paid sectors of interest, and in many sectors they come close to capturing all workers covered by agreements.

As expected, the proportion of covered workers captured by the listed agreements is particularly low in Member States in which collective bargaining takes place predominantly at company level and/or for which texts are often unavailable. These include Croatia, Czechia, Greece, Hungary,¹¹ Latvia, Luxembourg, Malta,¹² Poland,¹³ Romania and Slovakia. The proportion of the covered workers captured by the listed agreements is also low in countries with a large number of agreements and fragmented bargaining, including Germany¹⁴ and Portugal, and Spain for some sectors. Table 6 summarises the sector–country

observations in relation to the coder-assessed proportion of covered workers captured.

Among the low-paid sectors of interest, the domestic personnel sector stands out as the least covered by collective bargaining. Collective agreements for this sector were identified in only seven Member States. An absence of collective agreements is also evident in the personal services sector: seven Member States recorded a complete absence of agreements and in four more it is not known whether they exist. In the hospitality sector, three countries recorded a complete absence of agreements (and six more were not able to provide concrete information on them). It is noteworthy in this regard that Member States without statutory minimum wages are more likely to have agreements in typically less-covered sectors than those with statutory minima. This could indicate that they are able to cover the breadth of the labour market even in the absence of legislation.

Figure 6: Distribution of country–sector cells across the estimated proportions of covered workers captured by collective agreements listed in the database



Note: Based on 297 country–sector cells (11 per country), excluding multisectoral agreements.

Source: Eurofound database of collective agreements for low-paid workers, 2023

¹¹ In Hungary, while the main texts of collective agreements are available, wage rates are referred to as being set in wage annexes by companies. However, these annexes were usually not accessible.

¹² For Malta, as texts could not be accessed, the decision was taken to code wage regulation orders for selected low-paid professions instead. A wage regulation order is subsidiary legislation kept in force under the Employment and Industrial Relations Act that regulates certain conditions of employment of employees working in a specific sector of the industry. The conditions specified in these orders include maximum hours of work, minimum wages, overtime rates, sick leave and special leave, among others.

¹³ For Poland, a small sample of company-level agreements became available from a regional labour inspectorate. Texts of the agreements were not made available for upload to the database.

¹⁴ For Germany, it was argued that, due to the trend-setting nature of agreements in many sectors, fewer (pilot) agreements, from both east and west Germany, needed to be included. These were considered representative, as other agreements often tended to include the same pay rates.

Table 6: Proportion of covered workers captured by listed agreements out of all workers covered by agreements in the low-paid sectors of interest

Country	Agriculture	Manufacture of food, leather, textiles and clothes	Construction, excluding civil engineering	Retail	Postal services and couriers, land transport and warehouses	Hospitality	Business support services	Residential and social care	Arts, gambling and sports	Personal services	Domestic personnel
Austria	Nearly all	Most	Most	Nearly all	Nearly all	Nearly all	Most	Most	Significant fraction	Nearly all	Nearly all
Belgium	Nearly all	Most	Nearly all	Nearly all	Most	Nearly all	Nearly all	Most	Most	Nearly all	Nearly all
Bulgaria	Most	Most	Significant fraction		Significant fraction	Nearly all	Significant fraction	Most	Most	Small sample	NA
Croatia	Small sample	Significant fraction	Nearly all	Significant fraction	Most	Nearly all	Small sample	Nearly all	Significant fraction	Significant fraction	NA
Cyprus	Nearly all	Nearly all	Nearly all	Nearly all	NA	Nearly all	Nearly all	Nearly all	Significant fraction	NA	NA
Czechia	Significant fraction	Significant fraction	Nearly all	Small sample	Significant fraction	Significant fraction	NA	0	0	NA	NA
Denmark	Nearly all	Most	Most	Nearly all	Significant fraction	Most	Nearly all	Significant fraction	Small sample	Most	NA
Estonia	Not applicable	0	Not applicable	0	Significant fraction	0	0	Significant fraction	Significant fraction	0	NA
Finland	Nearly all	Most	Most	Most	Most	Nearly all	Significant fraction	Most	Significant fraction	Significant fraction	NA
France	Nearly all	Most	Nearly all	Significant fraction	Most	Nearly all	Significant fraction	Most	Most	Significant fraction	Nearly all
Germany	Small sample	Significant fraction	Most	Significant fraction	Most	Significant fraction	Most	Significant fraction	Small sample	Most	Significant fraction
Greece	Not applicable	Small sample	Significant fraction	Small sample	Small sample	Nearly all	Small sample	0	Small sample	Small sample	NA
Hungary	Small sample	Small sample	Significant fraction	Most	Most	0	Small sample	NA	Small sample	NA	NA
Ireland	Most	Significant fraction	Nearly all	Small sample	Small sample	0	Nearly all	Most	Most	NA	NA
Italy	Most	Nearly all	Nearly all	Nearly all	Most	Most	Most	Most	Most	Small sample	Nearly all
Latvia	NA	Significant fraction	Nearly all	Most	Significant fraction	0	Significant fraction	Significant fraction	0	0	NA
Lithuania	NA	Nearly all	Nearly all	Nearly all	Most	NA	Nearly all	Most	Nearly all	NA	NA
Luxembourg	NA	Small sample	Significant fraction	Most	Significant fraction	NA	Significant fraction	Most	Small sample	NA	NA
Netherlands	Most	Most	Nearly all	Most	Most	Most	Nearly all	Nearly all	Most	Nearly all	NA
Poland	0	Small sample	Small sample	Small sample	Small sample	NA	Small sample	NA	Small sample	NA	NA
Portugal	Most	Significant fraction	Significant fraction	Most	Significant fraction	Most	Significant fraction	Significant fraction	Significant fraction	Significant fraction	NA
Romania	0	0	Small sample	0	Small sample	0	0	Significant fraction	0	0	NA
Slovakia	Significant fraction	Significant fraction	Small sample	Small sample	Significant fraction	0	Significant fraction	Significant fraction	Small sample	NA	NA
Slovenia	Nearly all	Nearly all	Nearly all	Nearly all	Nearly all	Nearly all	Most	Nearly all	Nearly all	Most	NA

Country	Agriculture	Manufacture of food, leather, textiles and clothes	Construction, excluding civil engineering	Retail	Postal services and couriers, land transport and warehouses	Hospitality	Business support services	Residential and social care	Arts, gambling and sports	Personal services	Domestic personnel
Spain	Most	Most	Small sample	Significant fraction	Significant fraction	Most	Significant fraction	Most	Most	Small sample	Significant fraction
Sweden*	Most	Most	Most	Nearly all	Nearly all	Nearly all	Most	Most	Most	Most	Nearly all

* Data on Sweden are best estimates and may be considered unreliable.

Notes: NA (not applicable) means that no agreements exist in the low-paid sector of interest; 0 means agreements exist but are not available. The codes correspond to the following estimated proportions of covered workers captured by listed agreements in the low-paid sectors of interest in relation to all workers covered by agreements in the low-paid sectors of interest: nearly all (90% to 100%), most (more than 50% to 89%), a significant fraction (20% to 49%) and a small sample (less than 20%).

Source: Eurofound database of collective agreements for low-paid workers, 2023

Representativeness of the listed sample

One of the main objectives in the creation of the database was to ensure that the sample of agreements is representative of collective bargaining in the countries. But establishing a clear-cut rule for what can be considered representative (or not representative) is difficult, as there are too many unknowns. In survey research, a sampling frame is established to ensure the representativeness of a sample. This frame shows the distribution of the population of interest across variables of interest (for example, age, gender, urban/non-urban residence). In principle, the random selection of interviewees should be ensured by allowing every individual in the population to be included in the sample, and the sample should therefore reflect the distribution of the entire population. The same information used for the stratification of the sample is available for the interviewees, so the composition of the sample can be controlled. Such a research design for sample selection could not be implemented in the present study, for the following reasons.

There is no EU-wide sampling frame to determine the distribution of workers covered by bargaining level and sector,¹⁵ and also many countries do not have registers that can be used as national frames, or available registers are not complete or up to date. It was also clear throughout the project that opting for a certain threshold for the inclusion of agreements based on the workers covered that they include,¹⁶ as a measure of their representativeness, could not be implemented in practice in many countries, due to a lack of data.

To assess how well the listed sample of agreements represents all collective agreements, we therefore opted

for a qualitative and multidimensional approach. The assessment is based on the following questions.

- Could the listed agreements in the database be based on a comprehensive register? If so, is this register complete for the existing (but more importantly the predominant) bargaining levels?
- Does the listed sample reflect the predominant bargaining level (for the entire country)?
- What proportion of sectors of interest in which collective agreements exist could in principle be included?
- What proportion of the covered workers in a sector are estimated to be represented by the listed agreements (see the discussion and [Box 2](#) in the previous section)?

The results of this assessment are displayed in [Table 7](#) and a detailed description of the assessment is available in [Table A1](#) in Annex 1. The five degrees of representativeness were classified based on ensuring internal coherence. We consider the representativeness of the listed sample to be highest in six countries: Austria, Belgium, France, Italy, the Netherlands and Slovenia. It is still high in five other countries – Bulgaria, Finland, Lithuania, Portugal and Spain – as the sample could be based on relatively complete registers and includes the predominant bargaining levels, although the proportion of covered workers in the listed agreements is somewhat lower than in the first group. The representativeness of the listed sample is good in Cyprus, Denmark, Germany and Sweden. In these countries, despite the absence of complete official registers, it was possible to identify and list the most important agreements. The sample is assessed as acceptable in Croatia, Greece, Ireland and Slovakia, even though it could benefit from the inclusion of further company-level agreements, to capture a larger proportion of the covered workers. The representativeness

¹⁵ The Structure of Earnings Survey was considered in the conceptual phase, but then disregarded, not least because it does not capture the NACE two-digit level.

¹⁶ For example, 80% of the covered workers in a sectoral bargaining context and 30% of the covered workers in an enterprise bargaining context, as proposed in the conceptual phase.

of the listed sample is low in Czechia, Hungary, Latvia and Luxembourg, as agreements from these countries do not always sufficiently reflect the predominant bargaining level and the proportion of covered workers captured by

the listed agreements is low. Finally, in Estonia, Poland and Romania, the sample cannot be regarded as representative due to its small size and the general inaccessibility of company-level agreements.

Table 7: Summary of the qualitative assessment of the representativeness of the listed sample

Degree of representativeness of the (listed) sample	Countries	General description (individual countries may deviate in some aspects)
Very high	Austria, Belgium, France, Italy, Netherlands, Slovenia	Typically, the listed agreements in this group could be identified based on comprehensive official registers, which include at least agreements of the predominant bargaining levels; all sectors with existing agreements are captured; and the proportion of covered workers captured by the listed agreements is very high.
High	Bulgaria, Finland, Lithuania, Portugal, Spain	Typically, the listed agreements in this group could be identified based on relatively complete registers and represent the predominant bargaining levels in the country, and all sectors with existing agreements are captured. The proportion of the covered workers captured is mostly somewhat lower than in the first group.
Good	Cyprus, Denmark, Germany, Sweden	In this group, there is no official and comprehensive register, but the main source is typically one (major) social partner confederation. All sectors with existing agreements are included. The proportion of covered workers captured is lower in Denmark and Germany, but the agreements included are considered to be representative and often of a pattern-setting nature for pay in other regional agreements for the same sector.
Acceptable	Croatia, Greece, Ireland, Slovakia	The agreements in this group tend to be based on less comprehensive registers (if any). In addition, they may not fully reflect the predominant bargaining levels, particularly as company-level agreements may have not been very accessible. Often agreements could not be identified for all sectors of interest, and the proportion of covered workers captured is typically lower than in the previous three groups.
Low	Czechia, Hungary, Latvia, Luxembourg	The listed sample of agreements in this group of countries could not be based on official (updated) registers, and the available agreements included may not always reflect the predominant bargaining level. Given the predominance and importance of company-level bargaining, the listed sample is very small and so is the proportion of covered workers captured by the included agreements in this group, and sectors with agreements tend to be missing.
Not representative	Estonia, Poland, Romania	In the absence of accessible registers, only a small number of agreements was identified, and only a few sectors could be included. In addition, due to the predominance of fragmented company-level bargaining, the sample is not sufficiently large and therefore not considered representative.

Source: Eurofound database of collective agreements for low-paid workers, 2023

Selecting the sample of agreements

Following the listing of agreements, Eurofound selected the sample of agreements to be included with complete information (fully coded) in the database. Agreements were selected on a country-by-country basis, with the aim of selecting a sample in each country that could be considered representative of the country's collective bargaining. Overall, country size and the size of the bargaining segment in each country were not considered as factors in selecting the sample. Sample selection was driven by several factors that were considered simultaneously.

- Retrieving time series of agreement texts and including relevant information in the database is a labour-intensive and largely manual process. The overall size of the sample to be included was therefore restricted by the **availability of budgetary resources**.
- For countries with a **small number of listed agreements** and those with particular difficulties in accessing agreements, all agreements tended to be included in the selected sample.
- A key focus in the selection process was **maximising the proportion of workers covered by the included agreements in relation to all agreements within the sectors of interest in each country** (i.e. figure G or the coder-assessed proportion of workers covered).¹⁷
- (Smaller) agreements covering a large number of workers estimated to be in the **low-paid sectors of interest were prioritised** over (larger) agreements with a smaller number of workers estimated to be in the low-paid sectors.
- The sufficient inclusion of **agreements from all subsectors of interest** in a country (even at the expense of excluding larger agreements from other (sub)sectors) was ensured.
- Agreements were selected based on whether they **could be accessed** or at least access was likely to be granted.

- Agreements were selected based on whether they **contained pay rates**, or were at least likely to contain them.
- In cases where **multiple bargaining levels were present and none of them was clearly predominant**, agreements were included to ensure representation of all bargaining levels in the sectors of interest.
- The **guidance of the coders (as local experts)**, who were asked at the listing stage to propose a selection of agreements, was followed.
- Taking into account all of the above points, the selection was carried out in such a way as to maximise **worker coverage by the selected agreements within countries**.

Based on these considerations, the sample selected for coding is country and sector specific and seeks to ensure the representativeness of the database in relation to the collective agreements known to exist and workers covered by them, while ensuring that the selected agreements are also representative of the sectors of interest in each country. The preliminary concept note proposed a fixed minimum number of agreements (up to 10) to be included for each sector in each country and for fragmented bargaining contexts a 'stop rule' in the form of three percentage thresholds¹⁸ of workers to be covered by the agreements included (up to 25). The results of the mini-pilot showed that it was not possible to implement this rule in practice, first and foremost because information on the distribution of workers covered across bargaining levels at this level of country/sector disaggregation was unavailable, but also because of data gaps in the number of workers covered by the agreements in the sectors of interest.

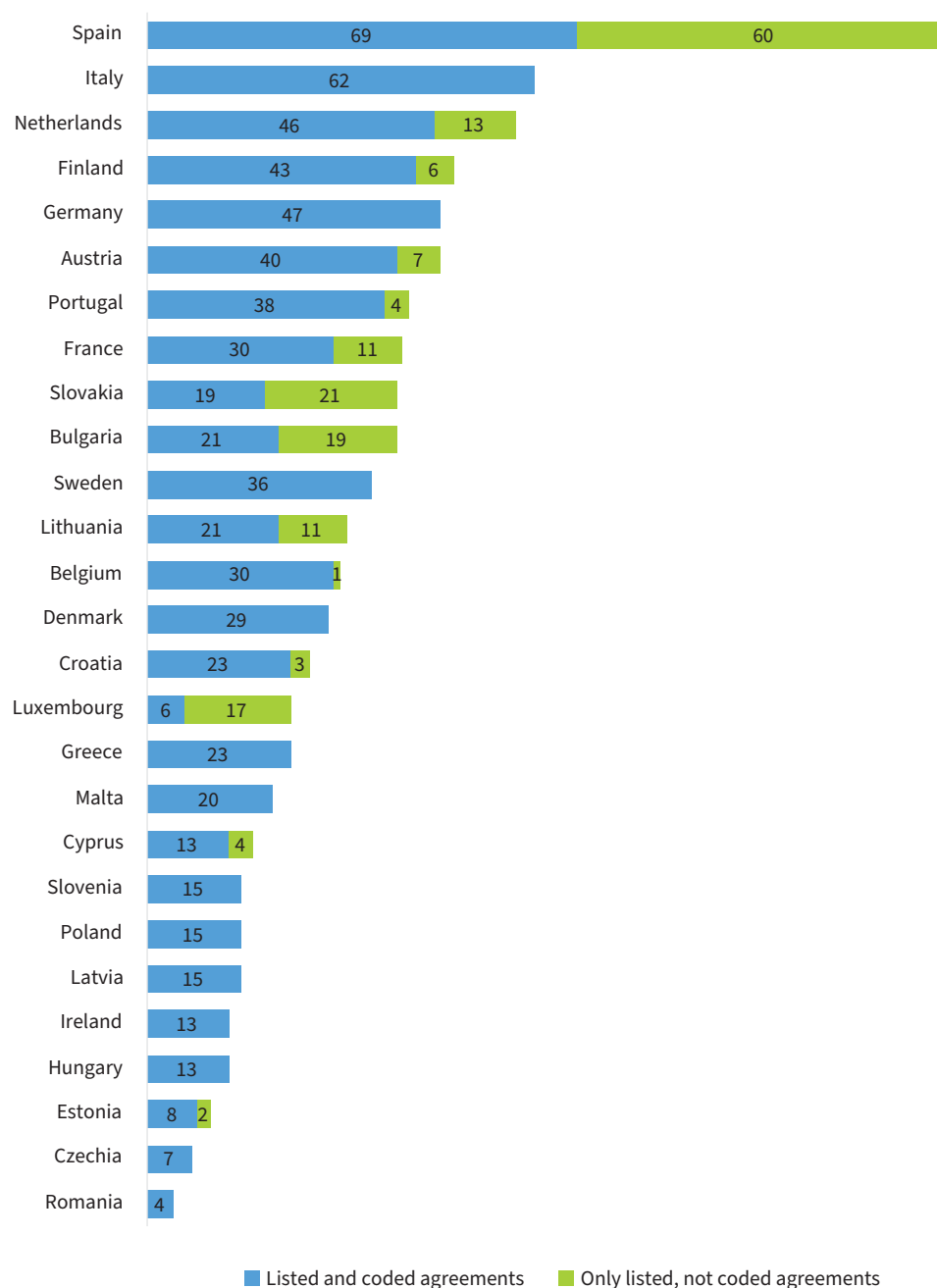
Based on this approach a total of 692 collective agreements were chosen to be fully coded in the database,¹⁹ out of a total of 885 listed agreements. [Figure 7](#) provides a breakdown of the listed and coded agreements by country.

¹⁷ A decision was made during the project to include a large number of sectors of interest (i.e. the 24 low-paid sectors). Therefore, for countries with less fragmented collective bargaining only a small number of (sector-level) collective agreements were included, to ensure sufficient resources for country sectors with more fragmented bargaining landscapes.

¹⁸ More than 80% of covered workers included in predominantly sector-level bargaining contexts, more than 30% of covered workers included in company-level bargaining contexts or more than 65% of covered workers included in mixed bargaining contexts.

¹⁹ Note that this also includes (some) collective agreements without pay rates.

Figure 7: Listed and selected (coded) agreements, by country



Source: Eurofound database of collective agreements for low-paid workers, 2023

The data in Table 8 show that the sample selection process resulted in only a minor loss of information related to the number of workers covered: the sample of collective agreements selected to be fully coded in the database

comprises almost 80% of the total listed agreements; however, the selected agreements cover 92% of the workers covered by the listed agreements.

Table 8: Number and worker coverage of listed and coded agreements

Set of agreements	Absolute figure			Percentage of total	
	Number of collective agreements	Estimated number of workers covered*		Collective agreements (%)	Workers covered (mean from and to) (%)*
		From	To		
Only listed agreements (not coded)	193	3,342,516	3,399,788	22	8
Listed and coded agreements	692	42,202,560	43,788,362	78	92
All agreements	885	45,545,076	47,188,150	100	100

* The numbers are lower bounds, as they exclude cases in which data were unavailable. Some countries, in particular Germany, provided almost no figures on worker coverage.

Source: Eurofound database of collective agreements for low-paid workers, 2023

Coding information from agreements

A key part of the project and major work effort included the coding of information from the collective agreements into the database. This was the most (human) resource-intensive part of the project, due to the different lengths and structures of collective agreements, and because even the simple identification of the relevant rates may require a specialist understanding of country specifics in collectively agreed pay-setting.

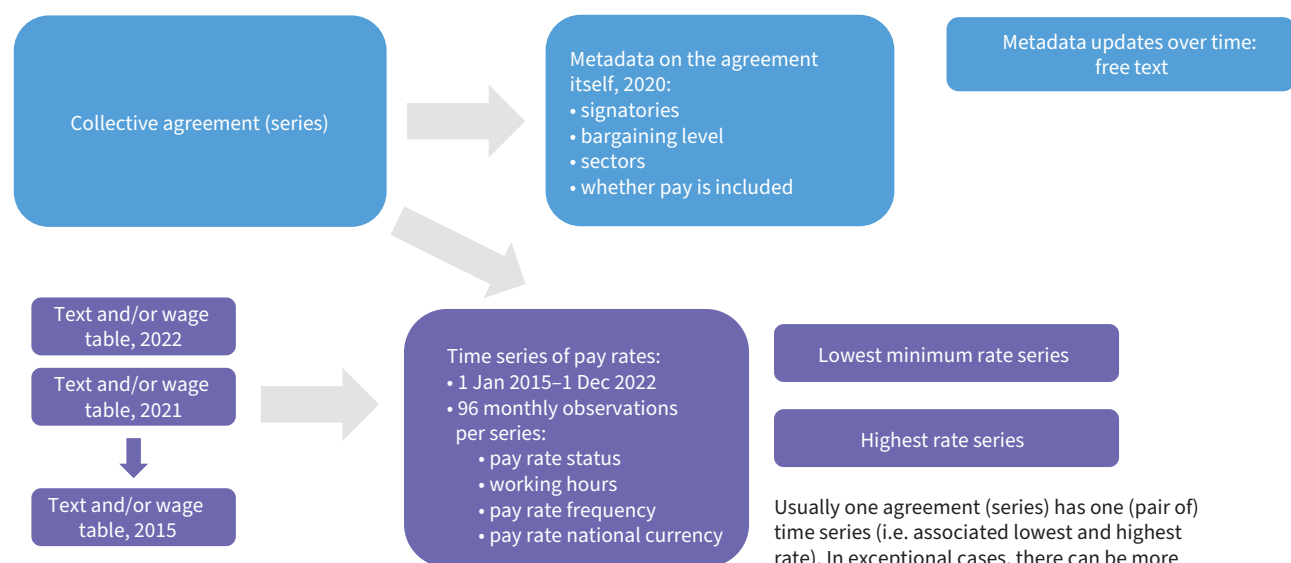
In addition to the key variables of interest (the series of the lowest minimum and highest pay rates in the agreements), variables relevant to wage setting in the collective agreements were nominally and ordinally coded. This section describes the data and information that were retrieved from the agreements, and the rules that were applied.

It is important to understand in this context that the variables can relate to different entities. Some, such as the bargaining level and the sectors covered, relate to the

entire series of collective agreement texts between 2015 and 2022, as they are assumed to be relatively stable over time. These variables were recorded for the sampling year 2020 and qualitative descriptions of changes in them are included in a narrative description but are not hard coded for the entire time series. In contrast, the pay rates are captured as a series of monthly observations, and two additional variables are captured for these pay rates at the same frequency: pay rate status and working hours. Figure 8 demonstrates this relationship. As a general rule, every collective agreement (series) is associated with one pair of time series (one for the lowest minimum rate and one for the highest rate). In a few exceptional cases, agreements are associated with more than one pair of time series. For more information about these exceptions, see the section ‘Exceptions to general rules’.

The following section describes in more detail which (meta)data are captured for the entire time series of agreements, and goes on to describe the concept of the pay rate status: a unique status for each monthly observation that describes the origin of each pay rate or, if no rate is available, the reason for its absence.

Figure 8: Overview of the relationship between collective agreements and the time series of pay rates



Source: Authors

Variables captured for collective agreements

The data collection captures the following variables at the level of collective agreements – that is, for the entire time series.

- general variables related to the collective agreement (series) (shown in Table 9)

- type, features and coverage of the collective agreement (series)
- how pay is set and included in the collective agreement (series)

Only one observation (or set of observations) is made for these variables for each of the 692 collective agreements.

General variables

Table 9: Overview of general variables captured for the series of collective agreements

Variable	Answer(s)	Description
Title in English	Example: Blue-collar workers in construction	A shortened title indicating the sector or company name and any other information required to identify the agreement (e.g. region or signatory parties, or whether it covers blue- or white-collar workers, if necessary)
Title in national language	Example: <i>Hotel- und Gaststätten – NRW</i>	The ‘official’ title of the agreement in the national language
Is anonymisation required?	Yes/no	Whether the information related to the agreement is under embargo and individual data should not be published; these agreements are not displayed online
Register ID	Number and/or text	The identifier used by the national register, if available to facilitate updating
Metadata updates	Dated free text boxes for four set categories and one other box capturing the timing and nature of the update	Metadata captured during the establishment of the database relate to 2020. If changes were made at any point during the time series or are made in the future, they are categorised into the following groups: <ul style="list-style-type: none"> ○ how rates are included ○ at which bargaining level wages are determined ○ clauses concerning indexation ○ pay rate differentiators ○ other
Metadata updates: date	Date	Date at which the aspect of the metadata was changed
Metadata updates: type	<ul style="list-style-type: none"> ○ How rates are included ○ At which bargaining level wages are determined ○ Clauses concerning pay rate indexation ○ Pay scale differentiators ○ Other 	A predefined list of possible changes and an ‘other’ category, to classify the updates
Metadata updates: free text	Free text	Description of the change
Sources	Sources are captured that relate to collective agreements, for the entire time series, with start and end dates	Sources can relate to a collective agreement text itself but can also include annexes to the agreement or any other sources that mention the pay rate of interest. Multiple sources can be included for a specific period (e.g. an agreement text and a wage table)
Sources: ID and title	Source ID is a unique identifier Title of the source	
Sources: start date/has end date/end date	Start and end dates Yes/no for the filter question on whether an end date exists	As sources may or may not have an end date, there is a filter question to determine this. End dates are only captured if the answer to the question about whether the source has an end date is ‘yes’

Source: Eurofound database of collective agreements for low-paid workers, 2023

Type, features and coverage

A number of other variables relate to the collective agreement series and hence do not vary (greatly) over time. These include the bargaining level at which the agreement was signed, the sectors to which the agreement applies and whether the agreement covers mainly the public or the private sector, the signatory parties, and estimated range of workers covered for the agreement as a whole and for the low-paid sectors of interest (Table 10).

An important question to answer in this regard is whether a text belongs to a series of collective agreements or whether it constitutes a series of its own. While the general rule is that a series of collective agreement texts usually have the same title, relate to the same bargaining level, were signed by the same signatory parties and cover the

same group of workers, most of these variables could also change over time. For example, particularly in bargaining contexts where a large number of signatory parties are involved in the conclusion of a sectoral agreement, there are likely to be changes over time in the signatory parties. In addition, the scope of worker and sectoral coverage could vary slightly over time. The decision on whether such changes were substantial enough to justify the creation of an entirely new series was at the discretion of the coders, as they had knowledge of the local context. A change in bargaining level (for example, a sectoral agreement being replaced by a company-level agreement or vice versa) always triggered the initiation of a new series.

Table 10: Overview of the type, features and coverage of the series of collective agreements

Variable	Answer(s)	Description
At which bargaining level has this agreement been concluded?	<ul style="list-style-type: none"> ○ Cross-sectoral/national-level agreement ○ National industry-/sector-level agreement ○ Regional industry-/sector-level agreement ○ Enterprise-/company-/establishment-level agreement ○ Other type of agreement ○ Unknown 	NA
Is the public or private sector covered by the agreement?	Private/public/semi-public	NA
Sector	NACE two-digit sector	The coding was extended to the full set of NACE codes to complete the NACE coding that was applied at the listing phase (which only captured the low-paid sectors of interest). First, a filter question was asked: 'Does this agreement cover NACE sectors that were not coded in the sampling phase?' If the answer was 'yes', additional NACE sectors were added at this stage.
Actor	Signatory parties of the agreement	NA
Actor: type	<ul style="list-style-type: none"> ○ Trade union ○ Works council ○ Professional association ○ Employer organisation ○ Company (employer) ○ Other 	This variable identifies the type of organisation the signatory party is.
Actor: name in English	Example: Food, Beverages and Catering Union	NA
Actor: official name in national language	Example: Gewerkschaft Nahrung-Genuss-Gaststätten	NA
Actor: abbreviation	Example: NGG	NA
Can those covered by the collective agreement potentially opt out of its provisions under certain circumstances?	<ul style="list-style-type: none"> ○ Yes, from the wage-related provisions ○ Yes, from the working time-related provisions ○ Yes, from the wage- and working time-related provisions ○ No, it is not possible to opt out ○ Not applicable, as this is an enterprise agreement 	In some bargaining contexts, it is possible to opt out of the provisions stipulated in collective agreements. This variable is only applicable to higher-level agreements, as it can be assumed that company-level agreements can be cancelled or cease to apply.
Coverage figures: worker coverage	'From' and 'to'	Each of the coverage figures could be included as a range, if no exact estimates were available. In the case of point estimates or exact figures, the 'to' field was completed with the same number as the 'from' field.

Variable	Answer(s)	Description
Coverage: number of workers covered in total by the agreement directly (before extension)	Number of workers covered by the entire agreement directly (from/to)	The figure relates to 2020, before the application of any extension mechanisms to non-affiliated workers or companies.
Coverage: number of workers covered in the NACE two-digit sectors of interest	Number of workers covered by the agreement in the low-paid sectors of interest (from/to)	The figure relates to 2020, before the application of any extension mechanisms to non-affiliated workers or companies.
Has this agreement been extended to companies/workers not directly affiliated to any of the signatory parties?	Yes/no	This is a filter question. If the answer was 'yes', the additional variables on coverage due to extension were included.
Number of workers covered after extension	Number of workers covered by the entire agreement directly following extension (from/to)	Extension mechanisms are legal instruments that extend the coverage of agreements beyond the members of the signatory parties.
Number of workers covered in NACE two-digit sectors after extension	Number of workers covered by the agreement in the low-paid sectors of interest following extension (from/to)	NA
Quality of estimate	<ul style="list-style-type: none"> ○ Numbers are (relatively) precise and reliable ○ Numbers are best estimates ○ Numbers are rough estimates, and may be unreliable ○ No estimates can be made at all 	The quality of each pair of from/to fields was assessed separately.

Note: NA, not applicable.

Source: Eurofound database of collective agreements for low-paid workers, 2023

Setting and inclusion of pay

Table 11 summarises all variables and answer categories.

Several variables were dedicated to capturing how pay is set and included in collective agreements in general.

