The Price of Non-Standard Hours: Evidence on Overtime, Part-Time and Shift Pay

Report on non-standard working time rewards in the ESES

December 2025

Deliverable: 3.1
Work package: 3

BARTIME

WageIndicator · Utrecht University · CELSI Central European Labour Studies Institute · Universitat de Girona · etui. european trade union institute

BARTIME

Most Collective Agreements (CBAs) fix pay levels based on a standard working week and typically include provisions for monetary rewards related to non-standard working hours. However, there is a lack of understanding of the specificities of these provisions across European countries. BARTIME examines the rewards for non-standard hours across 24 EU countries. BARTIME aims to contribute to the social dialogue in Europe by deepening the understanding of monetary rewards of non-standard working time arrangements and the related agreements in collective bargaining.

BARTIME is led by the WageIndicator Foundation and is joined in the project by University of Utrecht, Central European Labour Studies Institute (CELSI) and the University of Girona. The European Trade Union Institute (ETUI) is associate partner to the project.

WageIndicator Foundation

WageIndicator Foundation is a global, independent, non-profit organisation operating in 208 countries across the world that collects, analyses and shares information on Minimum Wages, Salaries, Living Wages, Living Income and Living Tariff, Labour Laws, Collective Agreements and Gig and Platform Work. It aims to improve labour market transparency for workers, employers and policy makers worldwide by providing accessible labour market information worldwide through 220 websites in 70+ national languages.

Utrecht University

University of Utrecht (UU), Department of Interdisciplinary Social Sciences, in the Netherlands is one of the largest Dutch universities with over 35,000 students. The Department of Interdisciplinary Social Sciences has a staff of more than a hundred professors, assistant professors, and PhD and post doc researchers. Its research covers issues such as discrimination in the job market, reintegration at work, growing up in a multicultural neighbourhood, developing your individual identity, high-risk behaviour in young people, growing inequality and the accessibility of care.

Central European Labour Studies Institute (CELSI)

Central European Labour Studies Institute (CELSI) is a non-profit research institute based in Bratislava, Slovakia. It fosters multidisciplinary research about the functioning of labour markets and institutions, work and organizations, business and society, and ethnicity and migration in the economic, social, and political life of modern societies. CELSI strives to make a contribution to the cutting-edge international scientific discourse.

University of Girona

The University of Girona's Department of Economics is affiliated to the Faculty of Economics and Business Sciences and offers teaching in several bachelor's and master's degree studies. The department is very active in research and its interests range from statistics, applied economics and health to public economics, services and industry. Its research covers issues such as labor economics, monetary policy, basic income, transition economies, and the impact of education on the labor market.

Funding

BARTIME is funded by the European Commission through its Social Dialogue Program SOCPL-2022-IND-REL-01 under project number 101126498. The project runs from January 2023 until December 2025.

Bibliographical information

Elias Moreno, F. & Besamusca, J. (2025). The Price of Non-Standard Hours: Evidence on Overtime, Part-Time and Shift Pay. *BARTIME Report 3.* WageIndicator Foundation, Utrecht University, Central European Labour Studies Institute, University of Girona.

Acknowledgements

The analyses for this report were possible by the hard work and expertise of everyone involved in the collection and coding of collective agreements included in the WageIndicator CBA Database. It would not have been possible without the database managers: Gabriele Medas and Daniela Ceccon. Nor indeed, would it have been possible without the dedicated work of the team of coders: Adib Ahmed, Jozefa Barreto, Janna Besamusca, Mariana Bikova, Szilvia Borbély, Daniela Ceccon, Armanda Cetrulo, Ceyhun Güler, Nina Holičková, Eva Lotta Lindma, Gabriele Medas, Engin Özcan, Gunjan Pandya. Serhii Shokha and Sandra Siniväli.