Table 11: Overview of variables related to how pay is set or included in collective agreements

Variable	Answer(s)	Description
Are wage rates included in 2020?	Yes/no	Some agreements do not contain wage rates. The question also refers to annexes, which are considered an integral part of collective agreements.
Number of monthly payments per year (as per agreement or law)	12/12.5/13/14/15/16	Some countries include basic (monthly) rates but also stipulate that these rates must be paid more frequently than 12 times per year. This variable captures the frequency of such payments, irrespective of whether this is part of the agreement or any higher-level agreement or law.
Does the agreement include a clause concerning the indexation of the pay rates?	Yes/no/not applicable – there are no wage clauses in the agreement/unknown	
How are pay rates included in the collective agreement?	<ul style="list-style-type: none"> ○ A single minimum pay rate ○ Pay scales or pay tables ○ Pay ranges ○ No rates, but percentage increases are mentioned ○ No rates, but agreement refers to other agreements or laws ○ No rates, just information on where wages are determined ○ No wage rates or clauses in the agreement ○ No access to the rate 	

Variable	Answer(s)	Description
Pay scale differentiators applicable in 2020	<ul style="list-style-type: none"> ○ Age groups ○ Complexity of tasks ○ Degree of autonomy ○ Differentiated otherwise ○ Firm size ○ Geographical regions ○ Level of responsibility ○ Professions ○ Skills required for an activity ○ Specific groups of workers obtaining other than regular rates ○ Subsectors of units in companies ○ Validity at different dates ○ Workers' years of tenure (seniority) ○ Workers' educational levels 	<p>The question asks about the way the pay scales or rates are stratified (multiple choice field).</p> <p>If no pay scale differentiator exists in an agreement, the option 'no pay scale differentiator exists' can be selected.</p>

Source: Eurofound database of collective agreements for low-paid workers, 2023

Variables captured for each pay rate observation

The main object of interest in the data collection is the time series of collectively agreed pay. Where available, two series are captured: one for the lowest minimum pay rate found in the collective agreement and one for the highest pay rate. Pay rates are captured on the first of each month, from 1 January 2015 to 1 December 2022. Therefore, a complete series of pay rates includes 96 pay rates (12 monthly observations for 8 years). For each series, a short verbal description was added describing which workers the pay rates apply to, and, if available, referring to the group of workers concerned as per the collective agreement text. For example, a minimum series could be described as 'wage group I: workers with simple tasks carried out after brief instruction', or a highest series could be labelled 'workers in group VIII with 18 years of tenure or more: foremen technical service, QESH [quality, environment, safety and health] coordinators, production planners, HR [human resources] officers, team leaders'.

A key variable of the series is the pay rate status. While the series itself may not include a complete set of applicable pay rates, information on the pay rate status is complete for the entire series, allowing the determination of why no pay rate could be coded, where applicable (see the following section for further information). In addition, a small set of variables is captured for each monthly observation. These are mainly used to convert rates or to facilitate the location of a rate in a text.

Pay rate status

A central aim of this data collection is to create time series of the lowest and highest minimum pay rates contained in collective agreements between 2015 and 2022 (on a monthly basis). Such time series are created by coding the rates in consecutive versions of the text of renewed collective agreements (including their annexed wage tables). Ideally, valid or ultra-active agreement texts exist across the whole period of interest, they contain the required pay rates and they can be accessed. In practice, however, there are many reasons why an uninterrupted time series of collectively agreed pay rates cannot be

created. The approach taken here is to assign a status for each pay rate observation, to ensure that (1) the origin of a coded pay rate is known or (2) the reason for the non-inclusion of a collectively pay rate is recorded (Figure 9). This provides the opportunity for pay rate data to be presented by filling gaps with statutory rates – where applicable – or for data gaps not to be filled.

Normally, collective agreements stipulate a concrete pay rate (as part of their text or in an annexed wage table). In this case, the data collection does not distinguish between periods for which an agreement is active and ultra-active periods: if, in accordance with national legislation, pay rates in expired agreement texts are still valid, they are included with the status 'as defined in agreement'.

In other cases, collective agreements do not explicitly state wage rates, but instead refer to wage rates contained in other texts, including, for example:

- higher-level collective agreements
- other wage regulations (for example, legal orders or occupational statutory rates)
- texts setting out the statutory minimum wage

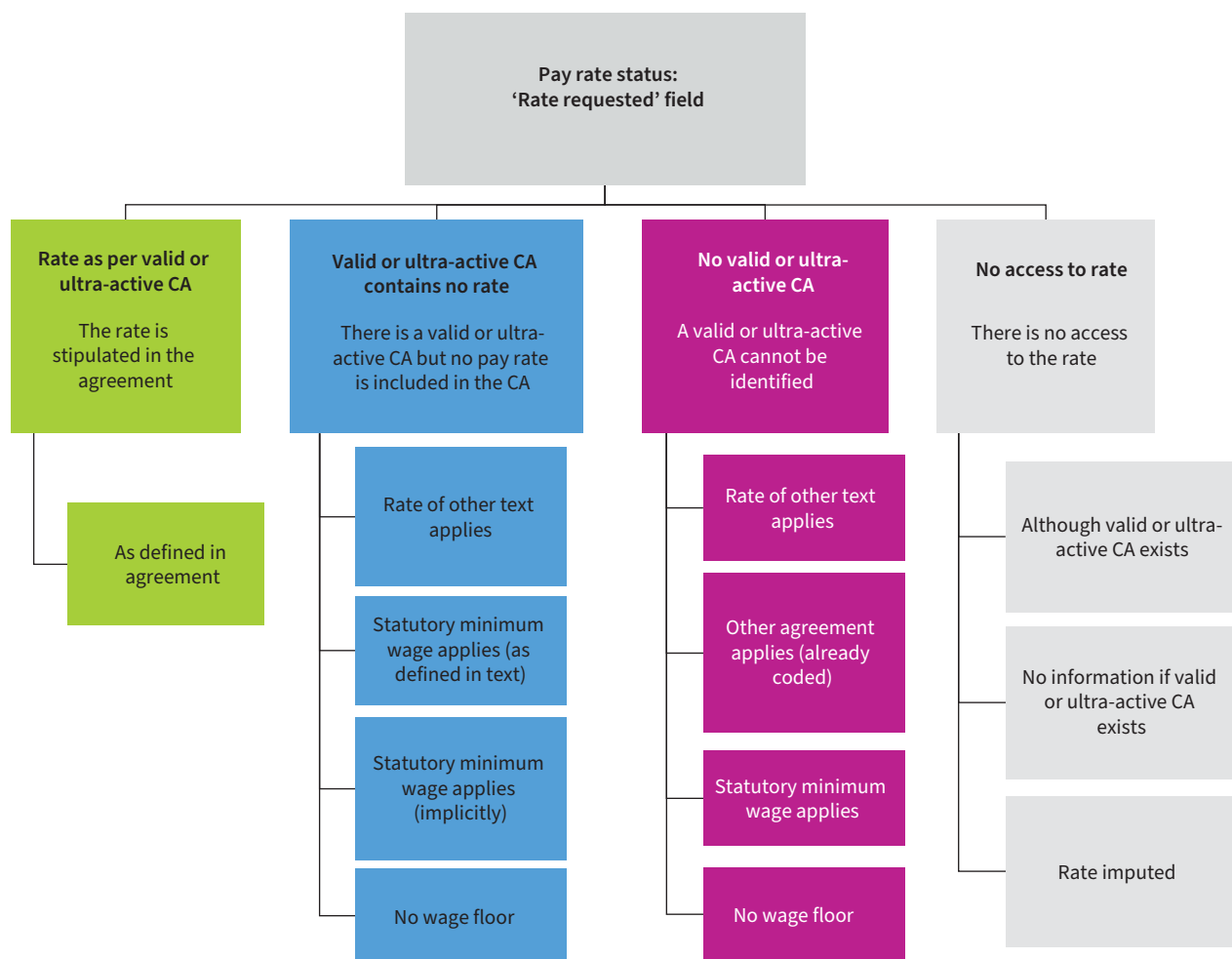
If an agreement expressly refers to pay rates set in another text, this other text is consulted and used as a basis to retrieve the rates required for the time series. For any texts that do not set out the (national) statutory minimum wage, the coder is requested to record the relevant pay rates as per the text. If an agreement text refers to the statutory minimum wage, it is understood that the negotiating parties have agreed the rate to be equivalent to the statutory minimum wage and the rate is coded as 'valid or ultra-active agreement contains no rate, but statutory minimum wage applies explicitly'. In cases where a valid or ultra-active agreement does not refer to any other texts, the coder must decide whether the statutory minimum wage applies implicitly (i.e. the country has a nationwide minimum wage that applies in such cases by law) or no wage floor exists (i.e. in the absence of statutory minimum wages with universal coverage).

In other cases, collective agreement renewals may not exist for some periods, either when they have expired

(beyond any country-specific phases of ultra-activity) and have not been renewed, or if they were newly signed during the period of observation. In such cases, the relevant observations in the time series are flagged as 'no valid or ultra-active agreement', depending on the situation – that is, whether the statutory minimum wage applies in such cases, whether the rate of another text applies or whether no wage floor exists.

Finally, in practice, there are also cases where the (renewed) texts of agreements cannot be accessed, at least for some periods. These cases are flagged separately depending on whether an agreement text is known to exist or whether this is unknown. In a very small minority of cases, pay rates were imputed if it was known that agreements existed but were not accessible and rates before and after the gap were known. These instances were flagged with the status 'Rate imputed'.

Figure 9: Status fields for monthly pay rates



Source: Authors

Table 12: Overview of variables related to pay rates and additional variables captured at pay rate level

Variable	Answer(s)	Description
Pay rate: amount	Number in national currency	The pay rate coded should be the 'standard' rate for a 'full adult'. Subminima are not included. See the next section for more information.
Pay rate: frequency	<ul style="list-style-type: none"> ○ Per hour ○ Per day ○ Per week ○ Per month ○ Per year 	The frequency specified in the text was selected. Where multiple specifications were provided, the monthly rate was chosen by default.
Working hours per week	Number of working hours per week, associated with the pay rate	The figure is that either stipulated in the agreement or, if not specified therein, provided by law. If the number stipulated in the agreement was not specified per week, the coder was asked to convert it into hours per week.
Link to agreement text	Name of the source text from which the rate was retrieved and period of validity	This variable refers to how the source relates to the relevant text stored in the database.
Location in text	Free text Example: p. 47, Group I, Tenure 0	A description is provided to allow the swift cross-checking and updating of the series.

Source: Eurofound database of collective agreements for low-paid workers, 2023

Pay rates and additional variables at pay rate level

The central variable of interest for the time series is the pay rate itself. In principle, pay rates are coded as they appear in the original text without being converted in the first instance. This means that they are captured in the national currency,²⁰ and with the frequency specified in the text. In addition, the database captures the number of weekly working hours associated with the coded pay rate; it links the agreement text including the rate to the rate itself, together with information on where in the text the rate can be found. Table 12 summarises the variables that are captured at pay rate level and are therefore available at a monthly frequency.

Definition and location of relevant pay rates

Basic minima are identified as the lowest rates found in each specific collective agreement for the standard contractual case and for a 'full adult' worker. In some agreements, there may be lower, 'subminimum', rates. Subminima (rates below the minimum rate found in the agreement, applicable, for instance, to younger workers, or to trainees, interns, apprentices or other defined categories of workers) were not considered in this project. They were excluded because rates that are below the basic minimum are justified by law or collective bargaining based on an obligation to provide training or professional qualifications, rather than the full rate, or based on specific individual circumstances such as a disability or previous long periods of unemployment.

In identifying the lowest minimum rates, the lowest level of seniority was considered – that is, the rate relevant to a newly hired worker. This translates, in practice, into the basic rate without seniority allowance (as this allowance applies only after a certain period of work in a company).

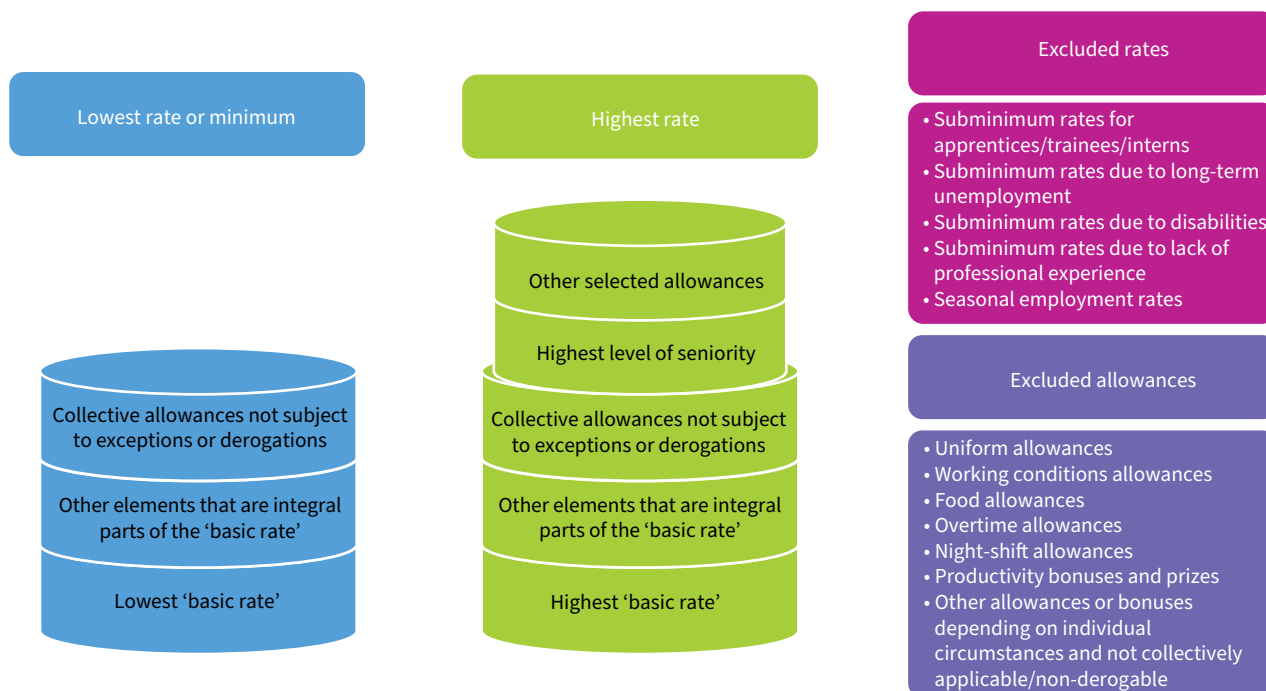
The highest minimum rates are identified as the highest rates found in collective agreements, including the highest level of seniority if the agreement provides for it.

Importantly, the functional category of the employee to which the highest rate applies or the wage table in which the highest rate is found in the agreement does not necessarily have to match that for the lowest minimum rate. Therefore, while the minimum rate can refer to blue-collar workers, the highest rate may well refer to white-collar workers. Alternatively, the minimum rate may be applicable to cleaning staff of two-star hotels, and the highest rate may be applicable to managers of five-star hotels, as long as they are found in the same collective agreement, even if separate wage tables and job classifications are provided by the agreement for different categories of hotels.

Finally, another general rule – common to both the lowest and highest rates – was applied: in many Member States, it is common practice in collective agreements to provide for a number of (in some instances rather large) bonuses and allowances. They were not considered in the definition of the basic rate, as long as they are not universally applicable – that is, they depend on individual circumstances of the employee (for instance, uniform allowances, food allowances, accommodation allowances, unhealthy working conditions allowances, seasonal employment allowances, night-shift allowances, overtime allowances, productivity bonuses and prizes). Any addition to the basic rate based on specific personal circumstances not in principle applicable to the whole category to which that basic rate applies would be detrimental to comparability, which is a key requirement for an instrument aimed at collecting and organising information drawn from different collective bargaining agreements. Figure 10 shows the allowances that are included in the basic rate.

²⁰ For Croatia, whose currency changed from the kuna to the euro in the period of observation, a flexible approach to including the currency was implemented.

Figure 10: Definition and identification of the basic rate coded in the database



Source: Authors

Exceptions to general rules

The general principles described in the previous section constitute the basic general methodology for identifying the relevant rates for the purposes of the project. However, Member States are diverse, in relation to collective bargaining and how pay is set in collective agreements. Therefore, some country-specific deviations from the overly generalised methodology were required. These did not, in principle, prevent comparability. The project showed that the strict application of general rules alone would have resulted in an incomplete, oversimplified, less comparable or even incorrect representation of a complex reality.

Six exceptions were made.

- Elements related to basic pay may have been scattered across the agreement and had to be taken into account together in some countries.
- Collective allowances were added when applicable universally and when not subject to derogations or exceptions.
- There were differences in the selection of what constitutes a subminimum, based on the wording of each collective agreement, with the aim of ensuring that divergencies in the formal qualification and identification of subminima in each country and by each agreement would not compromise comparability substantially.
- A clarification was made on how to deal with regional wage tables and the highest and lowest minimum rate time series pairs in countries where regional wage tables co-existed in the same sectoral agreement.

- In very exceptional cases, more than one pair of series related to one agreement were coded, if of interest for the research project.
- In Sweden, a more limited set of variables was coded.

The general rules remained the main guiding principles in the coding phase. Coupling them with country-specific approaches – understood as necessary exceptions to the rules – not only improves comparability, but also increases the accuracy of the data, representing a highly complex and diverse reality.

Elements of basic pay scattered across agreements

In some countries, the basic rates as defined in collective agreements may not be sufficient to represent the lowest and highest rates for the purposes of the database because they exclude collectively agreed elements applicable to all workers covered, which are included in all other countries' basic rates. This occurs mainly in Greece and Italy: in Italy, the basic rate as defined in collective agreements is only one of the components of the collectively agreed minimum rate, and is complemented by further universal and non-derogable elements of the salary. Italian collective agreements very frequently list the contingency allowance (*Indennità di contingenza*) and the distinct salary element (*Elemento distinto della retribuzione*), the sum of which generally amounts to €500–550 (depending on the specific agreement and on the job classification of the employee), separately from the basic rate. As this is a substantial amount, and the practice of listing the allowances separately from the basic rate is inconsistent across agreements, it was decided that they would indeed be considered part of the basic collectively agreed pay

for the purposes of the project.²¹ Similarly, several Greek collective agreements provide a basic rate that if not complemented by additional allowances does not include the same elements as the basic rates as per the general rules in other countries. These additional allowances consist of the allowance for married individuals – considered for the highest rate but not for the lowest rate²² – and the educational level allowances – also considered for the highest rate but not for the lowest (educational level is generally taken into account directly in personnel classifications, and therefore in wage levels, in other countries).

Disregarding the sum of the components to be added to the basic rate would result in a rate that incorrectly reflects the reality in the country considered and reduce its comparability with the rates in countries in which the basic rate, as defined by collective agreements, already includes them.

To summarise, while in most Member States the basic rate for the purposes of the database is expressed by just one rate in their collective agreements, in fewer instances the rate for the purposes of the database is fragmented in two or more components that must be added together.

Selected collective allowances

A second country-specific approach was adopted to consider bonuses and allowances that, while generally excluded, may constitute – in substance and despite the formal definition – an integral part of the basic rate, as they are universally and non-derogably applicable to all workers to which the rate applies.

Instances of these allowances may be observed in countries where collective bargaining is very well developed at sectoral (national or regional) level. These include Spain, in which seniority – which is considered in the highest rates as per the general rule – is expressed by the awarding of bonuses that are formally different from the seniority allowance (*antigüedad*) but in substance complementary to or a substitute for it. Commonly spotted in Spanish collective agreements are the professional experience bonus (*plus de experiencia profesional*) and the extraordinary bonus for continuity (*plus extraordinario de permanencia*).²³ Less common, but observed in coded agreements, is the agreement bonus (*plus de convenio*), which – when provided – unconditionally applies to all workers covered by the agreement simply because they are covered by it.

Italian collective agreements very often provide a ‘function allowance’ for all non-managerial executives (which can therefore be considered a collective allowance for the whole category to which the highest rates of the agreement apply). Its amount can be substantial, and it is meant partly to compensate for the fact that executives

are, by Italian law, not subject to several legal provisions related to working hours and overtime, and partly to compensate for their responsibilities as quasi-managers. This allowance is also an integral part of the basic wage, as it is applicable to the whole category and not subject to derogations or reductions.

Identification of regular rates vis-à-vis subminima

Careful consideration was also given to the determination of whether a rate should be considered a subminimum (and therefore excluded from coding), or rather a regular rate (and therefore coded as the relevant rate). This was not straightforward in several cases. As a general rule, clear subminima referring to specific categories of contracts (for example, traineeships, internships, apprenticeships, very short-term contracts) or applicable to specific personal circumstances (such as young age, disabilities, previous long periods of unemployment) were excluded from the coding exercise. Nevertheless, in some other instances further reasoning was required. For example, in the Netherlands, some collective agreements provide different rates based on the age of employees. Which age should be considered as the reference for the identification of the standard, full adult rate? Different approaches were justifiable by different lines of reasoning. After careful and extensive consideration and following the consultation of the expert committee, the standard rate was identified as the one applicable to the largest group of workers covered by the agreement. Therefore, for instance, when different rates are provided for 18-year-olds, 19-year-olds and those 20 years old or over, the last rate is coded as the standard rate because it applies to most individuals of working age. As a result, the age from which a worker is considered a full adult can vary across countries and agreements.

Short spells of seniority were also considered. In some (exceptional) instances, collective agreements provide a rate applicable to the first months of work that is different from the rate applicable after this initial period. Which one, in cases of this kind, must be considered the standard minimum rate? In other words, is the entry-level rate a subminimum rate, or rather the standard minimum rate? A case-by-case approach is required, as the entry-level rate could be defined differently. For example, it could apply to the first six months of work for a specific company irrespective of previous work experience, or to the first six months of work for a specific company in the absence of previous work experience in that position. The entry-level rate could also apply to the first period of work in a specific sector irrespective of previous work experience in other sectors. Any generalisation, in this context, would reduce the quality of the findings. An example is provided by two Dutch cases, in the convenience food industry and the painting and glazing industry, that share a similar issue but to which different solutions were adopted. Both agreements implemented

21 They were introduced to keep salaries up to date with the high inflation characterising the Italian economy up to the 1980s. In 1992, social partners and the government, through a tripartite agreement, decided to stop updating this mechanism, but the amount in force at that time is still paid today, with no further increase. The amount is paid to all employees covered by collective bargaining, but in a significant number of agreements they have already been directly incorporated into the basic rate.

22 Not considering the highest rate would mean considering, implicitly, the rate for an unmarried person, given that a person is either married or unmarried.

23 They often replace the seniority allowance (in most cases abolished in the 1990s) and are therefore appropriately considered in the same way as a standard seniority allowance.

an entry-level rate (*aanloopschaal*) that applied for an initial period to workers who entered the sector for the first time. In the convenience food industry this was implemented regardless of their experience, skills or other indicators of professionalism. In the case of the painting and glazing industry this was applied only to employees who do 'not yet have the necessary skills and/or competence'. While in the first case the lower starting rate applies unconditionally to any worker entering the sector for the first time, in the second instance case-by-case consideration of individual workers' competence and skills is required to determine whether the *aanloopschaal* applies. Consequently, while in the first case the *aanloopschaal* was considered a minimum (to be coded), in the second case it was considered a subminimum (substantially comparable to an apprenticeship, and not to be coded).

Regional wage tables in national sector/industry agreements

Another deviation from the general rule of coding the lowest and the highest full adult rate in the agreement related to cases where regional wage tables existed in national sectoral agreements. This was almost exclusively the case in a few agreements in Austria, Germany and Spain. Regional agreements (for example, an agreement for the construction sector in Madrid), national sectoral agreements with regional wage tables (for example, a national construction agreement containing wage tables for Madrid, Andalusia, etc.) or a combination thereof (for example, a national agreement without pay rates but with separate regional wage tables) can co-exist.

In the case of agreements with many regional wage tables, the following rules were applied.

- One **large low-paying region** (for example, Andalusia) was selected and the wage table, containing the lowest and highest rates, related to this region only was coded.
- Throughout the exercise, the selected region was coded in the case of agreements with many regional wage tables.

These rules did not affect the coding of other regional agreements: for example, regional agreements for construction in Extremadura or Madrid were also included in the sample, even if Andalusia had been chosen as the large low-paying region in the case of national agreements with regional wage tables.

The purpose of these rules was to ensure that each coded lowest/highest time series relates to the same region, ensuring the comparability of the pay ranges across the national and regional agreements; it also facilitated the identification of relevant rates in large agreements.

More than one pair of pay rate series per agreement

Finally, an exception was made in a few cases where more than one series of relevant pay rates related to the same agreement was found to be of interest for the project. This primarily concerned Germany, in which some agreements contain separate rates or wage tables for eastern and western Germany. In such cases, both series were coded, as it was argued that a representative sample for Germany should include rates from both areas. More than one series per agreement was also created for Malta if rates for occupations or sectors of interest related to the same order. (In Malta, in the absence of access to agreements, statutory occupational wage regulations were included.)

The Swedish case

In Sweden, both the process and the coded content were different. There, formulating collective agreements is regarded as entirely the responsibility of the social partners. The Swedish National Mediation Office (*Medlingsinstitutet*) is a government agency that supports the social partners in the event of conflicts related to collective bargaining and promotes the effective functioning of the wage formation process. In order to fulfil its mission, the mediation office has the right to request collective agreements from the negotiating parties. Throughout the project, during which a representative of the institute also participated in the expert group, it was argued that the contents of collective agreements to be included in the database required interpretation, which in the Swedish context is the sole responsibility of the social partners. As a compromise, it was agreed that the agreements would be selected and coded by the mediation office (instead of Eurofound's national correspondent). In addition, a smaller set of variables was provided for Sweden than for other countries, including only the lowest minimum series. The coded Swedish agreements do not contain any information on the following variables: opening clauses, indexation, texts uploaded and working hours related to the minimum pay rates. Therefore, for conversion purposes, a working week of 40.15 hours was assumed for each agreement, in consultation with the mediation office. In addition, for practical reasons, only agreements from 2017 onwards were included (those from 2016 were included in a few cases).

3 Descriptive statistics of the sample of agreements

By 5 October 2023, the database included 885 collective agreement series related to the 24 low-paid sectors of interest for this study in the EU27. Out of those, 692 collective agreement series were fully coded. See [Figure 7](#) for a breakdown of the sample by Member State. A series of collective agreements covers the collective agreement and its renewals between 2015 and 2022. It thus comprises the agreement text valid in each year and the associated wage tables (if applicable), or other sources from which information on pay rates was retrieved. In total, the information for the series of pay rates related to the 692 coded agreements is based on 3,202 source texts,²⁴ which are stored as PDFs in the database. These agreements cover at least 42.2 million workers.²⁵ Note that to improve readability we use the term ‘collective agreement’ to refer to the entire series of texts for an agreement over time – including the renewals – interchangeably with the term ‘series of collective agreements’ or ‘collective agreement series’.

This chapter provides basic descriptive statistics for the 692 agreements that were fully coded. It starts by describing the general features of these agreements and how pay is set in them. It then goes on to present the conceptual classification of the pay rate status deployed in the database, which was implemented to elucidate the underlying bargaining and pay-setting process. The

chapter ends with a discussion on data availability, quality and gaps.

Overview of general features of agreements

This section summarises basic statistics captured at the level of collective agreements, for the sampling year 2020 (see [Figure 8](#) for a schematic overview). It describes the sample of agreements in relation to their bargaining level, coverage of workers and how the agreements relate to the low-paid sectors of interest, signatory parties and other features, such as whether they have been extended, the extent to which deviations from the provisions are possible and indexation clauses.

Bargaining level

The majority of collective agreements included in the database are sectoral agreements signed at national level (405 agreements, or 59% of the sample). Enterprise-/ company-level agreements make up 23% of the selected sample, or 158 agreements in total. A further 13% of agreements (90 in total) relate to the regional/sector level, 3% are ‘other’ types of agreements (24 in total) (see [Box 3](#)) and only 2% are national cross-sectoral agreements (15 in total).

Box 3: ‘Other’ types of agreements

In addition to the ‘regular’ bargaining levels and types of agreements, there is an ‘other’ category of agreements. This comprises not otherwise classifiable types of text that are in themselves not necessarily collective agreements but set minimum pay rates for workers. Most frequently, this type was included in Malta, where, in the absence of access to agreement texts, wage regulation orders were coded. These are statutory texts, setting minimum pay rates for workers in specific (often low-paid) occupations and sectors. Other examples of rates set in other types of text are the ‘minimum wage tariff’ for domestic workers in Austria and the minimum wage for unskilled construction workers in Germany. These are implemented through decrees by the government. The ‘other’ category was also used to code a few occupational agreements, such as the agreement for electrical workers in electrical companies in Greece.

²⁴ This is an underestimation of the true number of texts, as for data protection reasons it was not possible to upload all relevant source texts to the database.

²⁵ Excluding workers from Germany, Luxembourg and Malta, for which hardly any coverage figures were available.

However, the distribution in terms of bargaining level changes substantially when looking at the figures for worker coverage (Figure 11). Based on the lower-bound estimates, almost three-quarters of the workers represented in the sample are covered by agreements signed at national level for an industry or sector, and a further 19% of workers captured by agreements represented in the sample are covered by cross-sectoral national-level agreements. Industry-/sector-level agreements signed for a specific region cover another 5% of workers, while enterprise-/company-/establishment-level agreements cover only 2% of all workers captured in the agreements in the database ('other' types of agreements cover only 0.1% of workers).

The main bargaining levels are country specific, as shown in Figure 12. The predominant bargaining level for the low-paid sectors of interest in a country may differ from the predominant level of bargaining at national level (which is captured, for example, in the EurWORK database

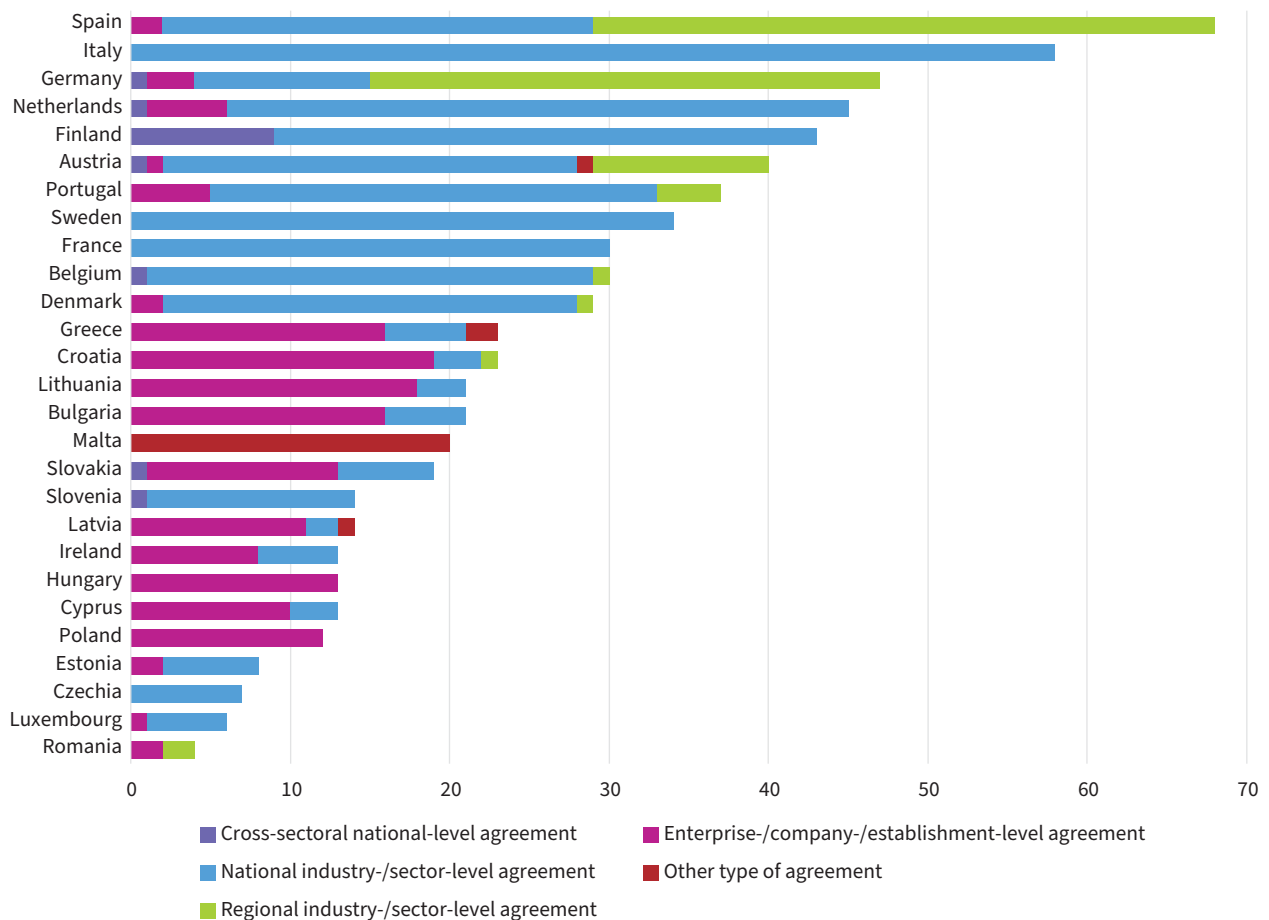
and the OECD/Amsterdam Institute for Advanced Labour Studies database on Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts). A detailed description of existing bargaining levels in each of the 12 grouped low-paid sectors of interest is available in the country reports accompanying the report. Overall, the distribution of the agreements by bargaining level included in the database reflects the predominant bargaining levels in each country, although for countries with predominantly company-level bargaining such agreements were more frequently unavailable, resulting in a lower representation of this bargaining level. Note that, in this context, in many cases, even if such agreements could be accessed, in order to achieve a high proportion of covered workers captured by company-level agreements, a (much) larger number of agreements would have been required. This would have required more resources than were available for this project.

Figure 11: Collective agreements and workers covered by agreements, by bargaining level (%)



Notes: The number of workers covered is a lower bound, as it excludes cases in which data were unavailable. Some countries, in particular Germany, provided almost no figures on worker coverage. The figures for collective agreements include all 692 fully coded agreements from all countries, while the figures for the workers covered are based on 592 agreements for which such estimates are available.

Source: Eurofound database of collective agreements for low-paid workers, 2023

Figure 12: Number of coded collective agreements, by bargaining level and country

Note: The number of collective agreements includes all 692 agreements approved for coding from all countries.

Source: Eurofound database of collective agreements for low-paid workers, 2023

Signatory parties

In total, the 692 collective agreements were signed by 2,438 signatories. Agreements can and do have more than one signatory party for each side of industry. Each genuine agreement, by definition, requires at least one signatory from each side of industry. Exceptions are the few agreements setting statutory rates that were included in the database. These usually do not include more than one signatory party – that is, the public entity setting the rate. Across all coded collective agreements, trade unions made up the largest proportion of signatory parties (1,316 signatories, equal to 54% of all signatories), followed by employer organisations (888 signatories, equal to 36%) and company management (163 signatories, equal to 7%). More exceptional are professional associations (22 signatories), equal to 1%, works councils (1 signatory) and other organisations (37 signatories, equal to 2% of all signatories).

Whether an agreement has more than two signatory parties and how many it has depends on the type of agreement and the country- and sector-level fragmentation of the bargaining landscape and the organisations present in the countries and sectors. As [Table 13](#) shows, on average, the more central the level of bargaining, the more signatories the agreement has. In addition, on average, across the entire sample 3.6

signatory parties are recorded for each agreement, while at cross-sectoral level 4.6 signatory parties are recorded and at national sector/industry level 4 are recorded. In contrast, enterprise-level agreements have only 2.8 signatory parties on average.

Table A2 in Annex 1 provides an overview of the number and type of signatory parties by country. Larger than average numbers of signatory parties are recorded in

Table 13: Average number of signatories, by bargaining level

Bargaining level	Average of number of signatories
Cross-sectoral national-level agreement	4.6
National industry-/sector-level agreement	4.0
Regional industry-/sector-level agreement	3.2
Enterprise-/company-/establishment-level agreement	2.8
Other type of agreement	1.3
Average	3.6

Source: Eurofound database of collective agreements for low-paid workers, 2023

France (7.8 signatories in total), Italy (6.9), Belgium (5.3), the Netherlands (4.2), Poland (4.0) and Spain (4.1). While in all of these cases the average number of signatory parties on the workers' side exceeds the number of signatories on the employers' side, the difference is particularly pronounced in France, with 5.0 signatory parties on average on the workers' side, compared with 2.8 on average on the employers' side. It is also worth noting that in every country there are fewer employers' signatories on average per agreement than workers' signatories.

Other features

Several countries have legal mechanisms in place for extending collective agreements. If applied, these extend (some or all) the provisions of agreements, including to companies that are not affiliated to the signatory parties of the agreement. Another feature of collective bargaining systems is countries' ability to allow companies (or other organisations at lower bargaining levels) to derogate/opt out under certain conditions from the provisions of a higher-level agreement.²⁶ For an overview of these mechanisms by country, see Eurofound's working life country profiles (specifically, the section on collective bargaining) or the OECD/Amsterdam Institutes of Labour Studies database on Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts).²⁷

Extensions

Extension rules differ across countries. All or most agreements in the sample were listed as having been extended in Belgium, France, Portugal and Spain,²⁸ explaining the high degree of collective bargaining coverage in these countries. Countries with a larger share of extended agreements in the sample are Czechia, Finland, the Netherlands, Portugal and Slovenia. See Table 14 for a breakdown of the sample by extension and country.

Opening clauses

To what extent is the minimum pay set in the agreements binding? As a general rule, the Member States most commonly apply the principle of 'favourability'. This means that collective agreements must contain provisions (including on pay) that are at least as good for the worker as those set by law, or better. By analogy, typically lower-level agreements can only provide either the same provisions as higher-level agreements or more favourable provisions, and individual employment contracts need to adhere to agreements and laws and can only deviate from them if they are more favourable to the worker (see, for example, ILO, 2023). Only a few Member States have rules that allow companies covered by a higher-level agreement to deviate from (opt out of) some provisions in the agreement under specific circumstances – to the detriment of the worker. When considering only the 532 agreements signed at a level higher than company level,²⁹ the findings

Table 14: Extension of collective agreements covered in the sample, by country

Country	Not extended	Extended	Total
Austria	37	1	38
Belgium		30	30
Bulgaria	5		5
Croatia	2	2	4
Cyprus	1	2	3
Czechia	4	3	7
Denmark	27		27
Estonia	4	2	6
Finland	12	31	43
France		30	30
Germany	39	5	44
Greece	4	1	5
Ireland	2	3	5
Italy*	58		58
Latvia		2	2
Lithuania	3		3
Luxembourg	1	4	5
Netherlands	5	36	41
Portugal		32	32
Romania	1		1
Slovakia	7		7
Slovenia	7	7	14
Spain		66	66
Sweden	34		34
Total	253	257	510

* In Italy, there is no current legal extension mechanism in force; however, when adjudicating individual disputes, Labour Courts use the basic wage provided by the relevant sectoral agreement as a benchmark to ensure a fair salary, in accordance with Article 36 of the Constitution.

Notes: Based on 510 fully coded agreements, excluding company-level agreements, and wage regulations in Malta. For Hungary and Poland, the sample only consists of company-level agreements; therefore, they are excluded from this table.

Source: Eurofound database of collective agreements for low-paid workers, 2023

show that in most it is not possible to opt out of provisions: in 63% of cases, no such opportunity is afforded. In those cases where companies can opt out of provisions in agreements, the provisions are most frequently related to working time only (17% of the agreements). In another 13%, organisations can deviate from both the working time and the wage-related clauses. These agreements are almost exclusively from Spain, with very few observations in Bulgaria, France and the Netherlands. No agreements were found that give organisations the opportunity to opt out of the wage-related provisions only.

26 <https://www.eurofound.europa.eu/country>

27 See the variable 'Ext' in OECD and Visser (2021).

28 Austria and Italy could effectively also be grouped with these countries. In Austria, as membership of the federal employer organisation Wirtschaftskammer Österreich is compulsory, all companies affiliated to the organisation are covered by the signed agreements. This is a functional equivalent of extension; however, legally this is not an extension.

29 For company-/establishment-level agreements, this attribute is not applicable, as instead of derogating from the provisions signatories could decide to terminate the agreement.

Table 15: Inclusion of wage rates in the coded agreements, by bargaining level

Bargaining level	Are wage rates included?		
	Unknown (%)	No (%)	Yes (%)
Cross-sectoral national-level agreement			100
Enterprise-/company-/establishment-level agreement	5	35	59
National industry-/sector-level agreement		5	95
Other type of agreement		4	96
Regional industry-/sector-level agreement		1	99
Total	1	11	88

Note: Based on 692 fully coded agreements from all countries.

Source: Eurofound database of collective agreements for low-paid workers, 2023

How pay is set in sampled agreements

The vast majority of the 692 coded agreements (88%) contain pay rates (11% do not and in 1% this is unknown, as the text was not available) (Table 15). Among all listed agreements, the situation is somewhat different (13% do not contain pay rates). This reflects the fact that in the selection of the final sample priority was given to agreements for which the text was available and that contained pay rates. The sampled cross-sectoral and sectoral agreements (whether national or regional) are much more likely (95% or more) to include wage rates than firm-level agreements (only 59%).

Inclusion of pay rates

Almost three-quarters of the coded agreements contain some form of pay scale or table, in which the rates are structured along a number of dimensions (seniority, occupation, qualification, etc.) (Table 16). Far fewer agreements contain single minimum pay rates (12%) or pay ranges (3%). The way pay is included in the

agreements is rather specific to the country or bargaining regime: in particular, central and eastern Member States tend to have agreements with single minimum pay rates or no wage rates at all.

Pay indexation

In addition, in 93 agreements (13%) some form of pay indexation was recorded. This is a common occurrence in a few countries, including Belgium, Cyprus, Slovenia and Spain (although often only a partial mechanism of indexation is in force, meaning that indexation takes place only if inflation reaches a pre-defined level, or it is not implemented automatically but rather social partners are required to apply it in the next renewal of the agreement). Pay indexation was observed in a limited number of instances in other countries too, although not commonly. These countries were Czechia, Germany, Italy,³⁰ Luxembourg, the Netherlands, Poland and Portugal.

Pay differentiators

Most commonly – that is, in every second case – the sampled collective agreements differentiate their wage scales by profession. Seniority (workers' tenure) follows

Table 16: Inclusion of pay rates in the coded collective agreements

How pay rates are included	Proportion of agreements (%)
Agreements with pay rates	
Pay scales or pay tables	70
A single minimum pay rate	12
Pay ranges	3
Agreements with no pay rates	
No rates, but percentage increases are mentioned	2
No wage rates or clauses in the agreement	6
No rates, just information on where wages are determined	2
No rates, but agreement refers to other agreements or laws	2
No access to the rate	3
Total	100

Note: Based on 692 fully coded agreements from all countries.

Source: Eurofound database of collective agreements for low-paid workers, 2023

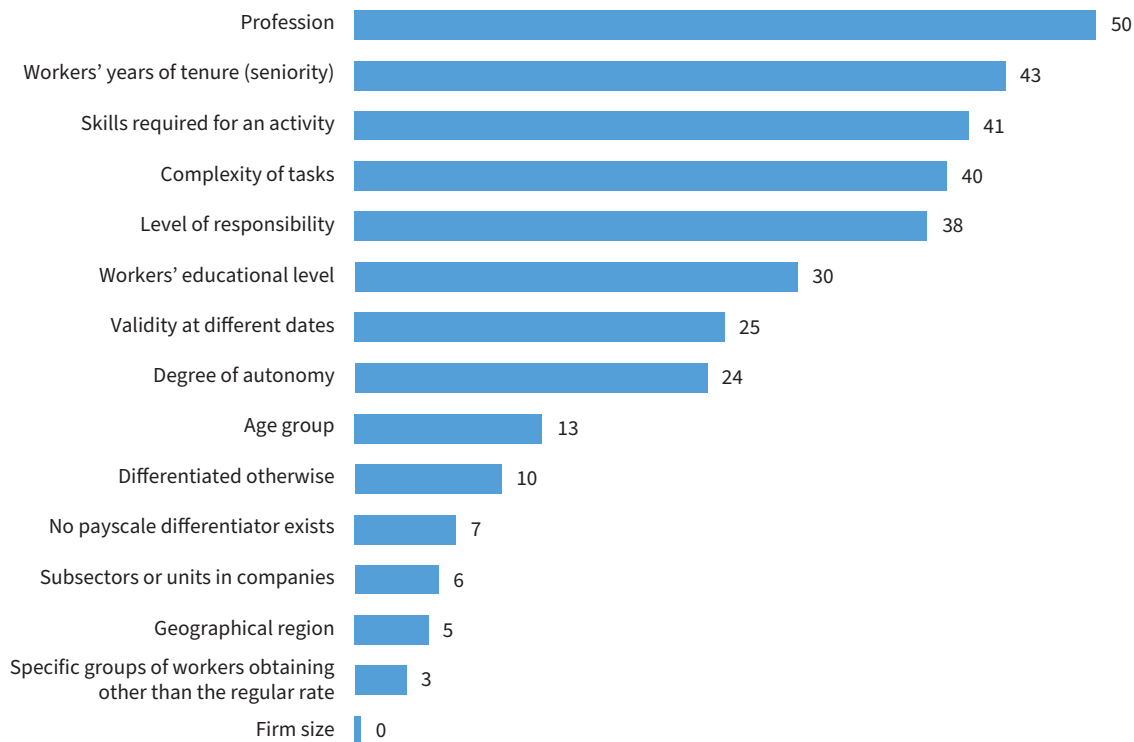
³⁰ In Italy, this occurs exclusively in the collective agreement for domestic work signed by Fidaldo and Domina with Federcolf, the Italian General Confederation of Labour, the Italian Confederation of Workers' Trade Unions, the Italian Labour Union and the General Labour Union.

closely as the second most frequently occurring pay differentiator: about 43% of the sampled agreements contain a reference to the number of months or years for which the worker has been employed in the company/ profession or sector when determining their pay. Skills required for job activities, the complexity of tasks and level of responsibility follow suit, and are observed to a similar extent. Still observed in slightly more than 200 agreements (30%) are workers' educational levels, and 25% of the agreements set pay rates for different periods of time during which the agreement is valid. Much more seldom found were pay scales or rates related to different subsectors or units within companies, geographical regions or specific groups of workers paid a rate other

than the regular rate. Firm size was only found to be a pay differentiator in three agreements. Figure 13 shows the types of pay scale differentiators most often found in the coded sample of collective agreements. One agreement can have more than one pay scale differentiator.

Agreements in the sample on average contain 3.2 pay scale differentiators. This increases to more than 5 in Finland, Germany, Italy and the Netherlands, while it is below 1.5 on average in the sampled agreements from Bulgaria, Estonia, Ireland, Latvia, Lithuania, Poland and Sweden. Figure 14 shows the average number of coded pay differentiators per agreement for each country (see also Figure 13).

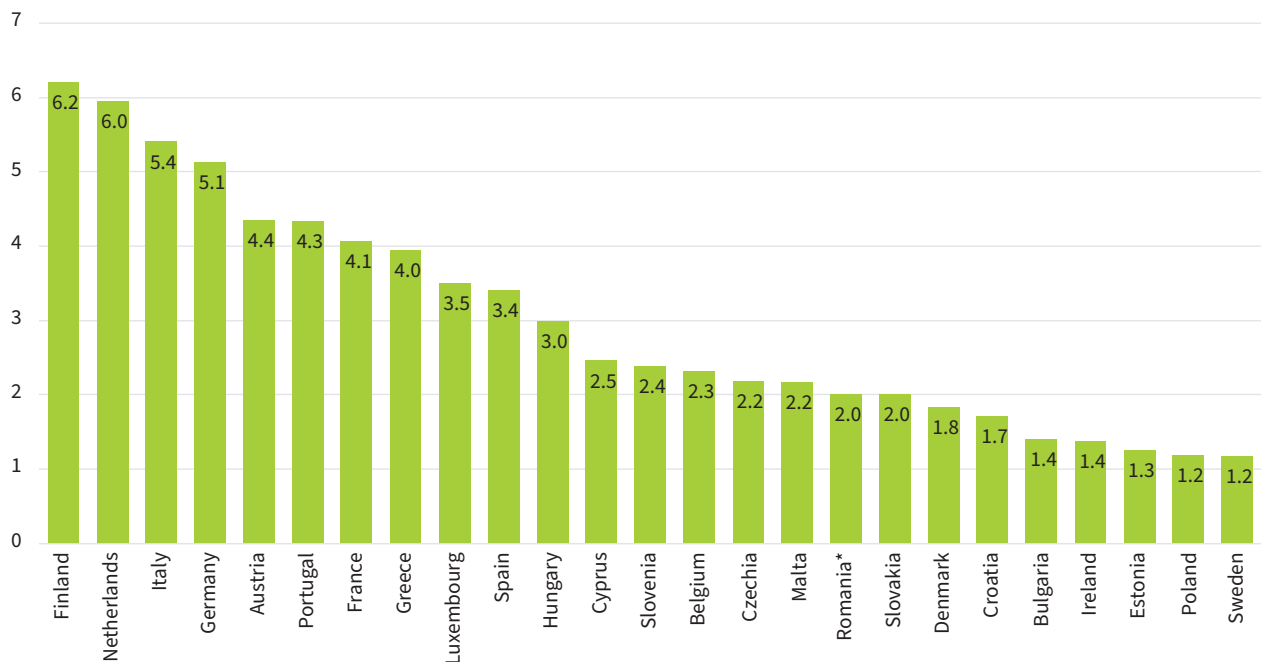
Figure 13: Prevalence of pay scale differentiators in the coded agreements (%)



Note: Based on 692 fully coded agreements from all countries.

Source: Eurofound database of collective agreements for low-paid workers, 2023

Figure 14: Average number of pay scale differentiators coded per agreement, by country



Notes: * Fewer than five agreements in the sample. No differentiators of pay rates were found in the Latvian and Lithuanian collective agreements included in the sample.

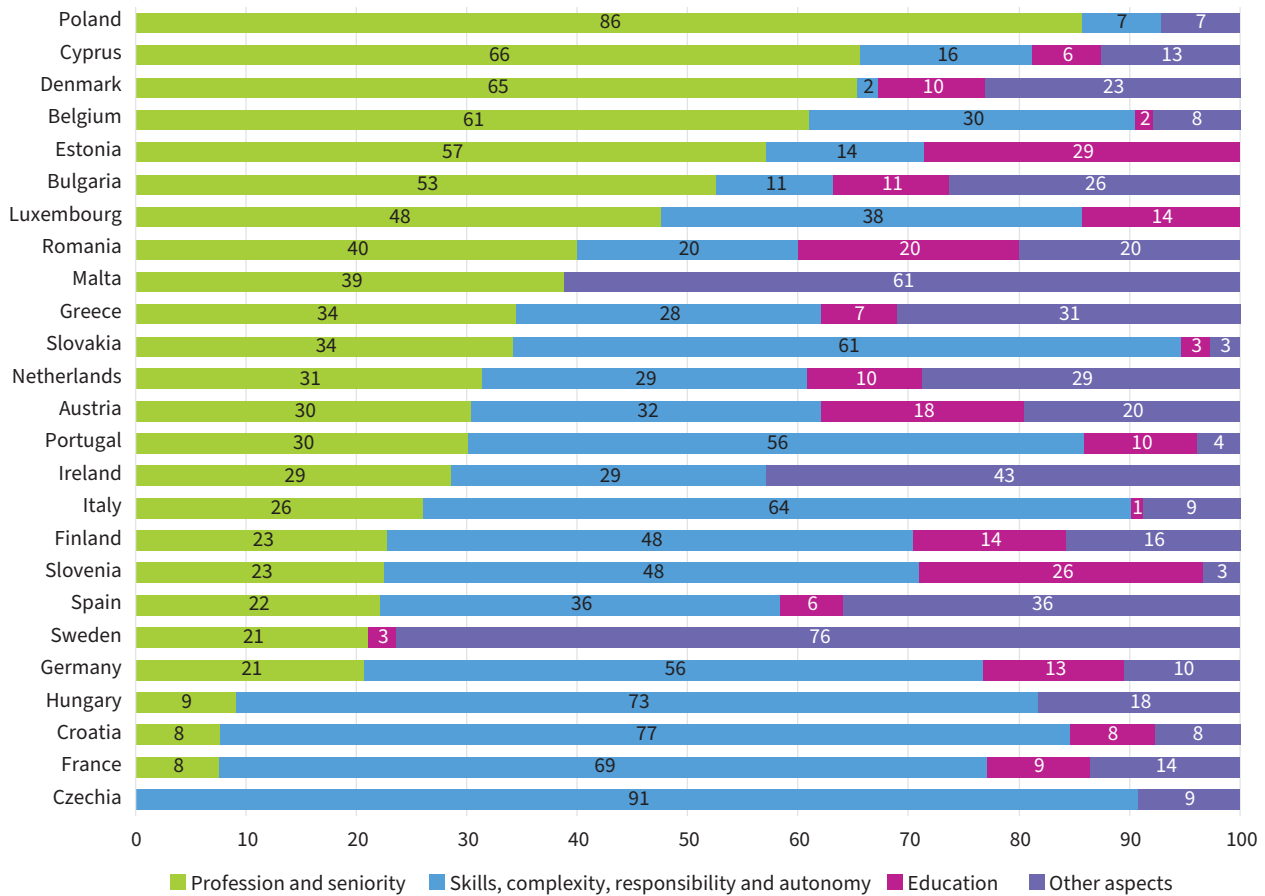
Source: Eurofound database of collective agreements for low-paid workers, 2023

The type of pay differentiators typically found in collective agreements is also country specific. Profession or workers' seniority – arguably a more common way of stratifying pay – are the most common pay differentiators in the agreements included from Bulgaria, Estonia, Belgium, Denmark, Cyprus and Poland. On the other end of the scale, agreements from France, Croatia, Hungary and Germany least frequently included these differentiators, as pay is more commonly based on skills, the complexity of tasks, and workers' autonomy and responsibility (Figure 15). In Sweden, age is a common differentiator in the coded agreements, as the lowest wages in agreements are often applicable to young and newly recruited workers.

These results tie in with the findings from a previous study on seniority-based entitlements across the EU based on regulations and collective agreements (Eurofound, 2019). The study found that pay progression is the second most frequent area in which seniority entitlements are

found and concluded that seniority still appeared to be a backbone of how wages are determined. Entitlements are most often explicitly regulated in the public sector and its seniority-based pay scales, but are also regulated to some extent in the private sector despite the absence of any (widespread) regulations. Pay differentiation based on seniority has been argued to be a potential source of the gender pay gap, in particular in sectors and companies where women have fewer years of service, or in cases of career interruptions due to childcare responsibilities (ILO, 2023). There are, however, examples of countries (either by law or agreements) that consider at least some periods of interruption due to care-related work, such as maternity or parental leave, in the calculation of seniority (which could ultimately also influence pension entitlements). France, for example, ensures by law that female employees receive any increases awarded in their absence on return from maternity leave (see Eurofound, 2020).

Figure 15: Proportion of various pay differentiators in agreements, by country (%)



Notes: No differentiators of pay rates were found in the Latvian and Lithuanian collective agreements included in the sample. A collective agreement can include multiple pay differentiators.

Source: Eurofound database of collective agreements for low-paid workers, 2023

Pay rate status by country

Finally, it is worth documenting the pay rate status of the observations, and how it is distributed across countries. This section should be read in conjunction with the status classification, as described in the section ‘Pay rate status’. To ensure the completeness of the information obtained on the time series, assigning a status for each monthly observation was compulsory.

The figures presented are based on 65,119 observations of monthly minimum rates in 692 agreements. The overall statistics give an overview of the distribution of pay rate statuses in the sample. The standard case is – as expected – that an agreement text (including its annexes)

includes a minimum rate and this rate was coded (77% of monthly observations), or, as recorded in 3% of monthly observations, the agreement refers to another text from which a rate could be coded (Table 17). In a further 6% of monthly observations, it is known that an agreement exists and contains a rate, but it could not be coded owing to the inaccessibility of the text. In about 5% of the monthly minimum rate observations, agreements refer explicitly to the statutory minimum wage, and in another 3% the agreement, although valid, contains no rate, so the statutory minimum wage applies. Observations where gaps in agreements resulted in no wage floors were negligible and constituted close to 0% of the EU-wide sample.

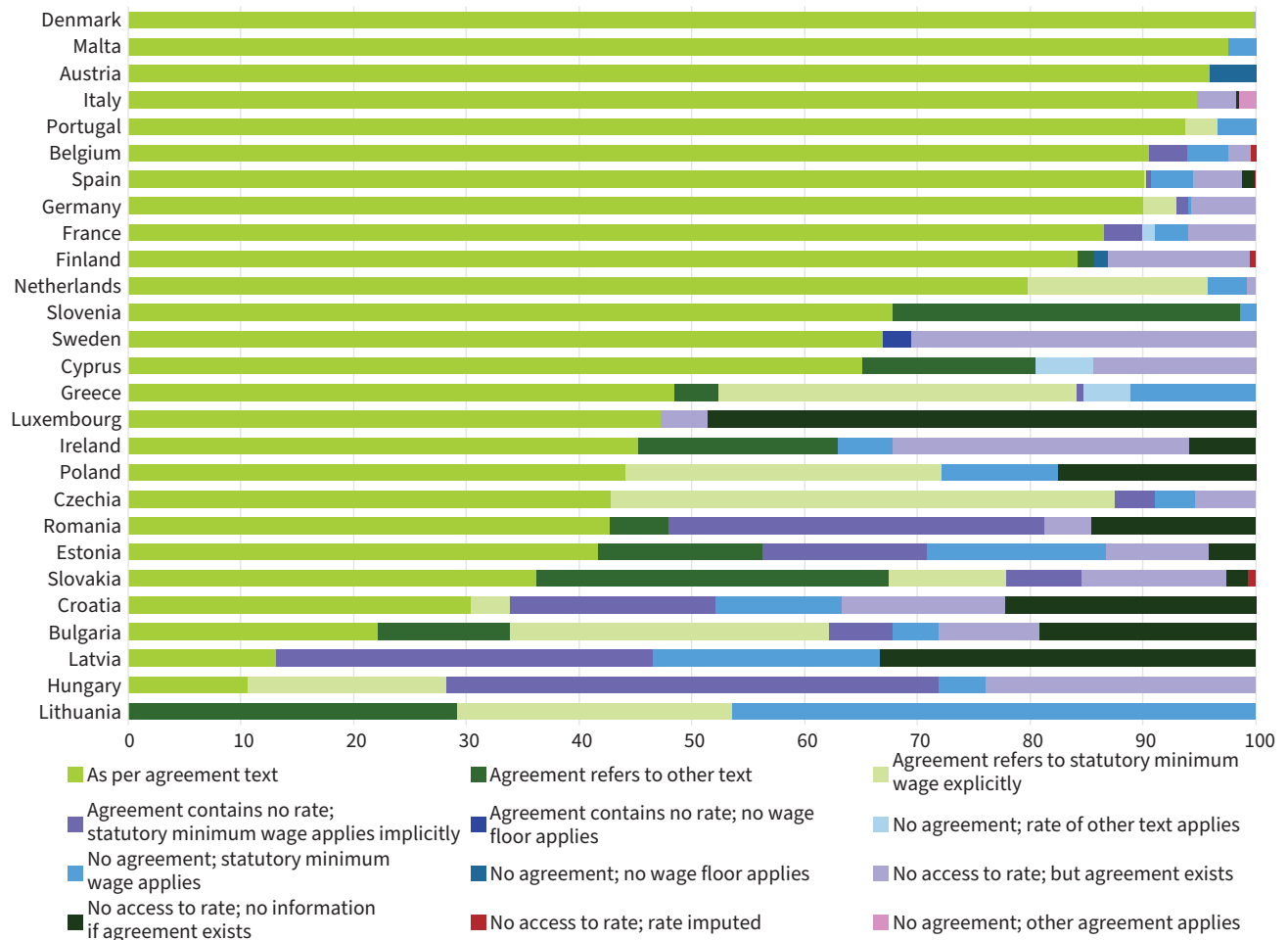
Table 17: Pay rate status for the lowest and highest pay rate series across all monthly observations, 2015–2022

Pay rate status		Lowest rate (%)	Highest rate (%)	Total (%)
Agreement and some rates exist	As per agreement text	77	84	80
	Agreement refers to other text	3	4	3
	Agreement refers to statutory minimum wage explicitly	5	NA	3
Agreement exists, but no rate	Agreement contains no rate; statutory minimum wage applies implicitly	3	1	2
	Agreement contains no rate; no wage floor applies	0	0	0
	No access to rate, but agreement exists	6	5	6
No access/ no agreement exists	No access to rate; no information if agreement exists	3	3	3
	No agreement; statutory minimum wage applies	3	3	3
	No agreement; rate of other text applies	0	0	0
	No agreement; no wage floor applies	0	1	0

Notes: N = 65,119 for lowest minimum rate series and N = 53,184 for highest series, based on 692 fully coded agreements from all countries. NA, not applicable.
Source: Eurofound database of collective agreements for low-paid workers, 2023

Stark differences between countries in the role of collective agreements in setting pay and how they do so are very visible in [Figure 16](#) (see also Table A3 in Annex 1). In general, for the countries where sectoral bargaining was predominant there was a high proportion of observations for which pay rates could be coded directly as defined in

the agreement text. In contrast, in many of the central and eastern European Member States where firm-level bargaining was predominant, the agreements often either refer to the statutory minimum wage, or this rate applies indirectly in the absence of rates in the agreement, or in the absence of any valid or ultra-active agreement.

Figure 16: Pay rate status for the minimum series, by country (%)

Notes: N = 65,119 minimum rates, from 692 fully coded agreements from all countries. For Sweden, there was no access to collective agreement texts published before 2017.

Source: Eurofound database of collective agreements for low-paid workers, 2023

Agreements referring to other texts

In addition to the cases where agreements refer to the statutory minimum wage rate explicitly (5% of minimum rates found in 52 agreements), it is also possible for agreements to refer to other texts, such as higher-level agreements, laws or other forms of wage regulations. This was observed in only 34 agreements (3%) in the sample, and the rates from these other texts were included in the database.

Collective agreements with this pay rate status are mainly concentrated in four countries: Bulgaria, Lithuania, Slovakia and Slovenia. However, instances are spotted in other countries too: Croatia, Cyprus, Estonia, Finland, Greece, Ireland and Romania.

In Bulgaria, it is common for collective agreements to refer to the ‘professional minimum insurance income’, set in separate legal documents and referring to specific professions (conceptually different from the national statutory minimum wage, although in some cases they may coincide). In these cases, while the lowest minimum rate in the agreement generally coincides with the professional minimum insurance income in force at any given time or with a lower rate expressed as a percentage of it, the highest rate may coincide with it or be expressed as a multiple of it; for instance, in a (confidential) company-level agreement, the lowest minimum rate is 80% of the professional minimum insurance income, while the highest is equal to it.

In Slovenia, the agreements that refer to rates in other texts are those concerning public employees. For these, the collective agreement does not determine pay rates, as the salary system in the public sector is regulated by the Public Sector Salary System Act, the general collective agreement for the public sector and several collective agreements for different activities and professions in the public sector. Similarly, in Slovakian collective agreements applying to the public sector, wage rates are not included directly in the agreement but are based on Act No. 553/2003 Coll. on the remuneration of employees in the public sector, to which several agreements refer.

There are other examples of countries with fewer agreements of this type. In the Irish national agreement for the feature film and television drama industry, the rate was set out in a previous collective agreement (negotiated in 2011) that was never formally ratified by all the parties. Despite not being valid per se, the rate provided by that agreement appears to have been paid to the employees of the sector for the whole reference period (2015–2022). In a few other instances in Ireland, the applicable rate was updated following a labour dispute in which the Labour Court issued a recommendation on a pay increase. In Cyprus, the rates for workers employed in security services were included among those provided by a professional

minimum wage decree until 2023 (when the national minimum wage decree was established). Finally, in Greece this pay rate status was observed in two instances – both company-level agreements, in the gambling and betting activities sector and in the warehousing and support activities for transportation sectors – in which the applicable agreements refer to previous versions of the same collective agreements when defining the minimum rate.