Contact

Ferran Elias Moreno (ferran.elias@udg.edu) and Janna Besamusca (J.W.Besamusca@uu.nl)

1. Introduction

When bargaining over or regulating the payment for working time, researchers and policymakers define 'standard working hours to be hours that coincide with full-time workweeks performed on weekdays during daytime (Anxo & Karlsson, 2019). However, the extent to which these standard hours still constitute the most common experience of European workers is increasingly questionable. Increasing shares of European employees work hours the diverge from these 'standard hours', including employees on part-time contracts, those in jobs that regularly require weekend or evening/night shifts, and overtime hours (Anxo & Karlsson, 2019; Eurofound, 2022; Lewis et al., 2008; Wharton & Blair-Loy, 2016).

The earnings employees should receive for performing work during these non-standard hours, are actively debated, negotiated and regulated by governments and social partners alike (Jirjahn, 2008; Keune, 2007; Lehndorff, 2007; Rubery et al., 2005). Collective agreements often include provisions for higher hourly wages (i.e., premiums) during non-standard hours. The premiums are negotiated in compensation for the inconvenience that anti-social hours imply to workers' social and family lives, the higher effort required from workers compared to regular working times, as well as the toll that irregular, anti-social and long hours take on employee health (Hart & Ma, 2010; Ilsøe , 2012; Piasna et al., 2024; Yu & Kuo, 2022). Part-time workers are, at least in theory, protected from wage penalties for downwardly deviating from standard hours by European legislation prohibiting discrimination and guaranteeing equal (pro rata) rights compared to full-time workers (Figart & Golden, 2000; Nicolaisen & Kavli, 2019).

In this third report, we aimed to understand the impact of working non-standard hours on the earnings of European employees. Secondly we study the wage level at which these premiums and penalties for formally agreeing with an employer to work non-standard hours are set. This includes being on a part-time contracts, performing paid overtime hours, and being scheduled to work evening, night, and weekend shifts. This report was written for the BARTIME project on the monetary rewards of working time dimensions in collective bargaining and in the working population, co-funded by the European Commission's Directorate General for Employment, Social Affairs and Inclusion (Project No. 101126498). This third BARTIME report focuses on the question which groups of workers *earn* premium and penalty rates associated with non-standard hours. As such, it does not address the *unpaid performance* of non-standard hours, which is generally believed to be widespread across Europe (Conway & Sturges, 2014; Eurostat 2025a, 2025b, 2025c, 2025d, 2025e; Taiji & Mills, 2020). We address this limitation in the fifth BARTIME report (Elias Moreno & Besamusca, 2025), which uses data reported by employees in order to understand who works non-standard hours.

In the following sections of this report on paid non-standard hours, we first briefly review the current knowledge on the payment of premium and penalty wage rates for non-standard hours. Section 3 introduces the data used for this report and measurement strategy taken. The findings of the study are presented in sections 4 (overtime), 5 (part-time work) and 6 (shift work). The core take-aways summarized in the concluding 7th section.

2. Theoretical Framework

2.1 Inconvenient Hours

Collective bargaining on wages and working hours is shaped by what is known as the 'wage–effort bargain', in which employees' basic pay in a given job is related to a full-time role with a manageable and clearly defined workload, performed within a set of standard working hours (e.g., 38 hours per week) during standard operating times (Rubery et al., 2005). However, production processes and service delivery do not always fit neatly within these limits (Doellgast & Berg, 2018; Nicolaisen & Kavli, 2019). Organisations may require work outside standard hours—or in excess of full-time schedules—to meet tight deadlines, respond to peaks in demand, or increasingly to keep pace with rising consumer expectations for speed, flexibility, and continuous availability (Haipeter & Lehndorff, 2005; Lewis, 2014; Piso, 2022).

These forms of non-standard, or "inconvenient", hours typically include overtime, evening and night work, weekend work, and various types of shift work. Existing research indicates that such schedules are far from a marginal phenomenon: sizeable proportions of workers across Europe report engage in at least one form of non-standard hours, with prevalence varying across sectors, occupations, and countries (Anxo &Karlsson, 2019). For example, studies consistently find high rates of shift work in manufacturing and healthcare, pervasive weekend work in retail and hospitality, and widespread overtime across professional and technical roles (Ilsøe 2010, 2011; Lewis, 2014; Piso, 2022; Wharton & Blair-Loy, 2016). Together, these patterns highlight the structural significance of non-standard hours within contemporary European labour markets.

2.2 Premium pay

Non-standard working hours sit outside the boundaries of basic pay as defined in the wage–effort bargain, and are therefore typically treated separately in collective bargaining on wages (Arrowsmith, 2018; Berg et al., 2014; Ilsøe, 2012; Rubery et al., 2005). Hours that occur at times or in volumes that are generally considered inconvenient for workers—such as evenings, nights, weekends, or overtime— are often compensated at premium rates (Eurofound, 2022; Hart & Ma, 2010; Jirjahn, 2008). Such premiums serve not only to reward employees for the additional burden these schedules impose on work–life balance (Cousineau et al., 1992; Yu & Kuo, 2022), but also to act as a deterrent for employers, discouraging an over-reliance on labour performed at socially undesirable times (Hart, 2004; Rubery et al., 2005).

Across Europe, these premium rates are usually specified in national legislation, collective agreements, or through a combination of both (Anxo & Karlsson, 2019). Some EU member states stipulate minimum levels of overtime pay by law, establishing clear thresholds that employers must meet or exceed (Anxo & O'Reilly, 2000; Eurofound 2022). Collective agreements, meanwhile, frequently regulate pay for non-standard working time too, either instead of legislation or supplementing statutory provisions by setting differentiated premiums for various forms of non-standard work in a way that is tailored to sectoral or occupational contexts (Besamusca, 2025a; Paolucci & Galetto, 2020; Piasna et al., 2024). Evidence from the BARTIME project (Besamusca, 2025b) shows considerable variation in how such premiums are incorporated across industries and countries, reflecting both national traditions of industrial relations and the differing

operational needs of employers. For example, overtime premiums were negotiated in 80% of collective agreements in the administrative and support services sector, compared to in only 40% of collective agreements in arts, entertainment and recreation. Night work premiums were negotiated in over 80% of Polish, Austrian, Slovenia, Finnish and Luxembourgish collective agreement, compared to less than 20% of Greek and Belgian agreements.

Finally, studies show substantial negative effects of part-time work on wages, especially for women with children (Bardasi & Gornick, 2008; Manning & Petrongolo, 2008). These wage penalties, however, are not expected to occur for hourly wages between part-time and full-time employees in similar jobs —owing to strict non-discrimination provisions in European labour law. Rather, research shows that part-time work is associated with cumulative disadvantages over the course of workers' career because part-time jobs offer fewer career prospects and are often concentrated in lower-paying sectors and occupations (Blackwell, 2001; Fernandez-Kranz & Rodriguez-Planas, 2011; Nightingale, 2018).

2.3 Trends and Patterns in the Payment of Premium Pay

Despite the central role of premium pay in the regulation of non-standard working hours, surprisingly little is known about which groups of workers actually *earn* these premiums or how much they are compensated in practice (c.f. Anxo & Karlsson, 2019). This is especially crucial because the group of workers that *earns* premiums for inconvenient hours may be different from the group who *works* inconvenient hours. Entitlement to premiums is not universally guaranteed but depends on collectively bargained provisions, employment status, and institutional rules (Bell & Hart, 2023; Pulignano et al., 2020; Yu & Kuo, 2022). Research shows that collectively bargained provisions are present in some sectors or workplaces and absent in others, but these provisions need not follow the relative prevalence of non-standard hours across sectors (i.e., provisions for non-standard hours may be missing in sectors where many employees work these hours, and present where only a few do) (Besamusca, 2025b; Keune, 2007). Part-time employment status commonly limits workers' entitlement to some premiums, such as overtime pay, which are not paid until working hours exceed standard fulltime hours (Anxo & Karlsson, 2019; Conway & Sturges, 2014). Finally, agreements on premium pay for non-standard hours often works in conjunction with changing understandings of what constitutes non-standard hours, as shown by the rising practice of annualized hours (Arrowsmith, 2018; Bell & Hart, 2023; Besamusca, 2025a). Understanding who benefits from these forms of compensation therefore requires examining a range of factors that shape both the *availability* and *accessibility* of premiums.