Periods with no wage floors

Among the countries without statutory minimum wages, the status ‘no wage floor’ is particularly interesting, as it can highlight a gap in worker coverage by minimum pay due to the absence of collective agreements for parts of the observed period. This status was only detected in a minority of monthly observations in Austria, Finland and Sweden. It is important to mention in this context that this study does not provide the full picture of non-coverage, as the data are based on a sample of collective agreements, and for segments where no collective agreements exist, no rates could be included in the database.

In Austria, there were only two agreements with periods detected where no wage floors applied: an agreement for casino workers, because the agreement entered into force only in April 2021, leaving January 2015–March 2021 uncovered,³¹ and for similar reasons the agreement for pedicurists, beauticians and massage therapists, in force only from October 2021.³² Similarly, a period of no (sectoral) wage floors was detected in Finland only for the hairdressing national collective agreement, which was not renewed after October 2018.³³ Following the termination of the agreement, the relevant union negotiated company-level agreements instead.³⁴

The status ‘no wage floor’ can be observed not only if no valid collective agreements are in force in the reference period (as observed in Austria and Finland), but also if the valid – or ultra-active – agreement in force contains no rate. Such numberless agreements are found relatively frequently in Sweden, and they state that pay should be determined at company level through local bargaining. However, numberless agreements are not included in the sample for Sweden.

No agreement, or rate of other text or agreement applies

Rates of other texts may apply not only when a valid or ultra-active agreement refers to other sources, but also if no agreement applies in the period considered.

This is not a common occurrence, and has been observed in a minority of agreements in three countries. In France, the rates of the national collective agreement for private non-profit hospitals and care, including curative care and childcare establishments, were collectively renewed only

31 Before 2020, a specific single-employer collective agreement was in place (for Casinos Austria) until 2016. It then changed to a works agreement, which is not publicly available. Note that the casino workers’ collective agreement is not a successor to the Casinos Austria works agreement.

32 Before October 2021, old regional agreements from 1992 were applicable until they were terminated in 1995. Therefore, from 1995 to 2021, there were no collective agreements in effect.

33 Since November 2018, the trade union Service Union United has signed some company-level agreements, while some hairdressing chains have applied the retail sector collective agreement.

34 On further investigation, the actual wage in the hairdressing sector has fallen by 10% since 2018.

in 2017. For January 2015–June 2017, the rate was drawn from the 2010 unilateral declaration of the signatory employer organisations adjusting the reference value for calculating rates (*valeur du point*). In Greece, in three national collective agreements (for tourist and catering shops, confectionery laboratories, and confectionery and craft industries), for a part of the period considered the rate was provided by different arbitration decisions. In all cases, these provided for minimum rates that were lower than the ones provided by previous versions of the agreements.

In Italy, this pay rate status was observed in the collective agreement for the tourism sector applicable to cooperatives. This agreement entered into force for the first time in 2018 with a ‘connection clause’ explicitly providing that it ‘replaces the previous tourism agreement of 20 February 2010 ... without prejudice to the references expressly provided for’. Similarly, companies and employees covered by the collective agreement applicable to the modern organised distribution sector – signed in 2018 and in force from 2019 – were previously covered by the already-coded collective agreement for the commerce sector, signed by Confcommercio. While the commerce sector agreement continued to exist after 2018, the 2018 agreement explicitly refers to the 2008 version (as modified by a renewal agreement in 2013) as ‘an integral part of this contract’ for ‘all institutions, articles and clauses whose content is not modified by this agreement’. The status ‘no valid or ultra-active agreement’ was employed for the period preceding the entry into force of these two agreements because the agreements they referred to continued to exist even after their entry into force and were coded as separate agreements in the database: in order to avoid double counting the same rates, their rates could not be recoded. Finally, a single instance was identified in Cyprus: specifically, the rate applicable to minimum wage earners working for a private security company operating in airports was provided by an order of the Council of Ministers (applicable to several defined professions). In 2020, a company-level agreement was signed that identified the rate directly.

Data availability, gaps and quality

Two areas are of particular relevance to the database when reviewing the unavailability of data, and therefore assessing the quality of the available data:

- information on worker coverage
- whether the agreement texts were available and for which periods

The extent to which pay rates were available and could be coded as part of the exercise is discussed in more detail in the section ‘Creating a panel of observations for time series analysis’ in Chapter 4.

Worker coverage

Worker coverage is one of the few variables³⁵ that cannot be taken directly from the text of the collective agreement itself. As worker coverage (in particular in the low-paid sectors of interest) was one of the key variables for sample selection, obtaining a largely complete and accurate picture was important. While in most countries there are legal provisions on the registration of collective agreements, only a few country registers (for example, in Bulgaria, Italy, the Netherlands and Spain) include the number of workers covered by each agreement. The number can be based on the number reported to social security institutions or the register as a legal requirement, or based on rough estimates obtained from companies or social partners (for example, in Sweden).

The results show that for a large proportion of agreements (85%), figures for total worker coverage (for the entire agreement across sectors) could be provided. The percentage decreases to 72% for coverage figures related to the low-paid sectors of interest. In addition, the quality of the figures varies: while in the case of the listed agreements the figures for the total number of workers covered by the agreements are considered to be ‘relatively precise and reliable’ for more than half of the agreements (52%), this percentage decreases to 38% for agreements in the low-paid sectors of interest. The proportions of figures considered to be best or rough estimates are rather similar in both cases (22% and 21% for best estimates for the total number of workers and 13% and 12% for rough estimates of workers in the low-paid sectors). Proportions for the selected sample do not vary much (see [Table 18](#)). The average figures differ across countries. [Table A4](#) in [Annex 1](#) gives a breakdown of the availability of figures by country.

In most countries, figures for the number of all workers covered by the agreements were available for a very high proportion of observations, at 80% or more. The main data gaps relate to Germany (in which the figures could be obtained for only 11% of agreements), Luxembourg (33%) and Poland (25%).³⁶ In most countries, estimates of the number of workers covered in the low-paid sectors of interest were available for a considerable proportion of agreements. In Estonia (33%), Germany (9%), Italy (2%) and Poland (25%), this information could be provided for only a small share of agreements.

³⁵ Other variables that are often not directly included and/or require some additional information or interpretation are the NACE coding and information on whether the agreement has been extended, or if it is possible for signatories to opt out of clauses and if so which ones.

³⁶ In Malta, due to the inaccessibility of collective agreements, wage regulation orders related to the low-paid sectors of interest were coded. This explains why figures on worker coverage could be obtained mainly for the low-paid sectors of interest. The total number of workers covered by the order would be the same or not applicable.

Table 18: Quality of data on the number of workers covered (%)

Quality of estimates	All listed agreements		Sampled agreements	
	In total	In the low-paid sectors of interest	In total	In the low-paid sectors of interest
Numbers are (relatively) precise and reliable	52	38	48	33
Numbers are best estimates	22	21	22	21
Numbers are rough estimates, and may be unreliable	13	12	15	15
No estimates can be made at all	13	29	15	30
Total	100	100	100	100*

* Value has been rounded up.

Note: N = 885 for listed agreements; N = 692 for sampled agreements.

Source: Eurofound database of collective agreements for low-paid workers, 2023

Access to agreement texts

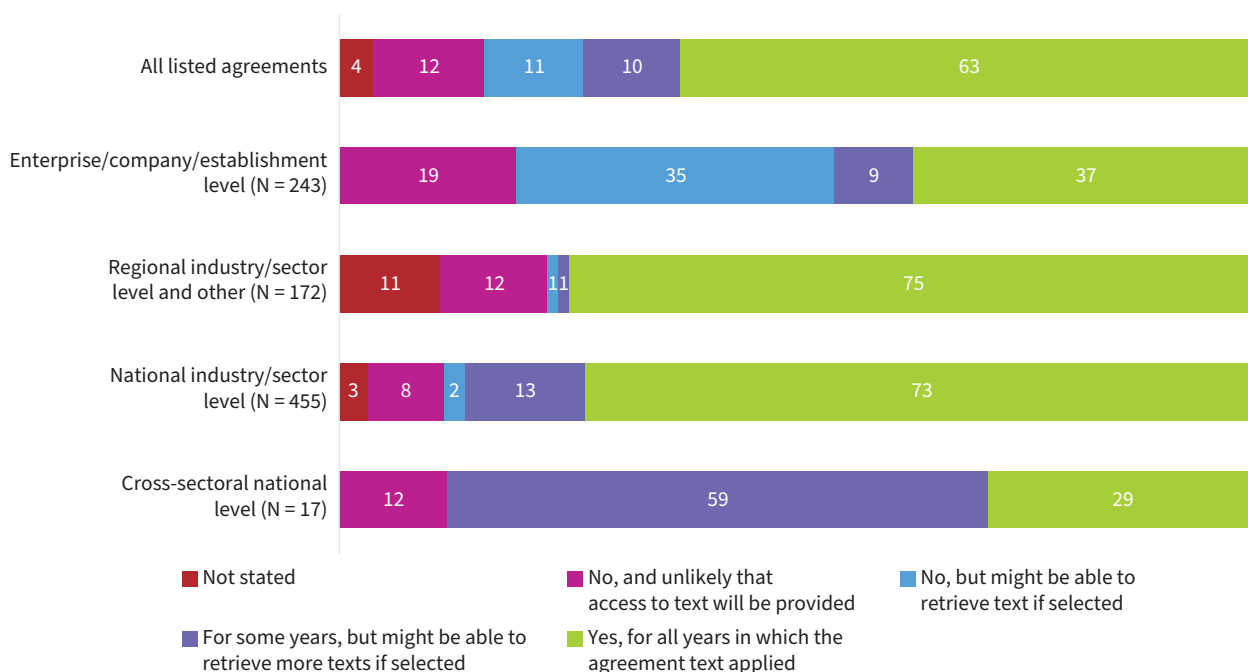
The second area of focus regarding data quality relates to whether and to what extent access to the collective agreement text (and renewals) were obtained for the project. This becomes relevant at two stages. In the sampling stage, it was established whether access to the agreement text for 2020 existed and whether access to texts covering the remaining years in the period of interest was already available or likely to become available on request. Agreements that were classified as ‘No [access], and unlikely that access will be provided’ at the listing stage were not prioritised in the selection of the sample.

The results based on information collected in the sampling phase – related to 887 listed agreements – were good but not perfect: in total, the listed agreement texts were available for all years in 63% of cases; in a further 10%, texts could

be accessed for at least for some years; and for another 11%, it was considered likely that access could be obtained. For 12% of agreements, texts were not accessible, and it was unlikely that access would be provided. Regarding bargaining levels, the proportions of agreements that were available for all years in which the texts applied are relatively similar for national and regional sector-/industry-level agreements:³⁷ 73% and 75%, respectively. These proportions are substantially higher than the proportion for company-level agreements (37%). For cross-sectoral agreements, the proportion for which texts were directly accessible is much lower. However, due to their small number and the proportion of agreements for which texts were available for some years and access was likely to be given if selected, accessibility can be considered relatively good.

Figure 17 provides an overview of these statistics.

Figure 17: Access to the text of agreements at the sampling stage (%)



Note: Sampling phase, based on 887 listed agreement texts.

Source: Eurofound database of collective agreements for low-paid workers, 2023

³⁷ Regional sector/industry level agreements are aggregated here with, ‘other’ types of agreements.

4 Measurement framework: Indicators and weights

This chapter will provide a detailed technical description of how the indicators to be presented in Chapter 5 were constructed. Rates stipulated in agreements come in different frequencies and currencies. They may or may not have a defined number of working hours associated with them at the level of the collective agreement, and some countries (or agreements) contain provisions about the payment of extra monthly rates. This chapter summarises the conversions that were carried out initially, and the indicators that will be presented in the following chapter, based on the pay rate status. It then goes on to describe how the panel of observations for time series related to each country can be derived, and, finally, how and which weights can be constructed to better reflect the size of agreements in terms of numbers of workers covered by them, when calculating averages by country.

Conversion of rates

Frequency of payments

Pay rates in the database were coded in the same frequency as they were stipulated in the agreement text, in the national currency and in hourly, daily, weekly, monthly or annual rates (see Figure 18). In some countries and agreements, rates are indicated in more than one frequency. In such cases, coders were asked to prioritise the monthly frequency, unless to ensure consistency with previous or later versions of the same agreement they needed to use a different frequency. The associated working hours are captured in hours per week in the database; therefore, conversions had to be carried out in the coding stage if the frequency differed. For countries and agreements with more than 12 monthly payments (irrespective of whether they were set out by agreements or laws), the number of monthly payments per year was recorded and rates were adjusted in order to reflect this accordingly (see formula below).

Figure 18: Formulas used to convert rates into monthly payments

Daily rate transformation:	$x_{month} = \frac{x_{day} \times 5 \text{ days} \times 52 \text{ weeks}}{12 \text{ months}}$
Hourly rate transformation:	$x_{month} = \frac{x_{hour} \times \text{working hours per week} \times 52 \text{ weeks}}{12 \text{ months}}$
Annual rate transformation:	$x_{month} = \frac{x_{annual}}{12 \text{ months}}$
Adjustment for number of payments:	$x_{month}^{adj} = \frac{x_{month} \times 12 \text{ months}}{\text{Number of monthly payments per annum}}$

Notes: x denotes the rate, while the subscript text refers to the frequency in which the rate is expressed. x_{month}^{adj} is the adjusted rate per month.
Source: Authors

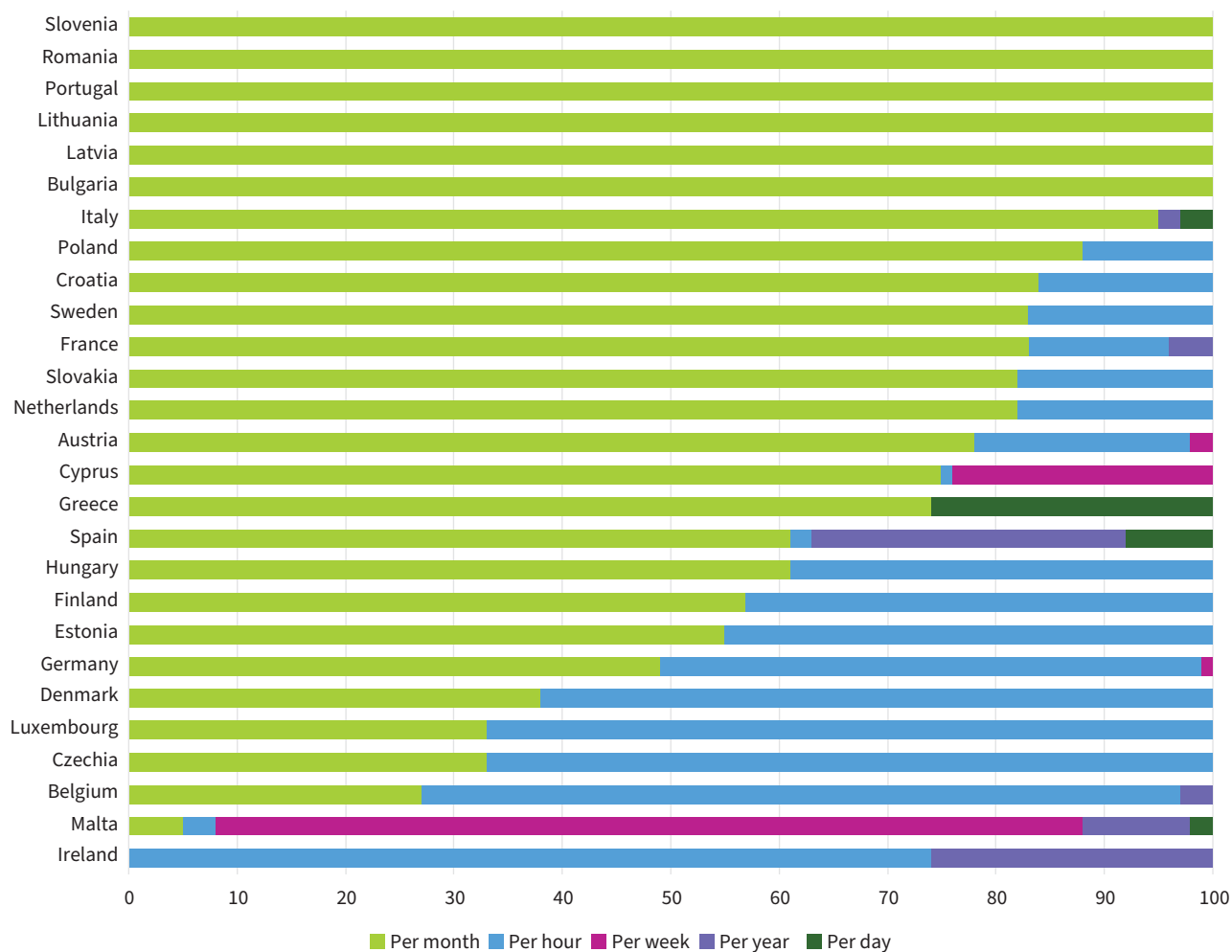
The findings show that, if an agreement explicitly stated minimum pay rates, these were most often coded as monthly rates (65%), followed by hourly rates (21%) (see Figure 19). Daily, weekly or yearly rates, by contrast, are much less frequently observed as stand-alone rates, and if so usually relate to country- (and sector-)specific ways of

expressing rates.³⁸ For the highest pay rates,³⁹ 70% of pay rates are defined in monthly terms, hourly rates represent a fifth of rates (20%) and 7% of rates are yearly rates. The highest rate is defined in a weekly frequency in only 2.5% of cases, while the rate is defined per day in only 1% of cases.

38 Daily rates were exclusively found in Greek and Spanish agreements and some Italian and Maltese texts. Weekly rates are very commonly provided in Malta, and to a lesser extent in Cyprus. They are also given in a very small fraction of Austrian and German agreements.

39 No highest rates were coded in Latvia, Lithuania or Sweden.

Figure 19: Frequencies of rates or payments as coded in the database for the minimum series, by country



Note: N = 49,160 minimum rates with pay rate status 'as per agreement'.
 Source: Eurofound database of collective agreements for low-paid workers, 2023

Exchange rates: Conversion into a common currency

In order to produce comparable results in euro, the European Central Bank’s reference exchange rates, using the monthly average for the entire month, were retrieved using an application programming interface.⁴⁰ The rates in the database were then matched via a month–year variable to the given period of the exchange rate and applied to the non-euro values in the database using a combined currency–date variable.

Working hours as per agreement or law

For each monthly pay rate, the correspondents were asked to submit the associated number of weekly working hours using the following process.

1. Check whether the working hours for the specific pay rate are stipulated in the collective agreement.
2. Check whether the collective agreement has general provisions on working hours.

- a. If the agreement mentions more than one figure for the working hours, the one applicable to the main group of workers covered by the agreement should be used.
 - b. If the working hours are defined in a frequency other than per week, they must be converted.
3. If the working hours are not stipulated in the agreement, submit the working hours derived from an applicable higher-level collective agreement.
 4. Alternatively, submit the working hours as per statutory regulations (for example, a working time act).

In order to compare collectively agreed rates with statutory minimum wages, the conversions for the two series had to be aligned. Eurofound data on monthly statutory minimum wages were used (Eurofound, 2023b). As per Eurostat (2023) methodology, the data were adjusted where there were more than 12 monthly payments per year. To enable the comparison of hourly agreed rates, a second series of hourly statutory minimum wages was derived from the Eurostat metadata. This was primarily

40 <https://sdw-wsrest.ecb.europa.eu/service/data/EXR/M..EUR.SP00.A?format=csvdata>

achieved using the statutory rate as defined by law⁴¹ or the conversion rule,⁴² as outlined by Eurostat. In the absence of such a rule, maximum statutory hours (generally 40 per week) were used to transform the monthly data into hourly statutory rates.

Additional monthly payments per year

In most cases, monthly payments as stipulated in the agreement are paid 12 times per year, but in some cases

there can be more than 12 (Table 19). This figure was coded in the database for each collective agreement, irrespective of the origin of the entitlement (collective agreement or law) – as long as it was deemed to be a collective entitlement, available without exception to all workers entitled to the coded rate. This information can be used in particular when comparing rates across countries, but is not so relevant to longitudinal observations within countries.

Table 19: Overview of the frequency of monthly payments per year as per sample

Frequency of payments	Countries	Explanation
12 monthly payments (no conversion)	Bulgaria, Croatia, Czechia, Denmark, Estonia, France, Ireland, Latvia, Lithuania, Luxembourg, Malta, Poland, Romania, Slovakia, Slovenia	Malta: this observation relates to the wage regulation orders that are included in the database (not to collective agreements).
12 monthly payments, but some agreements provide more	Finland, Germany, Hungary, Sweden	<p>Finland: it is common practice in most agreements to include a clause for additional pay when using holidays (<i>lomarahä</i>), usually 50% of the regular salary. All coded agreements include this additional pay.</p> <p>Germany: agreements provide for various collective allowances, often called ‘holiday remuneration’ (12.9 payments on average in the sample of agreements in the database).</p> <p>Hungary: 12.1 payments on average are provided for in the sample included in the database.</p> <p>Sweden: The standard number of monthly payments is 12; however, employees have a statutory right to additional holiday pay based on fixed and variable salary components and depending on individual circumstances. The compensation is usually paid as a supplement to the salary per day of holiday taken and not as an extra monthly payment.</p>
Between 13 and 14 monthly payments (on average)	Belgium, Cyprus, Italy, Netherlands	<p>Belgium: the 13th monthly payment is not provided for by law, but is a common collective bargaining practice (provided by all coded agreements).</p> <p>Cyprus: the coded agreements provide for 12, 13 (in most cases) or 14 monthly payments. There is no legal obligation to provide more than 12 monthly payments, but it is a common collective bargaining practice.</p> <p>Netherlands: a ‘holiday allowance’ of 8% per annum, a collective allowance paid to all workers, was included as the 13th monthly payment.</p> <p>Italy: the number of payments (13 or 14) depends on the agreement, but providing at least 13 payments is a legal requirement (the number is 13.6 on average in the sample).</p>

41 Hungary, Portugal and Slovakia set monthly and hourly rates nationally. In the Netherlands, there are official hourly statutory rates for 36, 38 and 40 hours a week, and the rates are differentiated by age group, from 15 years up to 21 years and older.

42 For instance, in Germany an official conversion formula applies: monthly rate = hourly minimum wage rate × 38.1 hours per week (annual constant) × 4.345. In France, the formula is 35 hours × 52 weeks/12 months, and in Ireland it is 39 hours × 52 weeks/12 months. In Luxembourg, hourly rate = 1/173 × monthly rate, and in Malta monthly rate = weekly rate × 52 weeks/12 months.

Frequency of payments	Countries	Explanation
14 or more monthly payments (on average)	Austria, Greece, Portugal, Spain	<p>Austria: the payment of a 'holiday allowance' and a 'Christmas bonus' is regulated in collective agreements (though not all agreements contain such provisions). Employees are not legally entitled to them. These payments get preferential tax treatment, resulting in employees receiving higher pay in net terms than their regular monthly pay.</p> <p>Greece: by law, in the private sector there are 14 monthly payments. The two extra payments include two of the following:</p> <ul style="list-style-type: none"> ○ a Christmas bonus equal to one month's salary given each December (Law 1901/1951, Law 1082/1982, National General Collective Agreement 2010) ○ an Easter bonus equal to half of a month's salary given every March or April (Law 4504/1966, National General Collective Agreement 2010). ○ an annual leave bonus equal to half of a month's salary usually given every July <p>Portugal: both a holiday allowance and a Christmas bonus are provided by law (Articles 263 (a 13th monthly payment given at Christmas) and 264 (called a 'holiday subsidy' but paid in addition to the remuneration for the holiday period, so in effect a 14th monthly payment) of the Portuguese Labour Code).</p> <p>Spain: employees receive an average of 14.4 monthly payments.</p>

Source: Eurofound database of collective agreements for low-paid workers, 2023

Description of indicators

After the conversions, we propose the following variations of indicators and measures.

Indicator types for minimum rates based on pay rate status

The availability of information on the pay rate status allows the determination of conceptually different variants of the minimum rate. The following two rates are proposed, each interpreted differently and serving a different purpose (Table 20):

- type I – negotiated basic minimum rate, as per an agreement
- type II – the applicable (negotiated or statutory) basic minimum rate

The first type is taken from an agreement. As well as cases in which the agreement defines a rate and explicitly stipulates this rate in the text, this type includes cases in which agreements **explicitly** refer to the statutory minimum wage or to any other texts that provide a specific rate, classified as the 'agreed' rate. It is the applicable minimum basic collectively agreed rate as per the agreement. For countries without a statutory minimum wage, it can be used as an estimate of the collectively agreed wage floor in the absence of a universally binding legal minimum wage. For countries with a statutory

minimum wage, it is the collectively agreed minimum wage floor as per an agreement, the level of which can be compared with the statutory minimum wage. It may be lower than, equivalent to or higher than the statutory minimum wage rate, as collective agreements can also contain outdated rates below the statutory rate. In such cases, there is a limit to interpreting the data as an actual wage floor.

Therefore, the second indicator type is proposed. This indicator goes one step further, presenting the **applicable basic minimum wage rate** that must be paid to the worker. It deviates from type I for those cases where the rate found in the agreement (or another text) is below the statutory minimum wage. It also applies in cases where the agreement itself does not contain a rate (and does not explicitly refer to the statutory minimum wage), but where the absence of such a rate or references requires the statutory minimum wage to apply implicitly. It also caters for the cases where no valid or ultra-active agreement texts are applicable and therefore statutory rates apply (where they exist). In this sense, this indicator can be used if one is interested in the minimum pay rate a low-paid worker covered by any of the agreements in the sample is entitled to, irrespective of whether it stems from an agreement text or the law.

Note that, for countries without statutory minimum wages, by definition these two indicators coincide.

Table 20: Definition of indicators of collectively agreed pay related to the minimum wage for workers based on pay rate status

Grouped pay rate status	Pay rate status	Type I: Negotiated rate, as per agreement	Type II: Applicable (negotiated or statutory) rate
Negotiated rates exist in agreements	Rate as per CA	X	For countries with an SMW: <ul style="list-style-type: none"> ○ X if $X \geq$ SMW ○ SMW if $X <$ SMW For countries without an SMW: <ul style="list-style-type: none"> ○ X
	CA refers to rate in another text		
	CA refers to the SMW explicitly	For countries with an SMW: <ul style="list-style-type: none"> ○ SMW For countries without an SMW: <ul style="list-style-type: none"> ○ not applicable; status does not apply 	
Agreements exist, but no negotiated rates exist	No rate – SMW applies implicitly	NA	For countries with an SMW: <ul style="list-style-type: none"> ○ SMW For countries without an SMW: <ul style="list-style-type: none"> ○ not applicable; status does not apply
	No rate – no wage floor	NA	NA
No agreement	No CA – rate of other text applies	NA	For countries with an SMW: <ul style="list-style-type: none"> ○ X if $X \geq$ SMW ○ SMW if $X <$ SMW For countries without an SMW: <ul style="list-style-type: none"> ○ X
	No CA – SMW applies	NA	For countries with an SMW: <ul style="list-style-type: none"> ○ SMW For countries without an SMW: <ul style="list-style-type: none"> ○ not applicable; status does not apply
	No CA – no wage floor	NA	For countries with an SMW: <ul style="list-style-type: none"> ○ not applicable; status does not apply For countries without an SMW: <ul style="list-style-type: none"> ○ no action; do not include in sample
No information	No information on rate but CA exists	NA	NA
	No information if valid CA exists	NA	NA

Notes: CA, collective agreement; NA, not applicable; SMW, statutory minimum wage rate; X, rate as coded in the database.

Source: Eurofound database of collective agreements for low-paid workers, 2023

Aggregate measures

Different aggregate measures can be applied to the data. Minimum pay rates are distributed differently within sectors and countries. Depending on the research or policy question of interest, certain measures or aggregate functions could be more suitable than others. As for countries without statutory minimum wages, the aim was to obtain a measure of minimum pay for low-paid workers based on collectively agreements equivalent to the statutory minimum wage in other countries. This can be achieved in principle in two ways.

- Determine the lowest wage floor detected across all available agreements (within a country or sector). In

contrast to the statutory minimum wage, this would only cover a small subset of workers.

- Estimate an average of collectively agreed wage floors based on the entire sample of collective agreements. Like the statutory minimum wage, this covers a range and therefore a large number of workers, and due to the sample selection process the agreements already relate to the low-paid sectors of the economy. However, as the derived figure is an average, it is not a single applicable wage floor, as in the case of (most) statutory minimum wages. Some of the selected low-paid agreements stipulate lower/higher wages.

We therefore propose calculating the following aggregate measures, with a few variants of the two measures

presented above. Table 21 summarises the proposed aggregate functions and discusses their interpretation.

Table 21: Overview of proposed aggregate measures for collectively agreed minimum wages

Indicator	Interpretation
A: lowest rate in each country	This indicator is the lowest rate stipulated or applicable in the sample of agreements. It could be used to detect exceptionally low rates (or the absence thereof). The figure has limited use, as it is only related to one agreement and few workers, and therefore worker coverage may be low. In addition, it is less reliable for countries/sectors with a smaller sample of collective agreements, as agreements not covered in the sample could contain lower rates.
B: average of the three lowest rates in each country	Instead of reporting only one lowest rate, the figure for the lowest rate could be based on a certain number of agreements. This increases worker coverage and thus the relevance of the figure, while still not including every observation in the sample. Thus, the figure stays as close as possible to the lowest wage floor.
C: average of the lowest rates for each sector in each country	This indicator ensures that each sector for which agreements exist in a country is represented in the average figure, and that the figure stays close to the lowest wage floor.
D: average of all rates in each country	This measure exploits the full sample of agreements for each country, and thus maximises worker coverage. However, it cannot be directly interpreted as a wage floor.
E: average of all rates in each country (purchasing power standard)	Expressing the average in purchasing power standard equalises the purchasing power (as per Eurostat) of different national currencies and thus allows meaningful comparison. Rates expressed in PPS are converted using PPP (EU27_2020 = 1) [Eurostat, PRC_PPP_IND].
F: median of all rates in each country	This indicator is the middle value, an informative measure of the central tendency of the distribution of negotiated wages, especially in cases with outliers.
G: weighted average of all rates in each country	This measure considers that some agreements are much larger than others when calculating the average. Rates from larger agreements have a bigger impact on the average than rates from smaller agreements. A drawback of this indicator is that the weights are based on the total number of workers covered by the agreement, not the number of workers covered by that rate, which would be the most appropriate figure but is not available.
H: highest minimum rate in each country	This indicator shows the highest minimum rate stipulated or applicable in the sample of agreements. It could be used to detect exceptionally high rates, which could suggest that the related agreements do not regulate the pay of low-paid workers (e.g. due to outsourcing) or that the sector in the country is not low paid.

Source: Authors

Similarly, measures can be calculated for the highest rates identified in the collective agreements. As the main rates of interest in this project are the lowest rates, this report focuses only on the pay range between the lowest and the highest rate in each agreement, to show the pay ranges regulated in collective agreements and how they vary across countries.

Construction of weights

To account for the fact that collective agreements cover a substantially different number of workers in each country, proportional weights were derived and applied to average figures. Ideally, the most appropriate weights for each rate taken from an agreement should reflect the number of workers covered in principle by the rate. However, this type of information was not collected in this project, as such data do not exist in most cases. The second and third best options are therefore the two figures on worker coverage: the number of workers covered in the low-paid

sectors of interest, and the number of workers covered by the agreement in total.