Institutional and economic conditions are likely to be key sources of variation. Premium pay structures differ markedly across countries due to differences in labour law, working-time regulations, and broader policy frameworks (Anxo & Karlsson, 2019; Anxo & O'Reilly, 2000; Arrowsmith, 2018; Rubery et al., 2005). Sectoral variation is similarly expected because firms' reliance on irregular schedules and non-standard hours is linked to specificities of production cycles and service delivery requirements (Leschke, 2015; Richbell et al., 2011). Evening and weekend work as well as seasonal fluctuations in demand, for example, are in the nature of most hospitality jobs like restaurant jobs and hotels (Peetz et al., 2019; Piso, 2022). Other jobs, like in the education sector, tend to have more regular and limited operating hours. Moreover,

similarities within sectors and differences between them are likely to occur in countries with traditions of sector level collective bargaining, where firms in the same sector are governed by working time provisions in a shared collective agreement (OECD & AIAS, 2025).

Socio-demographic and socio-economic characteristics also matter. Gendered patterns of employment, such as the concentration of women in part-time roles, can restrict access to overtime premiums where eligibility is tied to full-time hours (Conway & Sturges, 2014; Fernández-Kranz & Rodríguez-Planas, 2011; Nicolaisen & Kavli, 2019). Occupational status, particularly the distinction between waged and salaried workers, may also shape entitlement, as salaried employees are often exempt from forms of time-based compensation (Williams et al., 2013).

With regard to trends over time, empirical evidence remains limited. Nonetheless, broader macro-level developments suggest a complex picture. Globalisation, technological change, and the emergence of 24/7 economies have made inconvenient hours more widespread (Haipeter & Lehndorff, 2005; Lewis, 2014). However, these developments may also have driven down the level at which premiums are set, or understandings of which hours are considered 'non-standard'. Mechanisms such as time-off-in-lieu schemes, flexible time accounts, and the gradual expansion of "normal" operating hours may reduce employers' reliance on premium payments (Arrowsmith, 2018; Bell & Hart, 2023). These countervailing developments lead to an ambiguous expectation regarding how premiums have evolved, underscoring the need for more detailed and systematic evidence.

3. Data Sources

This analysis draws on data from the Structure of Earnings Survey (SES) for the years 2014 and 2018. The SES, conducted by Eurostat, is the principal source of harmonised and comparable microdata on employees' earnings and working time across all EU Member States. It provides detailed, standardised information that allows for cross-country analyses of pay structures and working-time patterns.

The SES contains both individual-level and firm-level information, making it well suited to study the monetary rewards associated with overtime work. The key variables used in this report include:

- Gross monthly and hourly earnings;
- Hours paid, distinguishing between standard and overtime hours;
- Earnings from overtime work;
- Socio-demographic characteristics, such as gender, age, education level, type of employment contract, occupation, and tenure;
- Firm characteristics, including economic sector, firm size, and collective bargaining coverage.

These variables allow us to compute the hourly pay rates for standard and overtime hours, which form the basis for estimating overtime pay premiums across countries and sectors. Because the SES data reflect actual paid hours and earnings, they provide a reliable measure of compensation

practices within the formal economy. However, it is important to note that the survey does not capture unpaid overtime, which may be significant in certain sectors or occupations.