The weight for agreement i is thus the proportion of workers covered by this agreement in relation to all agreements in the country.

$$weight_i = \frac{\text{workers covered by } ca_i}{\text{sum of workers covered by all } ca_i \text{ in country}}$$

And the weighted average is obtained by multiplying the rate from the agreement with the specific weight for the agreement:

$$\sum_{i=1}^n rate_i * weight_i$$

whereby

$$\sum_{i=1}^n weight_i = 1$$

This weighting approach obviously relies on the availability of a complete set of information on the number

Table 22: Imputing missing values for worker coverage based on a ranked list

Agreement number	Worker coverage figure	Ranking	Worker coverage figure with imputed values	Proportional weights (%)
1	10,000	1	10,000	33
2	Not available	2	7,500	25
3	Not available	3	7,500	25
4	5,000	4	5,000	17

Notes: The figures that were not available were calculated as follows: $(10,000 + 5,000)/2 = 7,500$. Proportional weights are based on the share of each agreement among all agreements in the list. $100\% = 30,000$.

Source: Eurofound database of collective agreements for low-paid workers, 2023

of workers covered (at least for agreements that contain rates). Owing to the greater availability of data on the total number of workers covered, it was chosen as the preferred measure over the number of workers covered in the low-paid sectors of interest. Data gaps were filled using the approach described in the next section.

Imputing missing data on worker coverage

At the stage of listing agreements, correspondents were asked to provide a proposed ranking of the agreements to be included in the database in terms of importance. The main criteria on which this ranking was based were (estimated) worker coverage in the low-paid sectors, total worker coverage and access to texts. Clearly, in the absence of complete data this ranking is partially based on informed guesses by the local experts. In addition, it is not solely based on worker coverage in either form. But it does provide guidance for imputing data on worker coverage in cases where data are missing and information is available for some agreements in a list in the same sector.

If such data gaps occurred in a list where data on workers' coverage were available for agreements ranked higher or lower, missing data were imputed with the average of the relevant worker coverage figures of the agreements ranked higher and lower. In cases where data were missing from more than one agreement between higher- and lower-ranked agreements with available figures, these agreements were assumed to be of equal size, and both were assigned the same weights. An example of this imputation is displayed in Table 22.

Using this strategy, it was possible to complete the data on the total number of workers covered by the agreement for 14 out of 100 missing observations and for most country/sector combinations. Data could not be imputed for the following countries/sectors:

- Austria – personal services
- Italy – agriculture
- Germany

- Luxembourg
- Malta
- Poland

Therefore, for these countries/sectors, no weights could be applied.

Creating a panel of observations for time series analysis

More texts are available and accessible in some countries than in others. Statistics on the accessibility of agreement texts were provided and discussed in Chapter 3, in the section 'Data availability, gaps and quality'. However, the results of the exercise showed that, when agreement texts were available, the creation of a complete time series for 2015 to 2022 was not possible in all countries and cases. The later years are usually better captured than the early years.⁴³

If we apply a very strict definition of a complete time series of pay rates, by stating that a time series is only complete if a pay rate exists,⁴⁴ only two-thirds (67%) of the EU-wide coded minimum series are complete. Hence, in one-third of the series there are some gaps. Gaps are very differently distributed across countries, with only a few Member States having a very high proportion of complete coded data for the entire period (Austria, Denmark, France, Greece, Italy, Malta, Portugal and Slovenia). At the other end of the spectrum, some countries were not able to provide any complete time series for the period (Hungary, Luxembourg, Romania and Sweden).

The analysis shows that some of the selected aggregate figures⁴⁵ are sensitive to the inclusion of new agreements, therefore resulting in erratic behaviour of the time series. If the aim is to present time series of the measures, this needs to be done based on a more specific selected panel of observations, rather than across all agreements in the sample.

For some countries, it is also possible to shorten the period of the time series, while keeping (most) agreements in the

⁴³ In a few countries (in particular Slovakia and Spain) texts relating to one or two of the most recent years were sometimes not available at the time of coding, but some updates could be made as part of the data quality control process.

⁴⁴ This could be either a negotiated rate as per an agreement or a rate retrieved from another text, including the statutory minimum wage if this has been stated explicitly in the agreement.

⁴⁵ This concerns, in particular, figures that are based on fewer agreements (for example, the lowest or the three lowest), but also figures from countries with a small sample size.

sample. For example, Swedish data are only available for 2018 to 2022, but the time series are relatively complete.

Another issue is how to deal with series where pay rates are interrupted for some years, which can happen for various reasons.

- The text containing the rates cannot be accessed, although it is known that an agreement exists.
- The text cannot be accessed, but it is not known whether an agreement exists.
- No valid or ultra-active agreement is in place and no other text exists. Depending on the country, this could mean that the statutory minimum wage applies or that there is indeed no wage floor.

The causes and nature of these gaps of information are different, and therefore different strategies were implemented to deal with them. The following principles were applied to create a panel of agreements for a time series.

- Maximise the number of agreements in each country panel and maximise the number of observations for each period.
- Maximise the period that can be covered in each country, based on the number of observations for available rates.
- Minimise the risk that changes in the series are influenced by the addition/omission of agreements because no observations of pay rates are available.

- Limit the number of imputations but use them where they seem the most appropriate choice.

Type of indicator

The time series of rates relate to the type I (negotiated pay) indicator. This means that rates can have one of the following statuses.

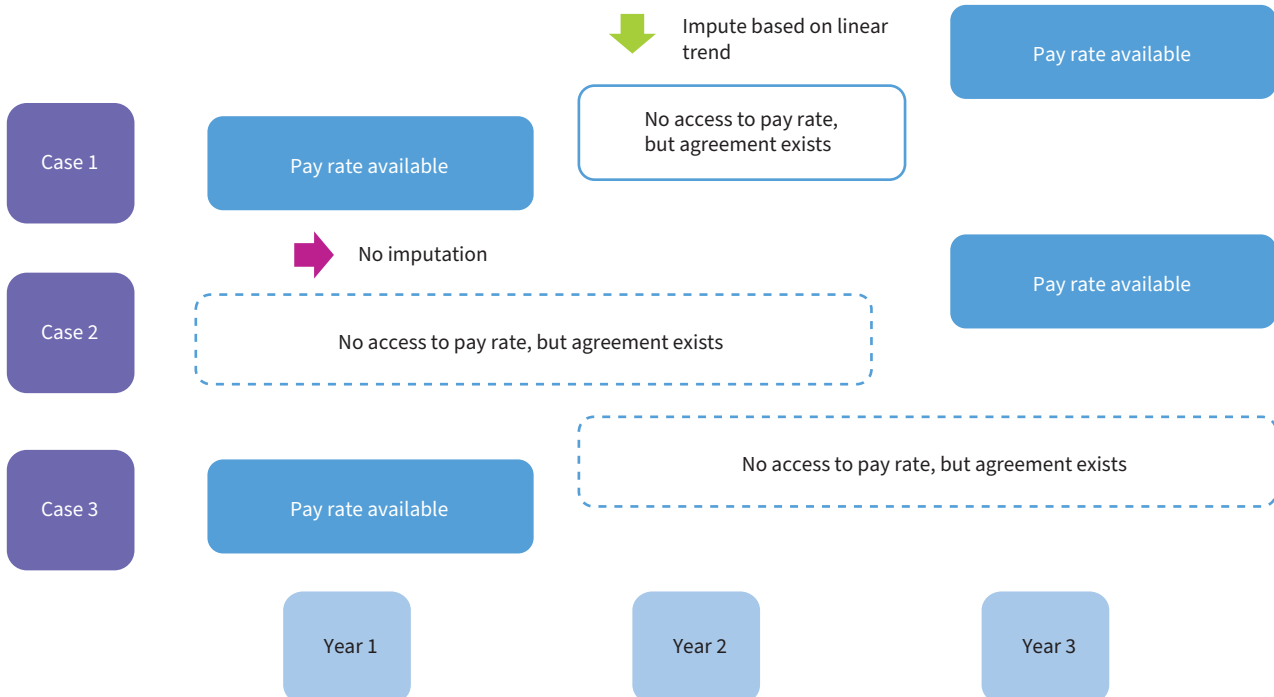
- The rate is defined as per an agreement.
- The agreement refers to another text.
- The agreement refers to the statutory minimum wage explicitly.

No other statuses were used for this series of observations, and the panel was derived by investigating the applicable rates on 1 January of each year.

Imputation of missing values

Missing pay rates were imputed in only one case: if for a series of pay rates it was known that an agreement existed, but the text was not available for a certain period, while rates were available from agreement texts before and after the data gap occurred. In such cases, the missing values were imputed with the average of these two observations or using a linear trend in the (very exceptional) case when two or three years were missing (Figure 20). The assumption behind this imputation is that the (non-accessible) text contained an update of the previous rates.⁴⁶ If agreement texts were inaccessible for a certain period before the start or after the end of the series of observations, no imputation was carried out.

Figure 20: Depiction of the imputation of rates for inaccessible agreement texts



Source: Authors

⁴⁶ Arguably, this is a significant assumption, as the other possibility would be to assume the ultra-activity of the previous rate, and therefore interpret the absence of an agreement text as the 'non-renewal' of the rate. We consider the impact of this change in assumption rather small, as imputations, as described above, were only made in a very limited number of cases. Spain is the most important case in this regard, as imputations were made for three agreements.

Principles of including agreements in a panel and deriving the length of the series

As a rule, the aim was to include the largest number of observations possible in the panel to derive a time series. However, in countries with fewer observations, the non-fillable data gaps stemming from the inaccessibility of texts posed a problem: if a series is based on a panel whose composition changes over time, owing to the addition/omission of observations, the effect on the average rate is partially due to the changing panel. This is a minor issue in cases where the sample is large and/or where the rates with missing observations are close to the average of the other observations, but it is more relevant to countries with a smaller sample of agreements and/or agreements with relatively high or low rates than other countries.

As another rule, **each agreement** from which rates **covering the full (sub)period** were obtained was included in the panel in the first instance. For series of pay rates that contained gaps, a distinction was made depending on the cause of the gap.

- If the gap in observations resulted from the known non-existence of a collective agreement or the non-existence of a rate in the agreement during the relevant period, the agreement was still considered to be part of the panel, as this is an expected occurrence for some agreements and the effects of the non-existence of rate observations from these agreements on the average truly reflect the impact of this kind of non-setting of rates on the collectively agreed average wage.

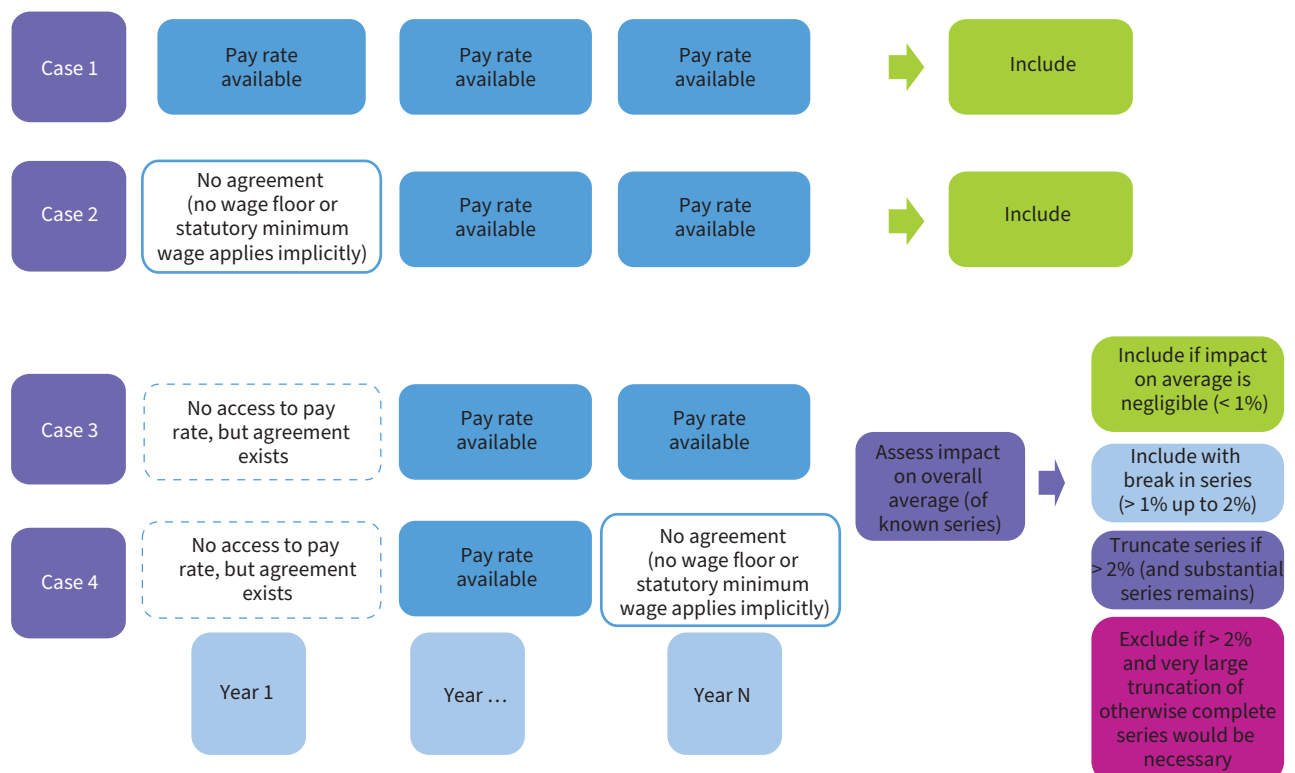
- If the gap in observations occurred because texts were not accessible, and imputations could not fill these gaps (see the previous section), further checks were applied to decide whether the agreement should be included in the panel, and/or whether the series should be truncated to a subperiod.

In such cases, the effect of the inclusion/omission of agreements on the average negotiated rate was recorded to decide whether an agreement should be part of the sample (at all), or whether the entire time series should be truncated to the period for which all observations were available for all agreements.

In particular, the heuristic approach depicted in [Figure 21](#) was applied.

1. Separate averages were calculated for the complete set of agreements and for the set of agreements for which all information was available.
2. For periods in which all agreements applied, the percentage difference between the two averages was calculated.
 - a. If the difference in the averages between the two sets was rather small (i.e. less than 1%), the full sample was included, over the period of observation.
 - b. If the difference in the averages between the sets was between 1% and 2%, a break in the series was recorded in the description for the relevant year.
 - c. If the difference in the averages exceeded 2%, the series was truncated to the number of years

Figure 21: Depiction of status-based rules on including agreements in the panel



Source: Authors

in which full observations were available (if a substantial part of the series remained).

- d. If the difference in the averages exceeded 2%, and a truncation would have reduced the number of years substantially, the panel of observations was reduced and agreements with large gaps in observations were disregarded.

For example, in Cyprus there was a relatively small number of agreements (13 in total, 1 without any pay rates). Due to the inaccessibility of some texts in the early years in the period analysed, a significant break in the series would occur from the time when these agreements were added. This is illustrated in [Table 23](#): out of the 12 series of agreements with pay rates, only 9 are complete for 2015 to 2022. Two series lack five observations, and one series

lacks four. The first row of the table shows the resulting monthly average if only observations from the nine complete time series were added, increasing from €1,075 in 2019 to €1,153 in 2022. If, however, for the years in which more data are available the remaining agreements are added, the average decreases to €1,048 in 2019 and €1,107 in 2022, as the agreements added include somewhat lower rates. The deviation between those series lies between 2.6% and 4.2%, a rather substantial change. This change is entirely caused by the change in panel composition. The decision, in this case, based on the heuristic approach summarised in [Figure 21](#), was therefore to include only a shorter series – from 2019 to 2022 – based on all available agreements and observations.

Table 23: Negotiated average monthly minimum basic pay, by composition of panel, Cyprus, 2015–2022 (€)

Panel	2015	2016	2017	2018	2019	2020	2021	2022
Average for long series – 9 agreements with complete observations	1,057	1,057	1,057	1,057	1,075	1,079	1,147	1,153
Average of all collective agreements with changing compositions – 9 to 12 observations	1,057	1,057	1,057	1,057	1,048	1,050	1,101	1,107
Number of observations	9	9	9	9	11	12	12	12
Percentage difference between long and short series	0	0	0	0	2.6	2.7	4.2	4.1

Note: Figures in bold are the averages that differ based on the panel compositions of agreements.

Source: Eurofound database of collective agreements for low-paid workers, 2023

5 Collectively agreed pay for low-paid workers

This chapter provides the main results of the pilot exercise to create an EU-wide database containing minimum pay rates for low-paid workers. The first section presents a snapshot of the latest rates, applicable on 1 January 2022. In the second section, the negotiated minimum rates are analysed in relation to the statutory minimum wage rates, including to determine how far negotiated minimum rates are below the statutory minimum. The chapter then goes on to review the pay ranges that are regulated in the sampled collective agreements before presenting the results of the creation of time series based on a panel approach.

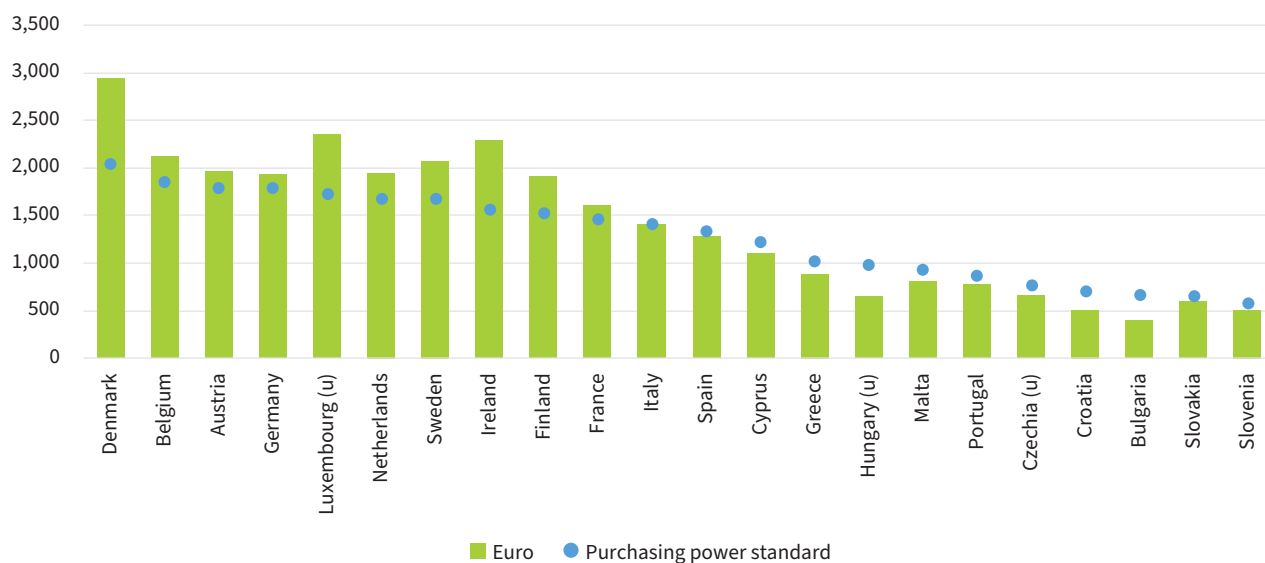
Minimum pay rates for low-paid workers in 2022

In this section, two types of indicators are presented and a variety of measures are applied, as described in the section ‘Description of indicators’. The data here relate only to one point in time: 1 January 2022, which is the beginning of the latest year for which data are available in the data collection. They are based on all observations that were available for this point in time in the data collection. Therefore, in some countries the figures may differ from those presented in the section ‘Developments over time’, as these are based on a panel approach.

Figures on the type I indicator, the negotiated basic rates, are provided in Table 24. Negotiated basic minimum pay rates are those that are stipulated in an agreement or in another wage regulation text (including a text providing the statutory minimum wage), if the agreements refer to these rates explicitly. See the section ‘Indicator types for minimum rates based on pay rate status’. The rates can be lower than the statutory minimum wage, but they would (generally) not be applicable as wage floors in this case.

On average across all agreements, the highest negotiated minimum rates are found in Danish agreements (€2,951), followed by those in Luxembourg (€2,350) and Ireland (€2,285). On average, the lowest negotiated minima are in Bulgaria (€389), Croatia (€504) and Slovenia (€512). The order is slightly different if differences in price levels (in PPS) between Member States are taken into account, as shown in Figure 22. When compared with the nominal levels, the PPS for workers remains highest in Denmark (PPS 2,042), followed by Belgium (PPS 1,850), Austria (PPS 1,782) and Germany (PPS 1,781), instead of Luxembourg and Ireland. Among the countries with the lowest PPSs, equal to around a third of the PPSs of the countries with the highest values, are Slovenia (PPS 566), Slovakia (PPS 643), Bulgaria (PPS 663) and Croatia (PPS 698). For these countries, the figures indicate that the sampled agreements are (at least partially) outdated, as they are below the statutory minimum wage.

Figure 22: Average negotiated basic monthly minimum rate, 1 January 2022 (€ and PPS)



Notes: No data are displayed for Estonia, Poland and Romania, as their listed samples are not representative, or for Latvia and Lithuania, as the number of coded rates is based on fewer than four agreements. Maltese data are based on wage regulation orders. Rates expressed in PPS are converted using PPP (EU27_2020 = 1), [Eurostat, PRC_PPP_IND]. u, low reliability, applicable to Czechia, Hungary and Luxembourg, as they are based on samples with a low degree of representativeness.

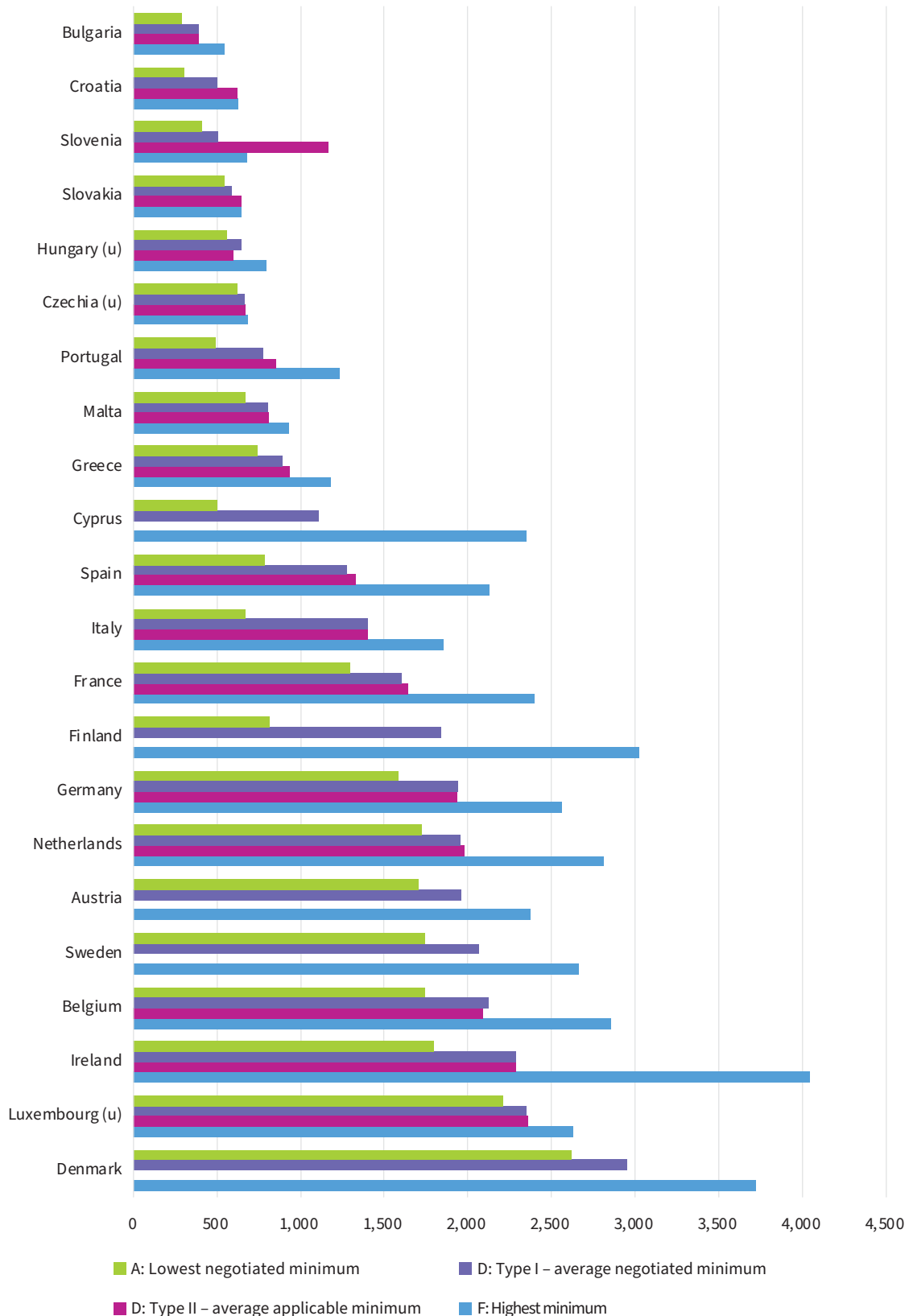
Source: Eurofound database of collective agreements for low-paid workers, 2023

Table 25 shows the same measures for each country for the type II indicator, the applicable basic rates. It considers that some agreements may have outdated rates, or may not contain any rates or refer to another text. Where statutory minimum wages exist, these constitute the applicable wage floors and are therefore the rates workers must be paid (see the section ‘Indicator types for minimum rates based on pay rate status’). In Croatia, based on the sample of agreements, the applicable negotiated or statutory rate is €623 on average, and for Slovenia it is

€1,164 on average, while the statutory minimum wages on 1 January 2022 for these countries amounted to €623.7 and €1,074, respectively.

The analysis – also depicted in Figure 23 – shows that the difference between the applicable and the negotiated rate is particularly high in Slovenia (127%) and Croatia (24%) and is quite high in Portugal and Slovakia (10% in both cases). We will expand on this in the section ‘Agreed rates below the statutory minimum wage’.

Figure 23: Selected aggregate measures of monthly minimum wage rates, by country, 1 January 2022 (€)



Note: No data are displayed for Estonia, Poland and Romania, as their samples are not representative, or for Latvia and Lithuania, as their samples are based on fewer than four agreements. Definitions of the types of indicators (negotiated and applicable) are provided on pp. 56–57; definitions of the aggregate measures (A to F) are provided in Table 21, p. 58. Indicator D: Type II is not applicable to countries without statutory minimum wages. The negotiated minimum wage is based on the information in the agreement (including explicit references to the statutory minimum wage or another text). In cases where the negotiated minimum wage is below the statutory minimum wage, the applicable minimum rate considered in the average is the statutory rate. u, low reliability, applicable to Czechia, Hungary and Luxembourg, as they are based on samples with a low degree of representativeness.

Source: Eurofound database of collective agreements for low-paid workers, 2023

Type I indicator: Negotiated basic rates

Table 24: Overview of negotiated basic monthly minimum rates, adjusted to 12 monthly payments, by country, 1 January 2022 (€ and PPS)

Country	A: lowest rate	B: average of the three lowest rates	C: average of the lowest rates for each sector	D: average of all rates		E: average of all rates (PPS)	F: median of all rates	G: weighted average of all rates	H: highest minimum rate	Number of series the figure is based on
				Adjusted to 12 monthly payments	Not adjusted to 12 monthly payments					
Austria	1,704	1,743	1,886	1,960	1,677	1,782	1,948	1,991	2,373	40
Belgium	1,744	1,756	2,017	2,124	1,960	1,850	2,062	1,914	2,856	27
Bulgaria	290	326	360	389	389	663	363	383	545	16
Croatia	300	393	462	504	504	698	540	538	625	7
Cyprus	504	712	1,096	1,107	1,024	1,215	990	1,025	2,347	12
Czechia (u)	621	652	658	663	663	759	662	655	687	6
Denmark	2,619	2,646	2,788	2,951	2,951	2,042	2,909	2,779	3,714	29
Finland	847	1,294	1,603	1,916	1,839	1,515	1,869	1,767	3,151	40
France	1,294	1,411	1,527	1,604	1,600	1,457	1,603	1,581	2,400	28
Germany	1,585	1,591	1,855	1,940	1,906	1,781	1,960	NA	2,563	38
Greece	743	767	851	889	778	1,010	858	847	1,179	21
Hungary (u)	558	600	621	649	649	970	621	677	797	4
Ireland	1,796	1,839	2,479	2,285	2,285	1,561	1,969	2,249	4,044	9
Italy	672*	715*	1,235	1,403	1,233	1,400	1,437	1,344	1,852	56
Latvia (u)	780	NA	NA	NA	NA	NA	NA	NA	NA	1
Lithuania (u)	730	NA	NA	NA	NA	NA	NA	NA	NA	2
Luxembourg (u)	2,207	2,249	2,282	2,350	2,350	1,718	2,278	NA	2,627	5
Malta	673	784	783	806	806	920	802	NA	929	40
Netherlands	1,725	1,725	1,776	1,953	1,830	1,674	1,923	1,885	2,811	44
Portugal	489	554	680	778	667	865	776	725	1,234	37
Slovakia	544	568	580	590	590	643	572	589	646	10
Slovenia	410	434	499	512	512	566	529	509	680	13
Spain	785	826	1,051	1,279	1,086	1,325	1,240	1,287	2,127	55
Sweden	1,739	1,789	1,958	2,069	2,069	1,667	2,040	2,061	2,659	34

Notes: No data are displayed for Estonia, Poland and Romania, as their samples are not representative. Weighted averages for Germany, Luxembourg and Malta are not available, as data on total worker coverage are missing. Maltese data are based on wage regulation orders. Rates expressed in PPS are converted using PPP (EU27_2020 = 1), [Eurostat, PRC_PPP_IND]. * The lowest rate (figure A) and the average of the three lowest rates (figure B) in Italy are substantially lower than the average minimum rate if all agreements in the sample are considered. This is because the three lowest minima are for the domestic sector, which provides for considerably lower minimum rates than those provided by the agreements in all other sectors; therefore, while these two figures adequately represent the reality of the specific sector, they should not be taken as a general reference for Italian collectively agreed minimum wages. NA, not available; u, low reliability, applicable to Czechia, Hungary and Luxembourg, as they are based on samples with a low degree of representativeness, and only the lowest rate is displayed for Latvia and Lithuania, as their samples are based on fewer than four agreements. The rates are adjusted for more than 12 monthly payments per year, if applicable, unless otherwise indicated.

Source: Eurofound database of collective agreements for low-paid workers, 2023

Type II indicator: Applicable basic rates

Table 25: Overview of applicable basic minimum rates, adjusted to 12 monthly payments, by country, 1 January 2022 (€ and PPS)

Country	A: lowest rate	B: average of the three lowest rates	C: average of the lowest rates for each sector	D: average of all rates		E: average of all rates (PPS)	F: median of all rates	G: weighted average of all rates	H: highest minimum rate	Number of series the figure is based on
				Adjusted to 12 monthly payments	Not adjusted to 12 monthly payments					
Austria*	1,704	1,743	1,886	1,960	1,677	1,782	1,948	1,991	2,373	40
Belgium**	1,744	1,756	1,987	2,094	1,933	1,824	2,001	1,914	2,856	30
Bulgaria	332	332	365	389	389	663	363	384	545	17
Croatia	623	623	623	623	623	863	623	623	625	14
Cyprus*	504	712	1,096	1,107	1,024	1,215	990	1,025	2,347	12
Czechia (u)	662	662	666	669	669	765	662	666	687	7
Denmark*	2,619	2,646	2,788	2,951	2,951	2,042	2,909	2,779	3,714	29
Finland*	847	1,294	1,606	1,916	1,839	1,515	1,869	1,767	3,151	40
France	1,603	1,603	1,603	1,640	1,640	1,490	1,603	1,618	2,400	30
Germany**	1,621	1,621	1,829	1,933	1,896	1,775	1,952	NA	2,563	40
Greece	774	777	900	934	775	1,061	902	849	1,179	21
Hungary** (u)	558	558	558	599	594	895	558	634	797	10
Ireland	1,796	1,839	2,479	2,285	2,285	1,561	1,969	2,249	4,044	9
Italy*	672	715	1,235	1,403	1,233	1,400	1,437	1,344	1,852	56
Latvia (u)	500	NA	NA	NA	NA	NA	NA	NA	NA	2
Lithuania (u)	730	NA	NA	NA	NA	NA	NA	NA	NA	2
Luxembourg (u)	2,257	2,266	2,299	2,360	2,360	1,725	2,278	NA	2,627	5
Malta	792	792	794	808	808	922	802	NA	929	41
Netherlands	1,734	1,795	1,847	1,980	1,828	1,697	1,923	1,936	2,811	45
Portugal	823	823	823	853	788	949	823	828	1,234	37
Slovakia	646	646	646	646	646	704	646	646	646	12
Slovenia	1,164	1,164	1,164	1,164	1,164	1,286	1,164	1,164	1,164	13
Spain	1,167	1,167	1,182	1,327	1,181	1,375	1,240	1,329	2,127	55
Sweden*	1,739	1,789	1,958	2,069	2,069	1,667	2,040	2,061	2,659	34

Notes: No data are displayed for Estonia, Poland and Romania, as their samples are not representative. Weighted averages for Germany, Luxembourg and Malta are not available, as data on total worker coverage are missing. Maltese data are based on wage regulation orders. Rates expressed in PPS are converted using PPP (EU27_2020 = 1), [Eurostat, PRC_PPP_IND]. The rates are adjusted for more than 12 monthly payments per year, if applicable, unless otherwise indicated. * For countries without statutory minimum wages, the applicable rate is the same as the negotiated basic rate. ** In Belgium, Germany and Hungary, the applicable average indicator (D) is slightly below the average negotiated rate. This is because of a small difference in the sample due to missing information, as by definition the applicable rate must be larger or at least as high as the negotiated rate. NA, not available; u, low reliability, applicable to Czechia, Hungary and Luxembourg, as they are based on samples with a low degree of representativeness, and only the lowest rate is displayed for Latvia and Lithuania, as their samples are based on fewer than four agreements.

Source: Eurofound database of collective agreements for low-paid workers, 2023

Agreed rates below the statutory minimum wage

As outlined in the previous section, the findings show that in a considerable number of countries agreements with outdated pay rates exist, as the rates are below the statutory minimum wage. We will therefore expand the analysis by investigating this relationship further.

The data were standardised and adjusted (see the section ‘[Conversion of rates](#)’ for a description of the statutory minimum wage series and more details of the conversions).

As the objective is to compare the collectively agreed wages with statutory rates, the most fitting indicator for this type of comparison is the type I indicator, which reflects the rates most closely linked to the agreements. It

is based on pay rate statuses as per agreements and other texts they refer to, without further imputations (unlike the type II indicator). The indicator considers explicit references to the statutory minimum wage and imputes it only in the case of such an explicit reference.

By comparing the negotiated rate and statutory minimum wage series for the entire time period, we were able to determine whether the pay rate was greater than the statutory rate, equal to or within 1% of the statutory rate or less than the statutory rate, or whether the statutory minimum wage was imputed because the status flagged that the agreement explicitly referred to it.

This is either because collective agreements were not renewed and the minimum pay rates were not updated, or because they rely on different wage compositions consisting of basic pay and top-up by allowances.

Table 26 provides an overview of the share of agreements that include rates less than the statutory minimum wage and the proportion of monthly rates that are below the statutory minimum wage. These results should be interpreted with caution. First, the data in the table are based on a subsample of countries and agreements that contain a negotiated rate below the statutory minimum wage for a certain period; therefore, other pay rate statuses are omitted. Second, a lack of access to some agreements caused gaps in the time series and could affect the proportion of rates below the statutory levels or the average length of the series. Last, while the series of both negotiated and statutory minimum wages are converted, adjusted and standardised as per the methodology outlined in the section ‘[Conversion of rates](#)’, there is a risk of variance in the calculations. Moreover, the database captures only basic pay rates as stipulated in agreements (excluding the majority of bonus payments) and not actual gross wages.

In Slovenia, in virtually all sampled agreements, nine in the private sector and four in the public sector, pay rates are less than the statutory minimum wage throughout the entire period from 2015 to 2022. This is because most wage rates in collective agreements are for unqualified work, which are the lowest rates found as per the methodology of this project, and are below the statutory minimum wage. In such cases, employers are required to make up the difference. Although these rates are below the minimum rates, their increases have positive impacts on employees indirectly, as several allowances can be tied to the basic pay rate.

In Slovakia, pay rates set in collective agreements are often lower than the statutory minimum wage, and the employer must pay the employee the difference from the

applicable statutory minimum rate. Nearly three-quarters (74%) of the sampled agreements contain a rate lower than the statutory minimum, while more than half of the negotiated rates were set below the statutory minimum for an average period of almost five years. Moreover, half of the agreements are in the public sector and refer to Act No. 553/2003 Coll. on the remuneration of certain employees for the performance of work in the public interest, which sets wages below the statutory minimum wage. The situation in Poland is somewhat similar to the one in Slovakia and Slovenia. Nearly half of the negotiated rates (47%) are below the statutory minimum; this occurs in about two-thirds of agreements (67%). However, for most collective agreements, the pay is composed of basic pay and bonuses. The statutory minimum refers to the overall amount that an employee should receive; Poland therefore complements the basic pay with bonuses to match the statutory minimum rate in each year. In Croatia, 70% of negotiated basic rates found in a third of agreements are outdated for an average period of 5.7 years.

In Portugal, wage rates in 86% of agreements included in the database are outdated. This is because in general many agreements are not renewed and therefore do not keep up with the increases in statutory minimum wages. Almost half of all negotiated rates are below the statutory minimum wage, with an average period below the statutory minimum of 4.3 years out of the 8 years studied (2015 to 2022).

In France, the situation is slightly different. Even though 80% of agreements contain rates below the statutory minimum wage, fewer than a third (32%) of negotiated rates are below the statutory minimum for an average period of 2.9 years. In Spain, almost a fifth (18%) of rates found in 40% of agreements are outdated. Newer agreements, active between 2019 and 2022, tend to be more outdated, with an average period of 3.3 years. This could be because the Spanish statutory minimum wage increased substantially during this period.

As pay rates in Germany are most often set per hour, the analysis was performed using the hourly series of both negotiated and statutory minimum wages, in order to offset the effects of varying numbers of working hours. The results suggest that 17 series of pay rates found in 15 collective agreements contain 189 pay rates that are below the statutory minimum.

For the remaining countries, a conclusive analysis could not be conducted due to a small number of observations in general or for agreements containing rates below the statutory minimum wage.

Table 26: Proportion of collective agreements and rates with negotiated rates below statutory minimum wage

Country	Proportion of agreements that contain at least one negotiated rate below the SMW (%)	Proportion of negotiated rates below the SMW (%)	Average time for which the rate was below the SMW (years)	Number of collective agreements with at least one rate below the SMW	Total number of collective agreements with a negotiated rate
Slovenia	100	100	7.9	13	13
Portugal	86	48	4.3	32	37
France	80	32	2.9	24	30
Slovakia	74	58	4.9	14	19
Poland (u)	67	47	4.1	8	12
Spain	40	18	3.3	27	67
Croatia	35	70	5.7	7	20
Romania (u)	33	56	6.4*	1	3
Czechia (u)	29	6	1.4	2	7
Germany	29	7	1.7	15	51
Luxembourg (u)	17	2	0.5*	1	6
Greece	14	7	3.9	3	21
Belgium	13	1	0.5*	4	30
Bulgaria	10	7	3.8*	2	20
Netherlands	2	0	0.4*	1	46

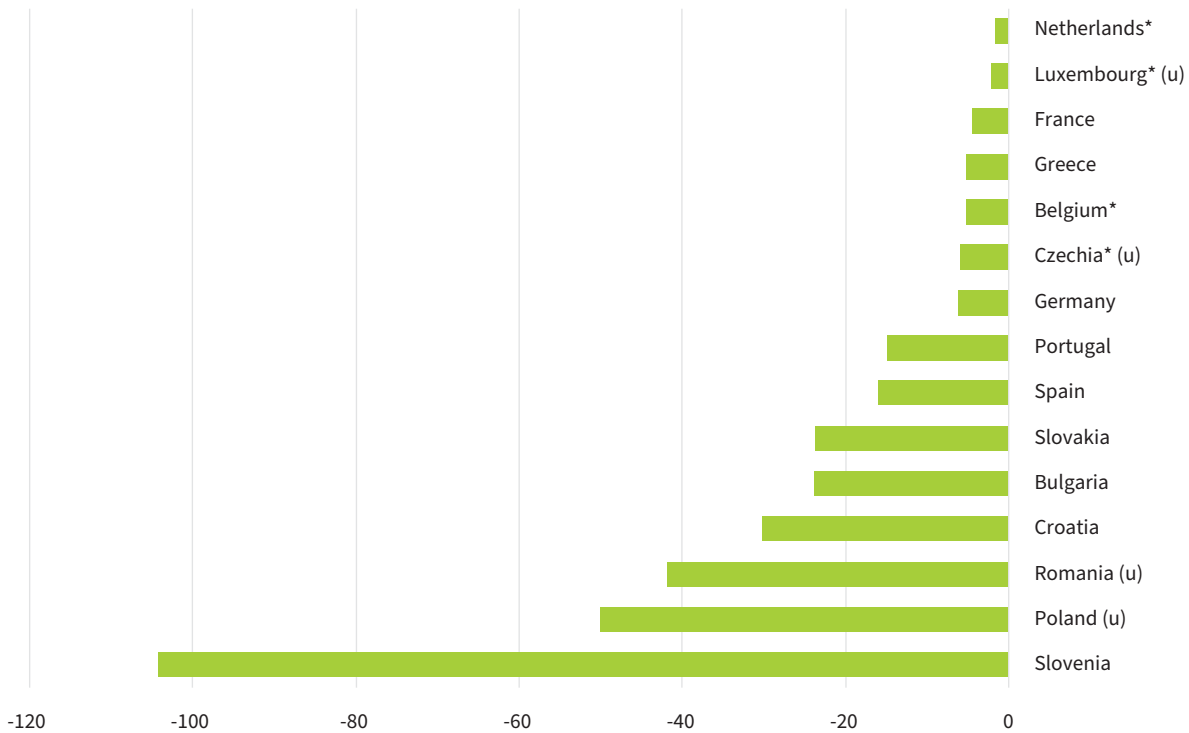
* Figures are based on fewer than five collective agreements.

Notes: N = 58,913 minimum negotiated rates (7,293 of which are below the statutory minimum wage) found in 399 collective agreements. The sample excludes collective agreements without a negotiated rate or countries without statutory minimum wages. In Estonia, Hungary, Ireland, Latvia, Lithuania and Malta, negotiated rates were never below the statutory minimum wage. SMW, statutory minimum wage; u, low reliability, applicable to Czechia, Luxembourg, Poland and Romania, as they are based on samples with a low degree of representativeness.

Source: Eurofound database of collective agreements for low-paid workers, 2023

Besides the proportion of rates that are below the statutory minimum, it is also possible to analyse how far below the statutory minimum wage these rates are.

Figure 24: Average difference between the negotiated rate below the statutory minimum wage and the statutory minimum wage, by country, 2015–2022 (%)



Notes: *N = 7,107 negotiated rates below the statutory minimum wage found in 152 collective agreements. In Estonia, Hungary, Ireland, Latvia, Lithuania and Malta, negotiated rates were never below the statutory minimum wage. * Figures are based on fewer than 50 observations. u, low or very low reliability, applicable to Czechia, Luxembourg, Poland and Romania, as they are based on samples with a low or very low degree of representativeness.*

Source: Eurofound database of collective agreements for low-paid workers, 2023

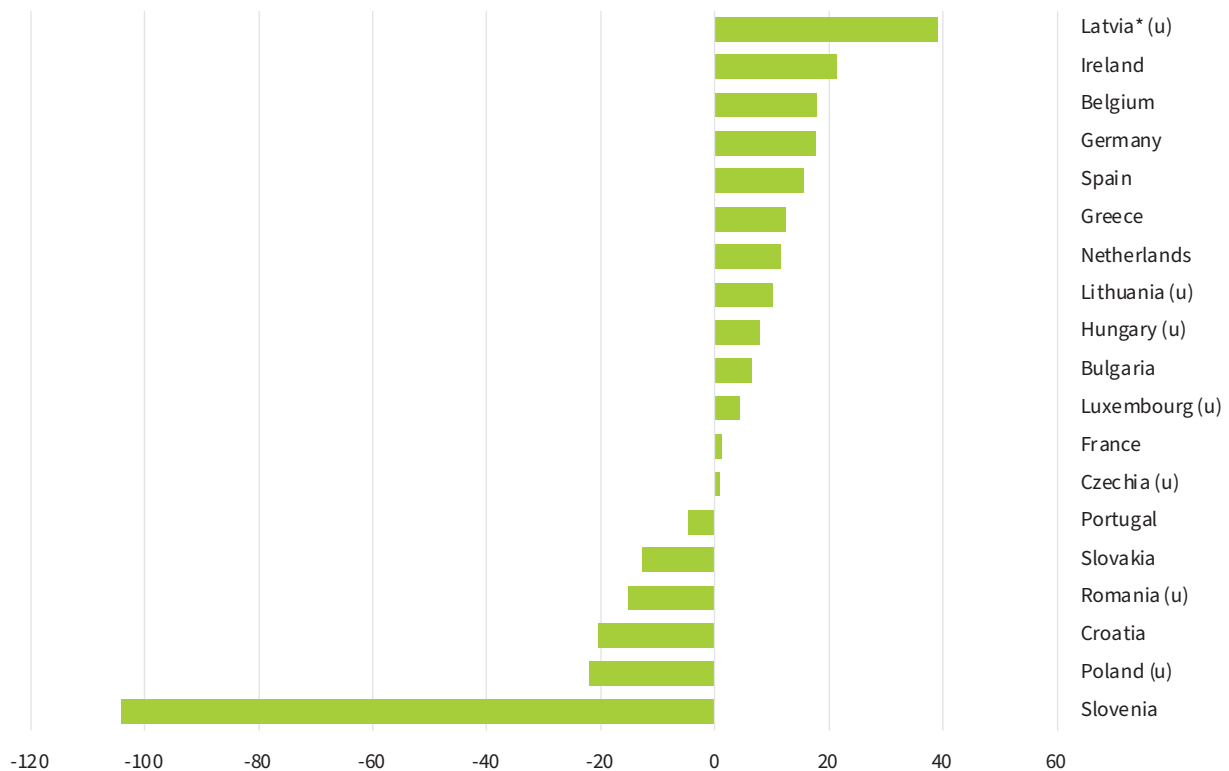
Figure 24 shows the average percentage difference between negotiated and statutory minimum wage monthly rates by country. The results vary from a 2% difference in Luxembourg and the Netherlands, with very few observations, to a 6% difference in Germany, 16% in Spain, 50% in Poland and 104% in Slovenia.

Collectively agreed minima and the statutory minimum wage

The previous section analysed negotiated rates that are below the statutory minimum wage. The aim of this section is to provide an overview of all the negotiated rates and calculate how much higher or lower they are on average than the national statutory minimum wages. Figure 25 shows that the negotiated basic minimum wages provide the highest premium over statutory rates in Latvia (39%). On average, the negotiated rates are higher

by around a fifth in Ireland (21%), Belgium (18%) and Germany (18%). In Spain, negotiated basic pay rates on average provide a 16% premium; however, if the outdated agreements are disregarded, there is a 22% difference between negotiated and statutory minimum wages. In Greece, the Netherlands and Lithuania, the negotiated basic pay rates stipulate a minimum wage roughly 10% higher than the statutory minimum. In Portugal, the negotiated rates are on average 5% lower than the statutory rates; however, if the outdated agreements are disregarded, negotiated basic rates provide a 5% premium. In Slovakia, Romania and Croatia, the agreements are often outdated, resulting in basic negotiated rates being lower than the statutory minimum wage, by 13% to 22%. The sample in Slovenia consists mostly of outdated agreements, and, as previous analysis showed, most rates are lower by the amount of a full negotiated basic pay rate on average.

Figure 25: Average difference between the negotiated rate and the statutory minimum wage, by country, 2015–2022 (%)



Notes: N = 32,877 negotiated rates found in 434 collective agreements. Malta is not represented in the figure, as coded data are based on wage regulation orders. * Figures are based on fewer than 50 observations. u, low reliability, applicable to Czechia, Hungary, Latvia, Lithuania, Luxembourg, Poland and Romania, as they are based on samples with a low degree of representativeness.

Source: Eurofound database of collective agreements for low-paid workers, 2023

Pay range covered in agreements

Not all collective agreements regulate pay beyond a minimum rate. But where they do, the extent to which the pay of other workers is defined – and for whom – can vary significantly across agreements and countries. There are agreements with a large number of distinct groups covered by a large number of distinct rates, usually listed in pay scales or wage tables with various dimensions/differentiators (see the sections ‘How pay is set in sampled agreements’ and ‘Pay differentiators’). How far agreements regulate pay for those in the highest ranks of a company, or how far up the pay scale pay is negotiated, can be very different.

Collective agreements providing at least a lowest minimum and a highest rate may follow different patterns of pay scale differentiation. Two main approaches to pay differentiation were identified in this project.

- The first is less structured. It is based on two rates (one lowest and one highest) and employs a single pay differentiator.

- The second is more structured. It is based on pay scales providing several rates and employs a variety of pay differentiators, to be considered jointly, that may be further divided based on the range covered by the pay scale in the agreement.
 - Some agreements, despite providing several pay levels, do not cover the full range of existing payment levels for all groups of workers in the sector, for instance excluding higher-skilled professionals or managers.
 - Some agreements not only provide several pay levels but also cover the full range of positions in the sector, from the lowest-qualified workers carrying out the most basic tasks with limited work experience, to highly qualified and experienced, long-serving managers.

The first approach is far less common than the second and is not identifiable in all countries. Instances have been found in sectoral collective agreements in Cyprus, Denmark, Estonia and Finland. Box 4 illustrates the various approaches found in the sample.

Box 4: Examples of different approaches to including a range of rates in collective agreements

Examples of the less structured approach with single pay differentiators were found, for example, in Cyprus, Denmark, Estonia and Finland. In the **Danish** collective agreement for workers employed in slaughterhouses and abattoirs, the lowest minimum rate applies very generally to ‘adult workers’, while the highest rate applies to adult workers with at least six months of experience in the company. In this case, seniority is the only pay scale differentiator, and there is no pay rate between the lowest and highest. A similar example in Denmark is represented by the collective agreement for shop assistants in retail, which provides only two rates (the lowest for unskilled shop assistants and the highest for skilled shop assistants). The **Estonian** agreement for actors provides only two rates for the same profession (actors), employing only the educational level as pay differentiator (i.e. completion or failure to complete higher education). Other instances of this approach to pay differentiation have been identified in **Finnish** agreements: the agreement for newspaper distributors provides different rates applying to the same profession, differentiating them based only on seniority and the company’s number of working days (six or seven); and the agreement for bus drivers and the agreement for locomotive drivers identify a lowest and a highest minimum rate, both applying to the same profession (to bus drivers in the first agreement and to locomotive drivers in the second agreement), with the only difference between lowest and highest rate being the level of seniority.

Collective agreements with full pay scales are very common in France, Portugal and Spain. Given the widespread nature of these agreements in these countries and the existence of similar agreements in other countries, only a few illustrative examples are given here.

The **French** national agreement for agricultural production provides rates for 12 professional groups based on a combination of five different indicators (technical skills, autonomy, responsibility, management skills and relational skills). The lowest pay level corresponds to employees carrying out one or more simple tasks requiring little or no experience, that do not require any degree of responsibility or managerial or relational skills and are carried out under direct supervision. The highest level is the pay received by highly skilled managers with hierarchical responsibility across the whole organisation. Similarly, the **Spanish** regional sectoral agreement for the metal industry of Zaragoza employs a system combining six general indicators (know-how, proactivity, autonomy, responsibility, management skills and the complexity of tasks) to identify seven professional groups. These range from the lowest paid – requiring only elementary knowledge for the performance of simple tasks that do not require responsibility or functional autonomy and mainly consist of manual jobs (cleaning or auxiliary staff) – to the highest paid, requiring a high educational level and highly developed managerial skills demanding autonomy, proactivity and responsibility for organising the production plans, operational plans and/or financial plans of organisations (general directors or directors of large departments of organisations). The largest **Portuguese** agreement in terms of coverage, the national agreement for wholesale and retail trade, provides 13 professional groups, from trainees and apprentices (who are, however, not coded as per the general rules) to the highest level of management.

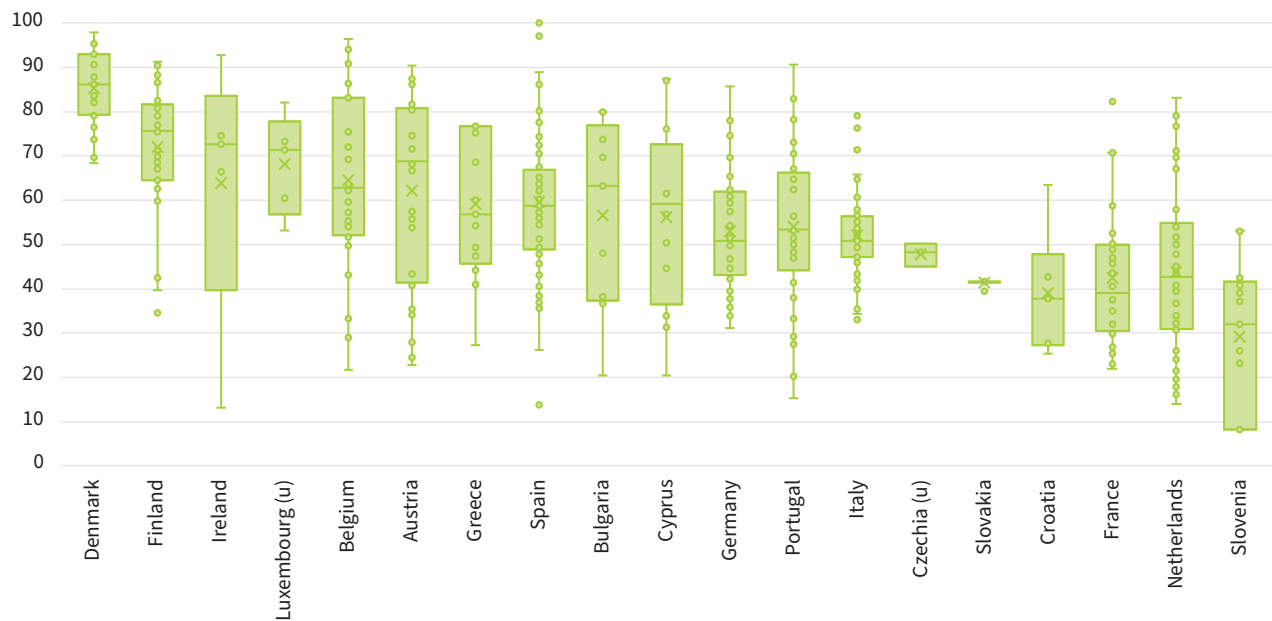
Finally, examples of agreements that employ a highly structured but incomplete wage scale include virtually all **Italian** collective agreements. They provide a highest rate that applies not to the highest executive level (*dirigenti*) but rather to employees with a degree of functional autonomy within the organisation (*quadri*), because in the Italian industrial relations system highest-level executives have their own trade unions that sign separate agreements. These agreements generally have a cross-sectoral scope of application, regulating the employment relationships of the highest-level executives only. For instance, the largest (in terms of coverage) Italian agreement among those coded, applicable to the tertiary sector, sets out pay for seven professional levels up to highly qualified personnel with responsibility in executive direction (*quadri*), yet not qualifiable as high-level executives (*dirigenti*), for which the minimum rate is negotiated by a specific trade union in a separate collective agreement.⁴⁷ In **German** collective bargaining, similar cases are common. Many collective agreements state that the pay rate for the highest managerial position should be determined ‘by free agreement’ between the company and the manager concerned.

Figure 26 plots the ratio between the lowest rates and the highest rates for all available collective agreements in January 2022. The higher the percentage, the smaller the difference between lowest and highest minimum rates; conversely, the lower the percentage, the bigger the

difference. The cross in the figure shows the median value of the ratio between the two rates in each country: overall, the lowest minimum rate, in relation to the highest rate, ranges from 85% in Denmark to less than 30% in Croatia.

⁴⁷ The national collective agreement for executives of companies in the tertiary, distribution and services sectors applies to workers ‘that, answering directly to the entrepreneur or other executive to this expressly delegated, carry out peak-level corporate functions requiring a high degree of professionalism, with broad autonomy and discretion and initiative and with the power to give directives to the whole company or to an independent part of it, aimed at achieving the interest of the enterprise and the purpose of its social utility’ (identified examples are general directors, vice-directors or the heads of the largest functional units of the organization). It is a cross-sectoral national agreement complemented by other similar agreements for industrial companies, agricultural companies, etc., each providing only a single minimum rate for high-level executives. These agreements fell outside the scope of the database, as the lowest minima are well above the highest rates in all non-managerial sectoral collective agreements.

Figure 26: Ratio of the negotiated rates in collective agreements related to low-paid sectors, January 2022 (%)



Notes: $N = 996$ negotiated pay rates found in 498 collective agreements. Only agreements that contain both a lowest and a highest rate were considered (highest rates were not coded for Latvia, Lithuania and Sweden). Malta was not included, as the data were based on wage regulation orders. No data are displayed for Estonia, Hungary, Poland and Romania, as their samples are not representative. u, low reliability, applicable to Czechia and Luxembourg, as they are based on samples with a low degree of representativeness. The central value of interest in the figure is the ratio of the lowest minimum rate to the highest rate in each agreement where both rates exist, which we can regard as the 'pay range' within an agreement. The graph is a box plot showing how the pay ranges are distributed across agreements in each country. The cross depicts the median pay range in each country. The bars show the first and the third quartiles: the larger the bar, the wider the spread of the pay ranges in a country. Pay range values that can be regarded as outliers are shown outside the bars.

Source: Eurofound database of collective agreements for low-paid workers, 2023

The lowest minimum rate ranges between 50% and 75% of the highest rate for most countries. In some countries, there is relatively little variation in this ratio across collective agreements in the interquartile range: for instance, in Denmark (with half of the observation ranging between 79% and 93%), Italy (47–56%), Czechia (45–50%), and Slovakia (41–42%). In other countries, the variation in this ratio in the interquartile range is higher: for instance, in Ireland (53–95%), Austria (41–81%), Belgium (52–83%), Bulgaria (38–78%), Cyprus (37–72%), Croatia (28–63%), and Slovenia (9–41%). However, outliers were identified also in countries with relatively little variation: for instance, in the Finnish communication and logistics agreement and in the private social services agreement, the ratio of the lowest rate to the highest is not above 40%.

Among other examples, the Italian agreement for hairdressing, beauty and wellness centres shows a lowest minimum amounting to nearly 80% of the highest rate, and – conversely – two domestic work agreements provide lowest minima of just over 30% of the highest rates. Interestingly, in Spain a robust sample shows that half of the agreements have a ratio of the lowest rate to the highest rate between 49% and 67%, while two agreements, for the hairdressing and agriculture sectors, stipulate no difference between the lowest and highest rates. In France, an outlier was also identified: while in half of the observations the ratio between the lowest and highest minimum is between 31% and 50%, the collective agreement for employees on a freelance basis provides a lowest minimum amounting to 82% of the highest rate.

Germany and Portugal represent similar cases, with a median of the ratio between the lowest and highest minima of around 55%, half of the observations concentrated around the median level and the other half spread to levels quite distant from the median value (the ratio of the lowest and highest minimum lower than 40% or higher than 70%), but no outliers were identified among the coded agreements (in contrast to Spain and Italy, which would otherwise present an analogous situation).

There are six countries (Czechia, Slovakia, Croatia, France, the Netherlands and Slovenia) that show a higher pay range between the lowest and highest minimum rates, with a median ratio below 50%, signifying the lowest rate makes up less than half of the highest rate. However, it must be noted that this could depend on the different approaches employed by collective agreements to including the pay rates (see Box 4 above).

Developments over time

The creation of time series of observations between 2015 and 2022 was not always straightforward, as some of the selected measures may be prone to erratic changes if values are missing for some observations. See the section '[Creating a panel of observations for time series analysis](#)' for a detailed discussion of the difficulties associated with creating time series of observations.

The creation of a time series of observations of negotiated wages for low-paid workers in collective agreements based

on a panel approach was possible for 19 out of the 24 Member States with a representative sample (see [Table 28](#) and the section ‘[Representativeness of the listed sample](#)’). And within this set of countries, the quality and reliability of the data differ owing to the size of the panel and the completeness of the underlying series. The clustering of countries is indicated by the colour coding in the first column of the table, which is based on a qualitative assessment of the data according to the panel size and balance of observations (i.e. to what extent information is missing due to the inaccessibility of texts).

Countries were grouped according to the reliability of time series data, as shown in [Table 27](#). In 11 countries, the averages provided and time series can be considered adequate, as they are based on rather large samples of collective agreements with mainly complete series of pay rate observations ([Table 28](#)) and where gaps caused by the inaccessibility of texts occur they do not affect the average substantially. Still fairly reliable but of somewhat lesser quality are the time series derived in two countries: Finland and Spain. While these time series are based on a larger panel of agreements, they are affected by a somewhat larger amount of missing information than those for countries in the first group. Countries in which the averages are based on smaller but relatively

balanced panels with limited missing information due to the inaccessibility of texts (at least for the subperiod for which time series data are displayed) are clustered in a third group. These are Cyprus, Czechia and Slovenia. For a fourth group of countries – consisting of Bulgaria, Croatia and Slovakia – the time series should be interpreted rather cautiously, as they are based on smaller panels with rather fragmented observations. Data on the fifth group of countries are not displayed.

Table 27: Reliability of time series data

Group	Description
1	Time series are based on large or medium-sized samples.
2	Time series are based on large or medium-sized samples, but there are some gaps in observations due to the inaccessibility of data.
3	Time series are based on smaller samples, but the data are relatively complete for the indicated observational period (except for natural gaps).
4	Time series are based on fragmented data in small or medium-sized samples.
5	No time series could be constructed owing to small and/or very fragmented samples.

Table 28: Negotiated minimum rates, by country, 1 January 2015–2022 (monthly average in national currency)

Group	Country	Currency	2015	2016	2017	2018	2019	2020	2021	2022	Note on the quality of the series based on the selected panel
1	Austria	€	1,623	1,658	1,685	1,740	1,806	1,869	1,910	1,960	There is a substantial panel of observations; all observations are included, including from new agreements added in 2022.
1	Belgium	€	1,877	1,887	1,909	1,974	2,003	2,043	2,068	2,154	There is a substantial panel of observations; all observations with rates are included. There are a few gaps at the beginning of the series in the panel due to the inaccessibility of texts; however, they did not affect the average much. There is a small break in the series in 2016/2017.
4	Bulgaria	BGN	NA	NA	NA	NA	NA	670	728	763	There are more than 10 agreements in the panel but a substantial number of gaps in the series, some of which are 'natural' (due to non-renewals). A decision was taken to truncate the series.
4	Croatia	HRK	NA	NA	NA	2,750	3,043	3,545	3,665	3,790	There is a small panel of agreements with pay rates; missing data are due to the inaccessibility of texts in four agreements. The truncated average is based on only seven observations.
3	Cyprus	€	NA	NA	NA	NA	1,048	1,050	1,101	1,107	The panel is small, owing to gaps in the series for three agreements, due to the inaccessibility of texts. A decision was taken to truncate the series. See the section 'Creating a panel of observations for time series analysis'.
3	Czechia (u)	CZK	9,467	9,958	10,961	11,959	13,084	14,591	15,266	16,220	The panel of observations is small but relatively complete. There are a few gaps, exclusively due to the non-renewal of agreements. Values were imputed in one series. The listed sample of agreements has been assessed as being of a low degree of representativeness.
1	Denmark	DKK	19,474	19,773	20,105	20,413	20,768	21,136	21,562	21,961	There is a substantial panel of observations; only one observation is missing.
2	Finland	€	NA	NA	NA	1,790	1,827	1,848	1,889	1,916	There is a substantial panel of observations but a relatively large number of missing observations in the first three to five years, all due to the inaccessibility of older texts.
1	France	€	1,499	1,511	1,523	1,528	1,548	1,566	1,581	1,604	The panel size is good. Rates are missing due to the inaccessibility of three agreements for three to four years; however, this does not have a substantial impact on the average.
1	Germany	€	1,707	1,753	1,799	1,843	1,899	1,956	2,004	2,054	There is a substantial panel of observations. Rates are missing due to the inaccessibility of seven agreements for the first one to four years; however, this has a very limited impact on the average.
1	Greece	€	887	850	845	815	823	876	879	894	The panel size is good; all gaps are due to the non-renewal of agreements and the application of the statutory minimum wage (or other texts).
1	Italy	€	1,335	1,334	1,338	1,353	1,368	1,378	1,390	1,403	There is a substantial panel of observations; only one observation is missing due to the inaccessibility of a text, and two agreements were not renewed for a period.
1	Malta	€	734	742	750	761	776	791	798	806	There is a substantial panel of wage regulation orders, with no gaps.
1	Netherlands	€	1,744	1,755	1,776	1,802	1,836	1,864	1,894	1,953	There is a substantial panel of observations, with only one observation missing due to the inaccessibility of a text. There are some gaps due to the non-renewal of agreements.
1	Portugal	€	599	604	627	666	685	718	739	778	There is a substantial panel of observations, with a few missing observations due to the non-renewal of agreements.
4	Slovakia	€	NA	356	371	411	508	556	NA	NA	The series is fragmented, with missing observations at the beginning and the end of the period. One rate was imputed.
3	Slovenia	€	460	460	461	473	480	489	494	512	The panel is small but balanced. The only missing observations are due to the non-renewal of texts.

Group	Country	Currency	2015	2016	2017	2018	2019	2020	2021	2022	Note on the quality of the series based on the selected panel
2	Spain	€	1,107	1,119	1,133	1,150	1,197	1,228	1,261	1,301	The panel of agreements is large, with a considerable number of yearly observations missing particularly in the first two years. Excluding series with missing data has a very small effect on the average, so the decision was taken to include all agreements with pay rates in the panel for the time series.
1	Sweden	SEK	NA	NA	NA	19,932	20,361	20,688	21,319	21,432	There is a substantial panel of observations, all starting in 2018. Information is missing due to the inaccessibility of texts in only two agreements, with no substantial impact on the average.

Notes: Figures represent averages of 12 monthly rates within a year, if available. No time series based on panel data could be created for Hungary, Ireland, Latvia, Lithuania or Luxembourg due to the fragmentation of the coded pay rates. No data are displayed for Estonia, Poland and Romania due to the non-representativeness of the underlying sample of agreements. NA, not available; u, low reliability of the original listed sample of agreements on which the panel selection is based.

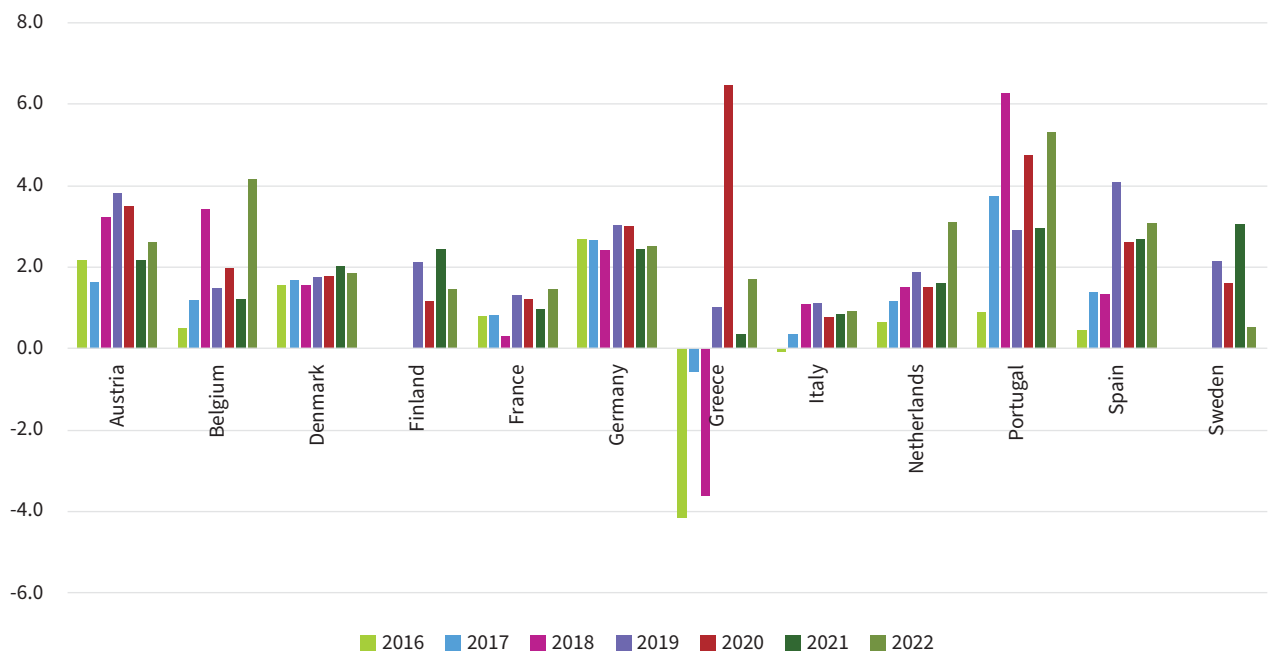
Source: Eurofound database of collective agreements for low-paid workers, 2023

Figure 27 depicts the annual growth rates by country separately for the EU15 (older Member States) and the newer Member States – joining the EU from 2005 onwards – for which data are available, due to the considerable differences in their nominal growth rates. It is noteworthy that, with the exception of Greece, negotiated minimum wages for workers in the low-paid sectors of interest increased in all countries for which data are available, although the increases were generally much lower in France and Italy. The decrease in Greece between 2016 and 2018, a period when general wage restraints were in place

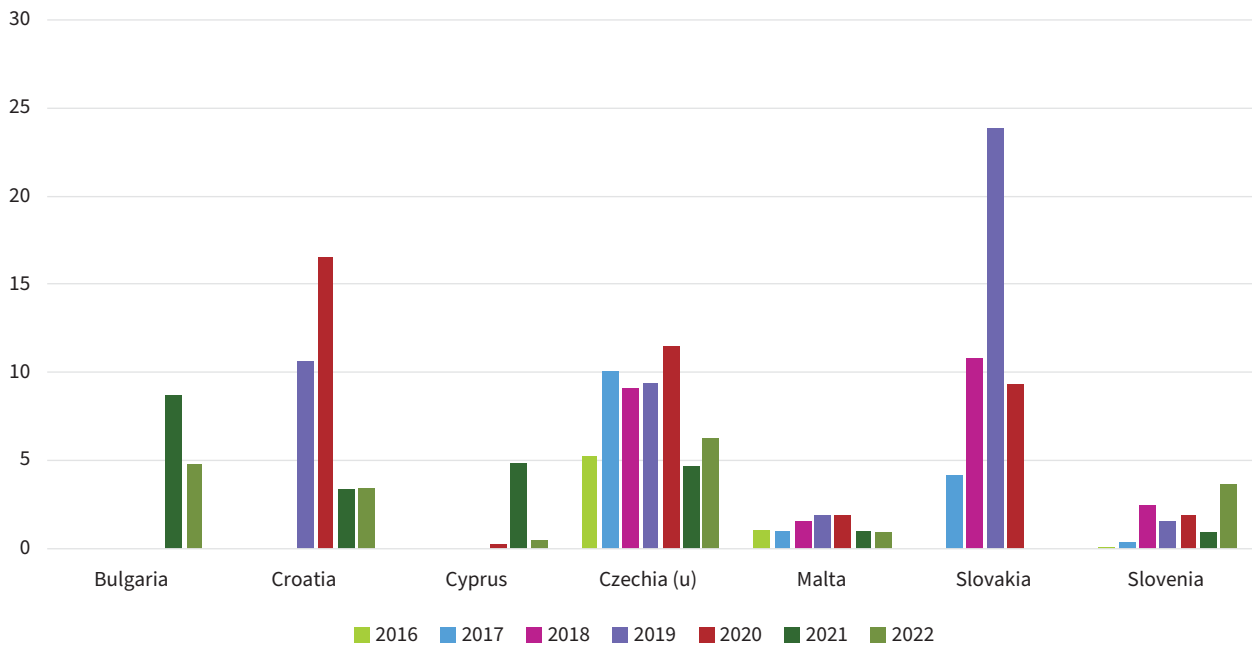
and statutory minimum wages were frozen, was followed by a stark increase in 2020, when the statutory minimum wage was increased again. In some countries, there was a noticeable decrease in growth rates in 2021, when the COVID-19 crisis most likely resulted in more cautious wage bargaining. These include, in particular, Austria, Belgium, France, Greece and Portugal, and Croatia, Czechia, Malta and Slovenia. In other countries, the effect was not so directly visible, or was potentially already present in 2020. These include Finland, Italy, the Netherlands and Spain.

Figure 27: Changes in negotiated minimum rates, by country, 2016–2022 (% change from previous year)

(A) EU15 countries



(B) Countries that joined the EU from 2005 onwards



Notes: No data are displayed for Estonia, Hungary, Ireland, Latvia, Lithuania, Luxembourg, Poland or Romania, as no time series could be created for these countries. u, low reliability, applicable to Czechia, as the figures are based on samples with a low degree of representativeness.

Source: Eurofound database of collective agreements for low-paid workers, 2023

6 Results of the pilot

This section completes the report by discussing the strengths and weaknesses of (and challenges faced in) the data collection. It finishes with a discussion of the possibility of updating the database in future.

Challenges and weaknesses of the data collection

Assessing the results of the pilot study of a database on collectively agreed wage floors, several limitations were identified. The first set of limitations is inherent in the bargaining regimes of the Member States, which are diverse in their approaches and in their coverage of the labour force. Differences across bargaining regimes result in differences in the sampling and coding processes.

First, the quality and accessibility of available metadata varied across Member States. Registers with complete metadata on the full population of collective agreements in the selected sectors were available in some Member States to facilitate the sampling of agreements to be coded. However, these registers were not available or not accessible in some Member States. In these Member States, convenience sampling was applied, as per the methodological note developed prior to the implementation of the pilot project. In Member States where this was the case, collective bargaining often only played a limited role in wage fixing, and/or collective agreements often did not contain pay rates.

Second, the availability of figures for worker coverage was limited. Only a small number of metadata registers contained precise estimates of the number of workers covered by agreements. In the large majority of cases, correspondents produced estimates of coverage figures based on other sources. Coverage figures for workers in the low-paid sectors were hard to acquire in nearly all Member States. Estimates of the number of workers covered by an agreement therefore tend to represent all workers covered, rather than those in the low-paid sectors of interest only. No figures were available for the numbers of workers covered by the lowest rates.

A third set of limitations is related to the coding process. In 21% of the listed agreements,⁴⁸ correspondents were unable to acquire access to the full text of an agreement and therefore unable to code wage floors. Some 12.5% of the listed agreements were numberless agreements, not fixing any wage floors. Furthermore, the fact that collective agreements are very heterogeneous in how they present and structure pay information makes it very difficult to apply a coherent concept and rules fitting all country contexts (for example, to deal with allowances that are separately presented, but in fact part of people's basic pay). Therefore, some country-specific rules had to be applied and decisions taken, including in Greece, Italy

and Spain. In these countries, (collective) allowances tend to be common and, while listed separately in collective agreement texts, can be considered to be part of workers' basic wages.

Generally speaking, the exercise proved to be challenging in terms of determining a code of practice despite clear concept and coding instructions, as between- and within-country differences in agreements were substantial.

Finally, differences between firm-level and sectoral bargaining affect the generalisability of coded wage floors. In Member States with high collective bargaining coverage rates where bargaining predominantly takes place at sector level and with relatively high coordination within and across sectors, such as Austria and Italy, a handful of coded collective agreements could provide a reliable picture of wage floors applicable to a large share of employees. However, in Member States with less and more fragmented collective bargaining, mainly firm-level collective agreements – where available – were coded, and rates found in the coded agreements may diverge from those in non-coded agreements. Aside from the fact that the firm-level agreement texts are often not accessible, providing a more representative picture of firm-level bargaining would require substantially more resources.

Strengths of the data collection

The pilot study for a database on collectively agreed wage floors also revealed several strengths of the database. First and foremost, the database is the first to present consistently coded time series of pay rates in collective agreements that can be compared over time and across Member States, at least for those for which representative samples could be created. The time series, running from 2015 until 2022, afford crucial and new opportunities to study the development of wage floors with high internal validity (i.e. high comparability of pay rates within an agreement over time). Pay rates are observed on a monthly basis, allowing for complex longitudinal analysis, and providing the opportunity to study gaps in the existence of wage floors over time and the adjustment process for minimum wage uprating. The additional variables related to pay-setting (i.e. pay differentiators) that were coded during the pilot could be analysed in more in-depth research to reveal country/sector specificities in how and along which dimensions pay grids are structured.

The database has a clear focus on low-paid sectors. These sectors were well defined in terms of NACE demarcations and the proportion of low-paid workers in them, which makes the database suitable evidence for policy development in regard to the EU Minimum Wage Directive. The data were collected in a manner that was as close to representative sampling strategies as possible with the available data and data infrastructure, given that the true

⁴⁸ At the listing stage, 12% stated that they had no access and deemed it unlikely that access would be provided, 9% selected the response 'no but might be able to retrieve if selected' and another 12% indicated that texts could be accessed for some years but that more might be retrievable if selected.

distribution of collective agreements across sectors and bargaining levels is most of the time unknown. In countries that predominantly bargain at sector level, this often led to samples providing nearly ‘full coverage’ of the sector of interest. The clear and harmonised coding concept and its consistent application across countries in the coding process optimised the comparability of the data across countries. Consistent coding was ensured through the briefing and training of national correspondents; the availability of local expertise; and quality checks by the project team, ensuring consistency in the methodology across countries.

Finally, the data were collected in cooperation with social partners and/or organisations that keep national registers, which supported the exercise in many countries. The networks built during this project will provide opportunities in the coming years, especially in light of the attention on increasing and monitoring collective bargaining coverage that is expected in the wake of the entry into force of the EU Minimum Wage Directive. By implementing this pilot study, Eurofound has positioned itself as the first port of call for Member States seeking to improve their data infrastructure around collective bargaining.

Sustainable updates to the database in future

In the maintenance of Eurofound’s data collection on collectively agreed pay rates for low-paid workers over the coming years, it is important that updates and developments play to the strengths of the database and mitigate or address, as far as possible, its weaknesses.

Playing to strengths

One major strength of the database is its consistently coded time series of pay rates in collective agreements, which allow the conducting of trend analyses and ensure the high internal validity of the data. Playing to this strength, future updates could seek to extend the time series and prioritise coding renewals of collective agreements that are currently included in the database over extending its sectoral scope, if resources are limited. Different strategies for determining the timing of new waves of coding can be created. The best way to ensure the database has up-to-date data would be to code renewals on a yearly basis. This would, however, also be the most expensive strategy both in regard to the frequency of updates and because in some countries renewals would not actually be available every year. To maximise efficiency in the timing of new updates, Eurofound could also seek to implement new waves of coding either when the Member States with the collective agreements of the longest duration have negotiated renewals, or at intervals when correspondents are able to code two renewals for each agreement (for example, several months following the end date of the most recent agreements in the database).

To maintain the policy relevance of the data collection, which was identified as its second core strength, the regular implementation of new waves of coding is also important. It would be advisable to coordinate the updates

of the database with major reporting periods or policy evaluations related to the EU Minimum Wage Directive.

The third strength of the data collection is its harmonised coding concept and its consistent application across countries in the coding process, optimising the comparability across countries. To maintain the level of quality of the data following future updates, it would be advisable to retain the four-eyes principle from the pilot study – that is, maintain the mix of coders with country-specific expertise (Eurofound correspondents) and coders who are experts in industrial relations or collective wage bargaining. While the quality checks of the coded data increase the cost of implementing new waves of coding, they vastly improve the quality and consistency of the data collection. Following the four-eyes procedure also ensures that Eurofound is well placed to keep addressing the risks associated with the difficulty of applying a coherent concept and rules fitting all country contexts, which was identified as one of the challenges to formulating the data collection.

Mitigating and overcoming weaknesses

The main challenges to creating the data collection observed in the pilot project are the differences in the quality and accessibility of available metadata across Member States, and the low availability of coverage figures for workers at sector level and of estimates of how many workers are covered by agreements in the low-paid sectors of interest. These result in difficulties in assessing the proportion of workers covered that is captured by agreements included in the database, one of the key elements determining the representativeness of the sample. In view of the reporting requirements of the EU Minimum Wage Directive on collective bargaining coverage (and collectively agreed pay rates for Member States without statutory minimum wages), we might expect that Member States will improve or increase their capacity to collect collective agreement texts and metadata on collective agreements in the following years. Eurofound could capitalise on the good cooperation with national archives that was built during the pilot project by advising on good practices in regard to the archiving of collective agreements and metadata on collective agreements. If Eurofound succeeds in playing an advisory role in these developments, this could greatly facilitate future data collection.

To improve the quality of data in the existing database, Eurofound could flag Member States where the sample is small and its degree of representativeness is low and/or where time series contain gaps (for example, because the collective agreement texts cannot be accessed) and may allocate extra budget to spend on improving the existing time series (2015–2022) when access to collective agreement texts or to metadata improves.

Finally, Eurofound’s data collection faces a challenge stemming from the lower generalisability of wage floors coded from firm-level bargaining than sectoral bargaining. It is unlikely that this challenge can be completely mitigated in the short term because, first, it is difficult to access firm-level agreements in many countries, and, second, coding a representative sample of firm-level

agreements would require substantially more resources.⁴⁹ If no resources are available to substantially increase the number of collective agreements coded per country, Eurofound may choose to strategically invest in the coding of firm-level agreements in Member States where this is most relevant. Relevancy could be determined based on several factors, including the prevalence of firm-level

bargaining, and its importance in understanding the industrial relations in a Member State; and whether the lowest wage floors are likely to be found in firm-level agreements (for example, in countries with inverse favourability principles). Such investment seems sensible only in countries where access to collective agreement texts at firm level is attainable.

⁴⁹ For example, in sampling Dutch agreements for WageIndicator's collective bargaining agreements database, it transpired that the four largest sector-level agreements covered 60% of workers covered by sector-level agreements in the manufacturing sector (364,000 workers). In contrast, 30 firm-level agreements would need to be coded to cover 60% of workers covered by firm-level agreements in the manufacturing sector (56,035 workers).

7 | Conclusions

The collection of 692 collective agreements and coding of 118,303 pay rates contained in these agreements based on 3,202 texts over time is an important step forward in addressing data gaps in collectively agreed pay. Producing entirely comparable data across countries and sectors on collective agreements is a (nearly) impossible mission, given that the unit of observation – the collective agreement text – is by no means homogeneous, and is therefore imperfect. In the pilot project, clear rules and coding instructions – which were adapted throughout – addressed most issues, but in practice the coding of content in a comparative database shows that there is always an exception to the general rule.

Harmonise as much as possible, but keep country-specific flexibility

The focus has therefore been on harmonising data as much as possible, but allowing for some country-specific interpretations, while ensuring the internal validity of coding within countries. The documentation of decisions taken, both in the sampling stage and in terms of the metadata recorded for each agreement, was an integral part of the process.

It also needs to be borne in mind that collectively agreed pay data are not the same as actual wages and should not be used for cross-country comparisons if one is interested in differences in earnings. For this purpose, better harmonised actual earnings statistics are available. However, the data in the database can be used to compare differences across countries in negotiated wages for the low-paid sectors relative to average wages, or relative to statutory minimum wages. The main value-added aspects of this dataset are as follows.

- The sample of (selected and listed) agreements, together with the sectoral background information on collective bargaining, provides extensive insight into the collective bargaining landscape (or its absence) for employees working in the low-paid sectors of interest. Based on EU-LFS data, the low-paid workers in the selected sectors make up 60% of all low-paid employees in the EU27.
- The collection of listed agreements is overall highly representative in terms of the proportion of covered workers captured by the agreements that the database includes. In the majority of country/sector observations, most of the covered workers in the sector are included in the listed agreements.
- The mapping of agreements in the low-paid sectors also highlighted an absence of collective agreements in a substantial number of cases, which in itself can be regarded as a determinant of low pay.

- Information on the lowest (and highest) pay level in collective agreements is rather uncommon. The few countries that have statistics of collectively agreed pay developments over time usually just report percentage increases.
- The data collection will provide deeper insight into pay-setting in collective agreements. For the selected sample, it shows how collectively agreed minimum pay relates to statutory rates. Outdated rates in agreements – below the legal minimum wage – can be identified, and the collection also provides concrete information on the extent to which pay is regulated (or not regulated) in collective agreements. These are new statistics, which, to the best of our knowledge, do not exist in most Member States.

Potential of collective wage bargaining is underutilised in several Member States

From a policy perspective, the project has shown that the potential of collective bargaining for the setting of pay is underutilised in several countries – most commonly in central and eastern European Member States, where bargaining coverage is often already very low. In addition, in some countries, where agreements exist they more often than in other countries do not regulate pay across the pay scale, if they contain pay clauses at all. And agreements that contain rates were often found to be outdated and to provide rates below the statutory minimum wage. This underlines the importance of ensuring regular updates to collective agreements and improving the collective (wage) bargaining coverage rate, but it also emphasises the importance of statutory minimum wages in these countries for ensuring the protection of low-paid workers with an adequate wage floor.

More importantly, the work has shown that focusing on increasing collective bargaining coverage rates (in line with Article 4 of the Minimum Wage Directive) **alone** – while necessary – may not be sufficient. High bargaining coverage rates could in principle also be achieved without actually regulating the pay of workers. It will be up to the social partners – in some Member States more than in others and supported in line with national traditions by governments – to reinvigorate collective bargaining. This includes bargaining on pay and beyond – that is, on all other terms and conditions of work that could benefit from a more sector- or company-specific set of rules than general cross-sectoral legislative regulation can provide. Collective bargaining is a key tool for social partners, with a great potential to improve workers' protection and to ensure a level playing field across companies. The EU is aiming to address this, for example with the Minimum Wage Directive and the recommendation on social dialogue, most recently.

Towards more transparent collective agreements

Given the important role that collective (pay) agreements have in regulating aspects of the employment relationship, the secrecy attached to them in some countries is perhaps preventing them from unlocking their full potential. In some bargaining contexts, particularly at company level, they are regarded as company-specific pay scales

to be dealt with confidentially, in particular vis-à-vis competitors. Moreover, not all countries (and participants in bargaining) make sector-level agreements readily or easily accessible. Doing so could help support other EU policy objectives, such as providing greater transparency in the setting of pay (in line with the recently passed Pay Transparency Directive). Greater transparency in how pay is set within collective agreements is a precondition for achieving greater pay transparency in general, to reduce pay discrimination.

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Annex 1: Sample characteristics

Representativeness of listed sample

Table A1: Overview of the assessment grid used to determine the representativeness of the listed sample

Country	Could we base the sample on a (nearly) full register of all agreements? / Does the register include all bargaining levels present in the country, or at least the predominant ones?	Predominant level of bargaining as per the OECD/ Amsterdam Institute for Advanced Labour Studies ICTWSS (variable: level) / Could the predominant bargaining levels as per the ICTWSS (at country level) be included?	Number of grouped sectors with listed CAs or with existing CAs*	Estimated range of covered workers included (based on Figure 6) – average across all sectors ...**		Overall assessment of representativeness of the listed sample of CAs
				with existing and available agreements	with existing agreements (sectors with unavailable agreements are considered to have a value of 0)	
Austria	Yes – the KVSystem database captures virtually all agreements / Yes	Level 3: sector; included in listed sample / Yes	11/11 (all)	3.5 (high)		Very high: the selected sample is based on a complete register, representative of the predominant bargaining level, that includes agreements from all low-paid sectors with existing CAs and includes a substantial proportion of the covered workers captured, exceeding on average 50%.
Belgium	Yes / No – the company-level agreements were missing	Level 4: alternating between central and sector levels / Yes	11/11 (all)	3.6 (high)		Very high: the selected sample is based on a public register, which excludes company-level agreements. It is representative of the predominant bargaining level, includes agreements from all low-paid sectors with existing CAs and includes a substantial proportion of the covered workers captured, exceeding on average 50%.
Bulgaria	Yes / Yes	Level 2: intermediate between sector and company levels / Yes	9/9 (all)	2.6 (medium)		High: the selected sample is based on a complete register with comprehensive worker coverage data and is representative of the predominant bargaining levels. The register includes agreements from all low-paid sectors with existing CAs, and in the average sector a significant fraction – 20% to 49% – of the covered workers captured are included in the sample.
Croatia	Partially / Yes	Level 2: intermediate between sector and company levels / Yes	10/10 (all)	2.5 (medium)		Acceptable: the selected sample is mainly based on a register from one trade union, representative of the predominant bargaining levels, that includes agreements from all grouped low-paid sectors with existing agreements. In addition, in the average sector, a significant fraction – 20% to 49% – of the covered workers captured are included in the sample.

Country	Could we base the sample on a (nearly) full register of all agreements? / Does the register include all bargaining levels present in the country, or at least the predominant ones?	Predominant level of bargaining as per the OECD/ Amsterdam Institute for Advanced Labour Studies ICTWSS (variable: level) / Could the predominant bargaining levels as per the ICTWSS (at country level) be included?	Number of grouped sectors with listed CAs or with existing CAs*	Estimated range of covered workers included (based on Figure 6) – average across all sectors ...**		Overall assessment of representativeness of the listed sample of CAs
				with existing and available agreements	with existing agreements (sectors with unavailable agreements are considered to have a value of 0)	
Cyprus	Partially / Yes	Level 2: intermediate between sector and company levels / Yes	9/9 (all)	3.8 (high)		Good: the selected sample is based on the major trade union confederation, representative of the predominant bargaining level. It includes agreements from all low-paid sectors with existing CAs and includes a substantial proportion of the covered workers captured, exceeding on average 50%.
Czechia	Partially – an official source was consulted only for the higher-level agreements / No – company-level agreements were missing	Level 2: intermediate between sector and company levels / No	6/7 (some missing)	2.2 (medium)	1.9 (low)	Low: the selected sample only includes higher-level agreements from nearly all sectors with agreements, resulting in a relatively good representation of worker coverage for the sectors that are included in the database. However, the representativeness is reduced when the fact that one sector is missing is considered. The database does not include company-level agreements, the predominant bargaining level.
Denmark	No – snowball sampling was conducted / Yes	Level 3: sector; included in listed sample / Yes	11/11 (all)	2.9 (medium)		Good: in the absence of a register, the selected sample was generated based on snowball sampling, including by interviewing the relevant unions, and with support from the largest employer confederation. Despite an absence of concrete data on coverage, the agreements included are assessed as the most important and pattern-setting ones. All sectors with agreements are included, the predominant bargaining level is captured and in the average sector a significant fraction of covered workers captured (20% to 49%) is estimated to be included.
Estonia	Partially – an official source was consulted but was found to be outdated based on information from websites / Yes – but information was mainly available on sectoral agreements	Level 1: Company or enterprise / No	3/7 (many missing)	1.5 (low)	0.9 (very low)	Not representative: in the absence of an up-to-date register, the sampling and identification of texts was problematic. The predominant (company-level) agreements are hardly captured at all. Out of the seven sectors with existing CAs, CAs related to only three sectors were included.

Country	Could we base the sample on a (nearly) full register of all agreements? / Does the register include all bargaining levels present in the country, or at least the predominant ones?	Predominant level of bargaining as per the OECD/ Amsterdam Institute for Advanced Labour Studies ICTWSS (variable: level) / Could the predominant bargaining levels as per the ICTWSS (at country level) be included?	Number of grouped sectors with listed CAs or with existing CAs*	Estimated range of covered workers included (based on Figure 6) – average across all sectors ...**		Overall assessment of representativeness of the listed sample of CAs
				with existing and available agreements	with existing agreements (sectors with unavailable agreements are considered to have a value of 0)	
Finland	Yes / No – company-level agreements were missing	Level 3: sector; included in listed sample / Yes	10/10 (all)	2.9 (medium)		High: the sample is based on a register of extended agreements and reflects the predominant bargaining level. No existing company-level agreements are included. All sectors are included, resulting in medium-high worker coverage, with an estimated 20% to 50% of covered workers captured in each sector on average.
France	Yes / No – company-level agreements were missing	Level 3: sector; included in listed sample / Yes	11/11 (all)	3.1 (high)		Very high: the selected sample is based on a complete register, is representative of the predominant bargaining level, includes agreements from all low-paid sectors with existing CAs and includes a substantial proportion of the covered workers captured, exceeding on average 50%.
Germany	No / No – based on a sample of CAs from unions organised in the German Trade Union Confederation	Level 3: sector; included in listed sample / Yes	11/11 (all)	2.2 (medium)		Good: in the absence of an official register, the selected sample is based on the Institute of Economic and Social Research's <i>Tarifarchiv</i> , which is a collection of representative agreements from unions organised in the German Trade Union Confederation. All sectors are covered and the predominant bargaining levels (regional and sectoral) are well represented. However, due to the fragmentation of the German bargaining system, which includes many regional and sectoral agreements, the estimated proportion of covered workers that the sample includes is somewhat lower than in other countries, at the lower end of the 20% to 50% range in the average sector. However, especially in the sectors in which the lowest proportions of covered workers captured are included, the selected agreements are assessed as representative or of a trend-setting nature, as other agreements in these sectors tend to stipulate the same pay increases. Furthermore, for all sectors agreements from both eastern and western Germany were always included, where applicable.

Country	Could we base the sample on a (nearly) full register of all agreements? / Does the register include all bargaining levels present in the country, or at least the predominant ones?	Predominant level of bargaining as per the OECD/ Amsterdam Institute for Advanced Labour Studies ICTWSS (variable: level) / Could the predominant bargaining levels as per the ICTWSS (at country level) be included?	Number of grouped sectors with listed CAs or with existing CAs*	Estimated range of covered workers included (based on Figure 6) – average across all sectors ...**		Overall assessment of representativeness of the listed sample of CAs
				with existing and available agreements	with existing agreements (sectors with unavailable agreements are considered to have a value of 0)	
Greece	Yes / Yes	Level 2: intermediate between sector and company levels / Yes	8/9 (some missing)	1.5 (low)	1.3 (low)	Acceptable: two registers of agreements were available and the selected sample covers agreements from nearly all sectors with existing agreements (only residential care is missing), and reflects the predominant bargaining levels (company and sectoral). However, in most sectors the proportion of covered workers that the sample includes is low. The proportion is particularly low in the residential care sector, due to the omission of agreements.
Hungary	No – snowball sampling was conducted	Level 1: company or enterprise / Yes	7/8 (some missing)	1.7 (low)	1.5 (low)	Low: in the absence of an up-to-date register, the selected sample was based on snowball sampling, and includes only agreements at the predominant bargaining level (company). Agreements from all but one of the grouped low-paid sectors are included (the hospitality sector is missing).
Ireland	No / No register – snowball sampling was conducted	Level 1: company or enterprise / Yes	8/9 (some missing)	2.6 (medium)	2.3 (medium)	Acceptable: in the absence of an official register, snowball sampling was applied. As the company level is the predominant bargaining level, it captures a lower proportion of the covered workers on average, but the proportion is increased when two relevant sectoral employment regulation orders are included. Most low-paid sectors are included, except for retail.
Italy	Yes / No – company-level agreements were missing (but not the predominant ones)	Level 3: sector; included in listed sample / Yes	11/11 (all)	3.2 (high)		Very high: the database is based on a complete register of fully accessible sectoral CAs kept by the National Council for Economics and Labour, providing the number of covered workers captured for each agreement in almost all sectors (besides agriculture and domestic work) based on compulsory yearly declarations by companies. The register allows a very representative sample of CAs at the main bargaining level to be captured.

Country	Could we base the sample on a (nearly) full register of all agreements? / Does the register include all bargaining levels present in the country, or at least the predominant ones?	Predominant level of bargaining as per the OECD/ Amsterdam Institute for Advanced Labour Studies ICTWSS (variable: level) / Could the predominant bargaining levels as per the ICTWSS (at country level) be included?	Number of grouped sectors with listed CAs or with existing CAs*	Estimated range of covered workers included (based on Figure 6) – average across all sectors ...**		Overall assessment of representativeness of the listed sample of CAs
				with existing and available agreements	with existing agreements (sectors with unavailable agreements are considered to have a value of 0)	
Latvia	No	Level 1: company or enterprise / Yes	6/8 (some missing)	2.5 (medium)	1.9 (low)	Low: in the absence of an up-to-date register, the selected sample was based on snowball sampling, and includes mainly agreements at the predominant bargaining level (company). Agreements from all but two of the grouped low-paid sectors are included (arts and gambling, and personal services are missing). High: the sample is based on a database maintained by the Ministry of Social Security and Labour, which includes agreements from all levels of bargaining. However, an estimated proportion of around 20% of company-level agreements may be missing. The predominant bargaining level (company) is captured in the sample, along with sectoral agreements where they are in place. All low-paid sectors of interest are captured, and given the otherwise low level of bargaining coverage, the selected sample is assessed as capturing a relatively large proportion of the covered workers captured on average.
Lithuania	Yes / Yes, but some company-level agreements may be missing from the database	Level 1: company or enterprise / Yes	7/7 (all)	3.7 (high)		Low: there is no official register; the starting point was the website of the Inspectorate of Labour and Mines, which, however, is not fully up to date. Snowball sampling was conducted using the website. This resulted in agreements being identified for all grouped sectors where agreements are believed to exist. However, company-level agreements are usually not available to the public, and the sample includes only one such agreement. Therefore, the sample is not representative of the predominant level of bargaining, which alternates between sector and company. The proportion of covered workers that it includes is considered to be a significant fraction in the average sector, at 20% to 50%.
Luxembourg	No / No – company-level agreements were missing	Level 2: intermediate between sector and company levels / No	7/7 (all)	2.0 (medium)		Low: there is no official register; the starting point was the website of the Inspectorate of Labour and Mines, which, however, is not fully up to date. Snowball sampling was conducted using the website. This resulted in agreements being identified for all grouped sectors where agreements are believed to exist. However, company-level agreements are usually not available to the public, and the sample includes only one such agreement. Therefore, the sample is not representative of the predominant level of bargaining, which alternates between sector and company. The proportion of covered workers that it includes is considered to be a significant fraction in the average sector, at 20% to 50%.

Country	Could we base the sample on a (nearly) full register of all agreements? / Does the register include all bargaining levels present in the country, or at least the predominant ones?	Predominant level of bargaining as per the OECD/ Amsterdam Institute for Advanced Labour Studies ICTWSS (variable: level) / Could the predominant bargaining levels as per the ICTWSS (at country level) be included?	Number of grouped sectors with listed CAs or with existing CAs*	Estimated range of covered workers included (based on Figure 6) – average across all sectors ...**		Overall assessment of representativeness of the listed sample of CAs
				with existing and available agreements	with existing agreements (sectors with unavailable agreements are considered to have a value of 0)	
Netherlands	Yes / Yes	Level 3: sector; included in listed sample / Yes	10/10 (all)	3.4 (high)		Very high: the selected sample is based on a complete register from the Ministry of Social Affairs and Employment, is representative of the predominant bargaining level, which includes agreements from all low-paid sectors with existing CAs and includes a substantial proportion of the covered workers, exceeding on average 50%.
Poland	Partially	Level 1: company or enterprise / Yes	6/7 (some missing)	1.0 (low)	0.7 (very low)	Not representative: multi-company agreements were obtained from a register of the Ministry of Family, Labour and Social Policy, and a sample of company-level CAs was obtained through on-site visits to the regional labour inspectorates of Katowice and Warsaw. All agreements relate to the predominant bargaining level (company), but the very small number means the proportion of covered workers that it includes is considered to be very low.
Portugal	Yes	Level 3: sector; included in listed sample / Yes	10/10 (all)	2.3 (medium)		High: the sample was selected based on an official source and survey. The agreements selected reflect the predominant bargaining level. All grouped sectors of interest are included and the sample was assessed as including a significant fraction of the covered workers in the average sector.
Romania	No / No – company-level agreements were missing	Level 2: intermediate between sector and company levels / Yes	3/10 (most missing)	1.3 (low)	0.4 (very low)	Not representative: hardly any agreements could be accessed. Only four agreements were included, capturing a small proportion of the covered workers.

Country	Could we base the sample on a (nearly) full register of all agreements? / Does the register include all bargaining levels present in the country, or at least the predominant ones?	Predominant level of bargaining as per the OECD/ Amsterdam Institute for Advanced Labour Studies ICTWSS (variable: level) / Could the predominant bargaining levels as per the ICTWSS (at country level) be included?	Number of grouped sectors with listed CAs or with existing CAs*	Estimated range of covered workers included (based on Figure 6) – average across all sectors ...**		Overall assessment of representativeness of the listed sample of CAs
				with existing and available agreements	with existing agreements (sectors with unavailable agreements are considered to have a value of 0)	
Slovakia	No / No – company-level agreements were missing	Level 2: intermediate between sector and company levels / Yes	8/9 (some missing)	1.6 (low)	1.4 (low)	Acceptable: the sample was based on the website of the Ministry of Labour, Social Affairs and Family for some of the sector-level agreements, complemented by snowball sampling for the company-level agreements. It reflects the predominant bargaining level, alternating between sector and company. As a larger number of identified agreements do not contain any pay rates, only a more limited sample was selected to be fully coded in the database. Agreements from nearly all grouped low-paid sectors of interest are included, but the proportion of covered workers that it includes is believed to be rather small, below 20% in the average sector.
Slovenia	Yes / No – company-level agreements were missing	Level 3: sector; included in listed sample/ Yes	10/10 (all)	3.8 (high)		Very high: the sample was selected based on a complete official register, complemented by information from a trade union database. Agreements reflect the predominant bargaining level (sectoral) and relate to all grouped sectors with existing agreements. The proportion of covered workers that it includes was assessed as very high: in the average sector, most of the covered workers are captured (51% to 89%) by the agreements.
Spain	Yes / Yes	Level 3: sector; included in listed sample / Yes	11/11 (all)	2.3 (medium)		High: the sample is based on a (nearly) complete register that includes all existing levels of agreements. The predominant bargaining levels (sectoral and regional) are well reflected, and in sectors in which company-level agreements play a role, very few large agreements were added. Due to the fragmented nature of the Spanish collective bargaining system, the proportion of covered workers that the sample includes is somewhat smaller than in countries with a very highly representative sample, but is still considered to be a significant percentage (20% to 49%) of covered workers in the average sector of interest.

Country	Could we base the sample on a (nearly) full register of all agreements? / Does the register include all bargaining levels present in the country, or at least the predominant ones?	Predominant level of bargaining as per the OECD/ Amsterdam Institute for Advanced Labour Studies ICTWSS (variable: level) / Could the predominant bargaining levels as per the ICTWSS (at country level) be included?	Number of grouped sectors with listed CAs or with existing CAs*	Estimated range of covered workers included (based on Figure 6) – average across all sectors ...**	Overall assessment of representativeness of the listed sample of CAs
Sweden	No / No – company-level agreements were missing	Level 3: sector; included in listed sample / Yes	11/11 (all)	3,4 (high) with existing and available agreements with existing agreements (sectors with unavailable agreements are considered to have a value of 0)	Good: the sample is based on a database maintained by the Swedish National Mediation Office that includes sectoral agreements. The predominant bargaining level (sectoral) is captured in the sample. All low-paid sectors of interest are captured, and – although the estimated figures for the worker coverage of the selected sample are considered to be crude and may be unreliable – the sample is considered by the office to reflect the most important CAs for the relevant sectors that stipulate wage rates.

Notes: * High: all or nearly all sectors with collective agreements are represented in the sample (maximum of one missing); medium: some sectors with collective agreements are missing from the sample; low: most sectors with collective agreements are missing from the sample. ** High: > 3; medium: 2-3; low: < 2. CA, collective agreement; ICTWSS, Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts. Source: Eurofound database of collective agreements for low-paid workers, 2023

Descriptive statistics related to coded sample

Signatory parties

Table A2: Number and type of signatory parties and number of agreements, by country

Country	Company (employer)	Employer organisation	Other organisation	Professional association	Trade union	Number of signatory parties	Number of collective agreements	Average number of signatories	Average number of worker signatories	Average number of employer signatories
Austria	1	65	1		40	107	40	2.7	1.0	1.7
Belgium		67			91	158	30	5.3	3.0	2.2
Bulgaria	11	14	1		53	79	21	3.8	2.5	1.2
Croatia	19	2	1	1	38	61	23	2.7	1.7	0.9
Cyprus	11	7			31	49	13	3.8	2.3	1.4

Country	Company (employer)	Employer organisation	Other organisation	Professional association	Trade union	Number of signatory parties	Number of collective agreements	Average number of signatories	Average number of worker signatories	Average number of employer signatories
Czechia		8			8	16	7	2.3	1.1	1.1
Denmark	2	28			36	66	29	2.3	1.2	1.0
Estonia	2	7			11	20	8	2.5	1.4	1.1
Finland		46			57	103	43	2.4	1.3	1.1
France	1	83	1	4	145	234	30	7.8	5.0	2.8
Germany	3	52			51	106	47	2.3	1.1	1.2
Greece	15	12	1		23	51	23	2.2	1.0	1.2
Hungary	19	2			13	34	13	3.1	1.2	1.8
Ireland	9	6	1		20	36	13	2.8	1.5	1.2
Italy	2	185	1	12	197	397	58	6.9	3.6	3.2
Latvia	11	1	1		15	28	14	2.2	1.2	0.9
Lithuania	18	2	1		28	49	21	2.3	1.3	1.0
Luxembourg	1	6			12	19	6	3.2	2.0	1.2
Malta			20			20	20	1.1	0.0	0.0
Netherlands	5	70			119	194	46	4.2	2.6	1.6
Poland	9	2			37	48	12	4.0	3.0	0.8
Portugal	3	37			49	89	37	2.4	1.3	1.1
Romania	9	1			3	13	3	5.3	1.0	0.5
Slovakia	11	4	2	2	30	49	19	2.9	1.9	0.9
Slovenia	2	15	6	2	20	45	14	3.2	1.6	1.2
Spain	1	136		2	146	285	68	4.1	2.1	1.9
Sweden		35			48	83	34	2.4	1.4	1.0
Total	165	893	37	23	1,321	2,439	692	3.6	1.9	1.5

Note: N = 692 fully coded collective agreements in all countries.

Source: Eurofound database of collective agreements for low-paid workers, 2023

Table A3: Pay rate status for minimum series, including all observations between 2015 and 2022, by country (%)

Country	As per agreement text	Agreement refers to other text	Agreement refers to statutory minimum wage explicitly	Agreement contains statutory minimum wage implicitly	Agreement contains no rate; statutory minimum wage applies	Agreement contains no rate; no wage floor applies	No agreement; statutory minimum wage applies	No agreement; no wage floor applies	No access to rate; but agreement exists	No access to rate; no information if agreement exists	No access to rate; imputed rate	No other agreement applies
Austria	96							4				
Belgium	91			3		4			2		0	
Bulgaria	22	12	28	6		4			9	19		
Croatia	30		3	18		11			15	22		
Cyprus	65	15							14			
Czechia	43		45	4		4			5			
Denmark	100								0			
Estonia	42	15		15		16			9	4		
Finland	84	1						1	13		0	
France	87			3		3			6			
Germany	90		3	1		0			6			
Greece	49	4	32	1		11						
Hungary	11		18	44		4			24			
Ireland	45	18				5			26	6		
Italy	95								3	0		2
Latvia	13			33		20				33		
Lithuania	0	29	24			46						
Luxembourg	47								4	49		
Malta	98					2						
Netherlands	80		16			4			1			
Poland	44		28			10				18		
Portugal	94		3			3						
Romania	43	5		33					4	15		
Slovakia	36	31	11	7					13	2	1	
Slovenia	68	31				1						
Spain	90		0	0		4			4	1	0	
Sweden	67				3				31			

Note: N = 65,119 observations.

Source: Eurofound database of collective agreements for low-paid workers, 2023

Worker coverage estimates

Table A4: Availability of estimates for the number of workers covered, by country

Member State	Proportion of agreements for which estimates of the number of workers covered (lower bound) exist		Proportion of agreements for which estimates of the number of workers covered in the low-paid sectors of interest (lower bound) exist	
	Do not exist (%)	Exist (%)	Do not exist (%)	Exist (%)
Austria	10	90	10	90
Belgium	10	90	10	90
Bulgaria	10	90	25	75
Croatia		100		100
Cyprus		100		100
Czechia		100	29	71
Denmark	3	97	7	93
Estonia		100	67	33
Finland	2	98	26	74
France		100		100
Germany	89	11	91	9
Greece		100*		100
Hungary		100		100
Ireland		100		100
Italy	19	81	98	2
Latvia		100		100
Lithuania		100		100
Luxembourg	67	33	100	
Malta	95	5	40	60
Netherlands		100		100
Poland	75	25	75	25
Portugal		100		100
Romania		100		100
Slovakia		100		100
Slovenia	8	92	8	92
Spain		100	31	69
Sweden	7	93	13	87
Total	15	85	28	72

Notes: *N* = 692 fully coded collective agreements in all countries. * For sectoral or professional agreements for which the number of workers covered is unknown, the agreement is considered to potentially cover the total number of employed people in the sector/occupation.

Source: Eurofound database of collective agreements for low-paid workers, 2023

Detailed overview of the lowest negotiated basic monthly minimum rates

Table A5: Detailed overview of the lowest negotiated basic monthly minimum rates, by country, 1 January 2022

Country	Sector	Agreement title (in English) or workers covered	Number of workers covered (from)	Number of workers covered (to)	Number of workers covered in low-paid sector of interest (from)	Number of workers covered in low-paid sectors of interest (to)	Description of the minimum series	Lowest negotiated rate, converted (€)	Original rate (national currency)	Original frequency	Currency of original rate
Austria	Agriculture	Farmstead workers in Lower Austria	4,500	4,500	4,500	4,500	Farm labourers working in houses, farms, fields and stables	1,704	1,460.64	Per month	€
Belgium	Business support services	Purchasing power for white-collar workers	477,000	477,000	328,407	342,089	Differentiation based on function classifications	1,744	1,609.68	Per month	€
Bulgaria	Construction, excluding civil engineering	Confidential agreement	833	833	833	833	Employees with less than two years of work experience and professional experience in the company	290	568.00	Per month	BGN
Croatia	Manufacture of food, leather, textiles and clothes	Podravka workers	4,500	5,000	4,500	5,000	NA	300	2,260.00	Per month	HRK
Cyprus	Agriculture	Working conditions in agriculture	7,000	7,000	7,000	7,000	Entry-level wage negotiated for unskilled labourers	504	465.00	Per month	€
Czechia (u)	Construction, excluding civil engineering	Workers in the construction industry	55,000	64,000	NA	NA	The first pay level corresponds to work performed with the lowest complexity, responsibility and effort	621	15,200.00	Per month	CZK
Denmark	Arts, gambling and sports	Danish Theatres technical staff	NA	NA	NA	NA	Job title category 3: additional full-time employees	2,619	19,485.00	Per month	DKK
Finland	Multisectoral agreement	Workers in the municipal sector – day care workers conducting activities in their own residence	421,000	421,000	NA	NA	12PPH002: the basic salary of the carer depends on how many children they have in their care; however, the minimum rate is for those caring for two children for a minimum of five hours a day. A day care worker caring for children in their own residence receiving this pay rate does not have to have a relevant qualification	814	813.56	Per month	€
France	Residential and social care	Workers in non-profit hospitals	360,364	360,364	360,364	360,364	Agreed minimum wage multiplied by a coefficient. The lowest coefficient is 291 for a logistic services agent, who carries out simple tasks with users	1,294	1,294.08	Per month	€

Country	Sector	Agreement title (in English) or workers covered	Number of workers covered (from)	Number of workers covered (to)	Number of workers covered in low-paid sector of interest (from)	Number of workers covered in low-paid sectors of interest (to)	Description of the minimum series	Lowest negotiated rate, converted (€)	Original rate (national currency)	Original frequency	Currency of original rate
Germany	Business support services	Workers in temporary work agencies (<i>Bundesarbeitsgeberverband der Personaldienstleister</i>)	355,000	355,000	355,000	355,000	Pay group 1: activities that require operational instruction (in the first nine months)	1,585	10.45	Per hour	€
Greece	Manufacture of food, leather, textiles and clothes	Workers in confectionery laboratories	4,000	4,000	4,000	4,000	Unskilled workers with no previous tenure	743	29.38	Per day	€
Hungary (u)	Retail	Penny Market workers	5,000	5,500	5,500	5,500	Collective agreement explicitly refers to statutory minimum wage	558	1650	Per hour	HUF
Ireland	Retail	Workers who are part of Musgrave, Mandate and the Services Industrial Professional and Technical Union	2,500	2,500	2,500	2,500	Customer assistants/'colleagues'	1,796	10.63	Per hour	€
Italy	Domestic personnel	Domestic workers and caregivers (for Confisal - Federproprietà)	NA	NA	NA	NA	Pay level 4 (previously D): domestic helpers - general cleaning workers with less than 18 months' experience	672	620.00	Per month	€
Latvia	Construction, excluding civil engineering	Construction sector general agreement	36,496	36,496	23,000	36,496	Construction employees working normal hours	780	780.00	Per month	€
Lithuania	Manufacture of food, leather, textiles and clothes	Utenos trikotazas workers	600	700	600	700	NA	730	730.00	Per month	€
Luxembourg (u)	Postal services and couriers, land transport and warehouses	Mobile and technical staff	12,453	12,453	NA	NA	Technical staff without a diploma (couriers, etc.) or bus drivers transporting no more than nine people at a time	2,207	2,206.51	Per month	€
Malta	Domestic personnel	Domestic Service Wages Council wage regulation order	NA	NA	NA	NA	The rates applicable are per day when working time exceeds four hours in any one day. The working schedule determines the minimum remuneration	673	31.05	Per day	€
Netherlands	Agriculture	Greenhouse farming workers	24,713	24,713	24,713	24,713	Pay scale B with no tenure: production employees	1,725	10.48	Per hour	€

Country	Sector	Agreement title (in English) or workers covered	Number of workers covered (from)	Number of workers covered (to)	Number of workers covered in low-paid sector of interest (from)	Number of workers covered in low-paid sectors of interest (to)	Description of the minimum series	Lowest negotiated rate, converted (€)	Original rate (national currency)	Original frequency	Currency of original rate
Portugal	Personal services	Service activities signed by ACP (Association of Hairdressers of Portugal) and CESP (Union of Workers of Commerce, Offices and Services of Portugal)	3,119	3,119	3,119	3,119	Reception assistants	489	419.50	Per month	€
Slovakia	Postal services and couriers, land transport and warehouses	Bratislava Transport Company workers	2,700	2,800	2,700	2,800	Employees who are not drivers, with 0–1 years of work experience.	544	3.35	Per hour	€
Slovenia	Business support services	Real estate workers	4,800	4,800	300	300	Pay grade I for pay group 1 (simple work): workers who have not completed lower-level elementary school education, have not completed lower-level primary school education, have not completed higher-level elementary school education or have not completed primary education	410	410.35	Per month	€
Spain	Agriculture	Agricultural workers in Córdoba	70,000	70,000	NA	NA	Unqualified staff	785	31.05	Per day	€
Sweden	Arts, gambling and sports	Workers in gyms and recreational facilities	NA	NA	NA	NA	Applies to those aged 20 years and above	1,739	18,008.00	Per month	SEK

Notes: No data are displayed for Estonia, Poland and Romania, as their samples are not representative. NA, not available; u, low reliability, applicable to Czechia, Hungary and Luxembourg, as they are based on samples with a low degree of representativeness and small numbers of agreements. The rates are adjusted for more than 12 monthly payments per year, if applicable.

Source: Eurofound database of collective agreements for low-paid workers, 2023

Panel of observations

Table A6: Number of rate observations included in the time series of negotiated rates, by country, 2015–2022

Country	2015	2016	2017	2018	2019	2020	2021	2022
Austria	38	38	38	38	38	38	38	40
Belgium	25	25	25	25	25	25	25	24
Bulgaria	NA	NA	NA	NA	NA	12	13	14
Croatia	NA	NA	NA	7	7	7	7	7
Cyprus	NA	NA	NA	NA	9	9	9	9
Czechia	5	6	7	7	7	7	7	6
Denmark	28	29	29	29	29	29	29	29
Finland	NA	NA	NA	38	37	38	40	38
France	24	24	24	25	27	27	27	28
Germany	43	46	48	50	51	51	49	47
Greece	12	13	15	17	18	20	20	20
Italy	53	54	54	55	56	56	56	56
Malta	40	40	40	40	40	40	40	40
Netherlands	40	41	43	46	46	46	44	44
Portugal	34	34	34	36	37	37	37	37
Slovakia	NA	16	16	17	17	16	NA	NA
Slovenia	11	13	13	13	13	13	13	13
Spain	50	54	62	65	65	64	61	60
Sweden	NA	NA	NA	31	31	32	34	34

Notes: No time series based on panel data could be created for Hungary, Ireland, Latvia, Lithuania or Luxembourg due to the fragmentation of the coded pay rates. No data are displayed for Estonia, Poland or Romania due to the non-representativeness of the underlying sample of agreements. NA, not available.

Source: Eurofound database of collective agreements for low-paid workers, 2023

Table A7: Development of negotiated minimum rates, by country, 2016–2022 (% change from previous year)

Country	2016	2017	2018	2019	2020	2021	2022
Austria	2.2	1.6	3.2	3.8	3.5	2.2	2.6
Belgium	0.5	1.2	3.4	1.5	2.0	1.2	4.2
Bulgaria	NA	NA	NA	NA	NA	8.8	4.8
Croatia	NA	NA	NA	10.7	16.5	3.4	3.4
Cyprus	NA	NA	NA	NA	0.3	4.9	0.5
Czechia	5.2	10.1	9.1	9.4	11.5	4.6	6.3
Denmark	1.5	1.7	1.5	1.7	1.8	2.0	1.9
Finland	NA	NA	NA	2.1	1.1	2.4	1.4
France	0.8	0.8	0.3	1.3	1.2	1.0	1.4
Germany	2.7	2.7	2.4	3.0	3.0	2.5	2.5
Greece	-4.1	-0.6	-3.6	1.0	6.5	0.3	1.7
Italy	-0.1	0.3	1.1	1.1	0.8	0.9	0.9
Malta	1.0	1.0	1.6	1.9	1.9	1.0	0.9
Netherlands	0.6	1.2	1.5	1.9	1.5	1.6	3.1
Portugal	0.9	3.7	6.3	2.9	4.7	3.0	5.3
Slovakia	NA	4.2	10.8	23.8	9.3	NA	NA
Slovenia	0.0	0.3	2.4	1.6	1.9	0.9	3.7
Spain	1.0	1.8	2.3	4.0	2.8	2.4	3.4
Sweden	NA	NA	NA	2.2	1.6	3.1	0.5

Notes: Figures represent averages of 12 monthly rates within a year. No time series could be created for Estonia, Hungary, Ireland, Latvia, Lithuania, Luxembourg, Poland or Romania. NA, not available.

Source: Eurofound database of collective agreements for low-paid workers, 2023

Annex 2: Sources of data and information

Table A8: List of nominated experts for Module 2

Representing	Name	Organisation	Role
Employer organisation	Martin Steen Kabongo	Confederation of Danish Employers	Member
Employer organisation	Patrik Karlsson	Svensk Näringsliv	Alternate member
European Commission	Alfonso Arpaia	Directorate-General for Employment, Social Affairs and Inclusion	Member
European Commission	Alkistis Zarakou	European Commission	Alternate member
European Commission	Duco Claringbould	European Commission	Alternate member
European Commission/research institution	Enrique Fernández-Macías	Joint Research Centre	Member
Government	Petar Nachev	Ministry of Labour and Social Policy, Bulgaria	Member
Government	Mariusz Zielonka	Ministry of Economic Development and Technology	Alternate member
International organisation	Andrea Garnero	OECD	Member
International organisation	Catarina Braga	International Labour Organization	Member
National data provider	Paul Schwab	Österreichischer Gewerkschaftsbund (ÖGB) Verlag	Member
National data provider	Anna Fransson	Medlingsinstitutet	Member
National data provider	Veronika Pálová	Trexima Slovakia	Member
Research institution/national data provider	Thorsten Schulten	Institute of Economic and Social Research	Member
Research institution/national data provider	Claudio Lucifora	National Council for Economics and Labour/ Institute of Labor Economics, Università Cattolica del Sacro Cuore	Member
Research institution	Janna Besamusca	Utrecht University	Contractor
Research institution	Kea Tijdens	WageIndicator Foundation	Contractor
Trade unions	Torsten Müller	European Trade Union Institute	Member
Trade unions	Paul de Beer	University of Amsterdam	Alternate member

Note: Representatives from Eurofound's stakeholders (employer organisations, national governments and trade unions) were nominated by the group coordinators of Eurofound's Executive Board. The representatives from the European Commission were nominated by the Commission. All others were invited by Eurofound.

Table A9: National organisations with registers of collective agreements that supported the project

Country	Organisation
Austria	Österreichischer Gewerkschaftsbund (ÖGB) Verlag
Belgium	Federal Public Service Employment, Labour and Social Dialogue
Bulgaria	National Institute for Conciliation and Arbitration (NICA), Ministry of Labour and Social Policy
Croatia	Ministry of Labour, Pension System, Family and Social Policy (not accessible online) and Union of Autonomous Trade Unions of Croatia
Cyprus	Department of Labour Relations, Ministry of Labour and Social Insurance
Czechia	Ministry of Labour and Social Affairs
Denmark	Confederation of Danish Employers (DA)
Estonia	Ministry of Social Affairs
Finland	Ministry of Justice
France	Ministry of Labour
Germany	Federal Ministry of Labour and Social Affairs
Greece	Ministry of Labour and Social Affairs
Hungary	Ministry of Economic Development
Ireland	Labour Court
Italy	National Council for Economics and Labour (CNEL)
Latvia	Ministry of Welfare
Lithuania	Ministry of Social Security and Labour
Luxembourg	Inspectorate of Labour and Mines (ITM) and the <i>Official Journal of the Grand Duchy of Luxembourg</i> (https://legilux.public.lu)
Malta	Department for Industrial and Employment Relations (wage regulation orders)
Netherlands	Ministry of Social Affairs and Employment
Poland	Ministry of Family and Social Policy
Portugal	Directorate-General for Employment and Labour Relations
Romania	Labour Inspectorate, Ministry of Labour and Social Solidarity
Slovakia	Ministry of Labour, Social Affairs and Family of the Slovak Republic
Slovenia	Ministry of Labour, Family, Social Affairs and Equal Opportunities
Spain	Ministry of Labour and Social Economy
Sweden	Swedish National Mediation Office

Table A10: List of contributors from the Network of Eurofound Correspondents and Sweden

Country	Contributor(s)	Institution
Austria	Bernadette Allinger	Working Life Research Centre (FORBA)
Belgium	Dries Van Herreweghe	HIVA Research Institute for Work and Society, KU Leuven
Bulgaria	Ekaterina Markova	Institute of Philosophy and Sociology of the Bulgarian Academy of Sciences (IPS-BAS)
Croatia	Predrag Bejakovic	Faculty of Economics, Business and Tourism (FEBT), University of Split
	Irena Klemenčić	Faculty of Law, University of Zagreb
Cyprus	Alexandros Perdikes	Cyprus Labour Institute of the Pancyprian Federation of Labour
Czechia	Aleš Kroupa	Research Institute for Labour and Social Affairs (RILSA)
Denmark	Carsten Jorgenson	Employment Relations Research Centre (FAOS), University of Copenhagen
Estonia	Miriam Lehari	Praxis
Finland	Vera Lindström	Oxford Research
France	Frédéric Turlan	IR Share
Germany	Thilo Janssen, Merlin Manz and Axel Hauser-Ditz	Institute of Economic and Social Research, Hans Böckler Foundation
Greece	Penny Georgiadou	Institute of Labour of the Greek General Confederation of Labour (INE GSEE)
Hungary	Éva Palócz	Kopint-Tárki Institute for Economic Research
Ireland	Andy Prendergast	IRN Publishing
Italy	Michele Faioli and Sofia Gualandi	Fondazione Giacomo Brodolini
Latvia	Kriss Karnitis	EPC Ltd
Lithuania	Inga Blaziene	Lithuanian Centre for Social Sciences
Luxembourg	Kristell Leduc and Nicaise Misangumukini	Luxembourg Institute of Socio-Economic Research (LISER)
Malta	Melchior Vella and Gilmour Camilleri	University of Malta (UM)
Netherlands	Thomas de Winter	Panteia
Poland	Agnieszka Górniak and Ewelina Wotosik	Ecorys Polska
Portugal	Maria da Paz Campos Lima and Reinhard Naumann	Centre for Studies for Social Intervention (CESIS)
Romania	Nicoleta Voicu	Association Center for Public Innovation
	Ștefan Guga	Syndex Consulting
Slovakia	Rastislav Bednárík and Zuzana Turkovič	Institute for Labour and Family Research (IVPR)
Slovenia	Mitja Perko	Institute of Macroeconomic Analysis and Development
Spain	Juan Arasanz Díaz	Notus: Applied Social Research
Sweden (not part of the network)	Anna Fransson, Amanda Kinnunen and Christian Kjellström	Swedish National Mediation Office

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In this pilot project, Eurofound successfully established the feasibility of, and piloted, an EU-wide database of minimum pay rates contained in collective agreements related to low-paid workers. A conceptual and measurement framework was devised, a total of 692 collective agreements – related to 24 low-paid sectors of interest – were selected to be ‘fully coded’ and representative data on negotiated minimum pay were compiled for 24 EU Member States. Based on more than 3,202 renewal texts, time series of collectively agreed minimum rates were created from 2015 to 2022 for 19 countries. This is the first time that an EU-wide data collection has provided comparative time series on negotiated pay. Key findings are that in some countries outdated agreements contain rates below the applicable statutory minima, and that the potential of collective agreements to regulate pay generally or for employees earning higher wages than the minimum pay is not always fully capitalised on.

The European Foundation for the Improvement of Living and Working Conditions (Eurofound) is a tripartite European Union Agency established in 1975. Its role is to provide knowledge in the area of social, employment and work-related policies according to Regulation (EU) 2019/127.