The availability of comparable data for both 2014 and 2018 enables the analysis of changes in overtime pay practices over time and across EU Member States, offering valuable insights into how non-standard working hours are rewarded in different institutional and economic contexts.

Table 1 - Overview of variables from the Structure of Earnings Survey

Main variables used for the analysis	
overtime	Binary indicator (yes/no) measuring whether the work hour is overtime or not.
Overtime earnings	Earnings from overtime hours.
Gross monthly earnings	Monthly earnings (including overtime pay)
Hours paid	Hours paid
Overtime hours paid	Overtime hours paid
Location	Region identifier
Sector	Economic sector in NACE
Gender	Binary indicator for men and women
Contract type	Type of employment contract
Occupation	Occupation in the reference month (ISCO-08)
Coverage	Binary indicator for collective bargaining coverage
Tenure	Length of service in enterprise
Shift work	Binary indicator (yes/no) measuring whether a worker performed shift work or not
Part-time work	Binary indicator (yes/no) measuring whether the worker is doing part-time hours or not

4. Methodology: Estimating Overtime Premiums

We begin by selecting the subsample of workers who reported performing overtime hours. Using the variables overt_earn, overt_hours_paid, gross_month_earn, and hours_paid, we calculate two hourly wage measures for each individual: one for standard hours and one for overtime hours.

Each observation is then duplicated, so that for every worker we obtain two records — one corresponding to the wage from standard hours and the other to the wage from overtime hours. For each country, we estimate the following specification:

$$\log(w_{istc}) = \alpha + \sum_{j=1}^{S} \beta_{sc}\ 1[j = s]\ \text{overtime}_{istc} + \delta_{FE} + \gamma X_{istc} + \varepsilon_{istc}$$

where w_{istc} is the hourly wage of individual *i* working in sector *s*, in year *t*, and in country *c*. The term δ_{FE} denotes the set of fixed effects for which we control — including location, sector, gender, contract type, level of education, occupation, and collective bargaining coverage. X_{istc} represents a quadratic polynomial in tenure.

The coefficients of interest are β_{sc}, which capture the interaction between sector dummies $1[j = s]$ and the overtime indicator (equal to 1 for overtime hours and 0 for standard hours). These coefficients therefore measure the overtime wage premium — that is, the percentage additional pay received for overtime work compared to standard hours. We compute β_{sc} for each country–sector pair.

To obtain the average overtime premium by country (β_c), we take a weighted average of the sectoral coefficients, using the number of employed persons in each sector as weights. Similarly, to estimate the average premium by sector (β_s), we use employment in each country–sector combination as weights. Finally, we calculate the EU-wide average overtime premium by taking the weighted average of country-level coefficients, using national population sizes as weights.

4.1 Average Overtime Premium in the EU

Figure 1 presents the estimated average overtime premium across EU Member States in 2014 and 2018. The results indicate that, on average, overtime hours were compensated 17% higher than standard hours in 2014, and 19% higher in 2018. This means that, in 2018, an additional hour of overtime work was rewarded with roughly a 19% pay increase compared to the hourly wage for standard working time.

Since the estimates are based on actual earnings data from the Structure of Earnings Survey (SES), they confirm that workers generally receive higher pay for overtime hours. However, it is important to note that the SES records only paid working hours. Therefore, these figures do not capture unpaid overtime, which is known to occur in several sectors and countries. The true extent of unpaid overtime remains uncertain but may substantially affect the overall picture of compensation for non-standard working hours.

The observed increase in the average overtime premium between 2014 and 2018 may stem from different underlying dynamics. One possibility is a compositional change in the group of workers performing overtime. The rise in the average premium suggests that, in 2018, overtime work may have been more concentrated among employees in sectors or occupations with higher overtime pay rates. Alternatively, or additionally, the increase could reflect actual improvements in collectively or statutorily negotiated overtime premiums across Member States. Distinguishing between these explanations requires further analysis of changes in both the distribution of overtime work and the content of collective agreements over time.

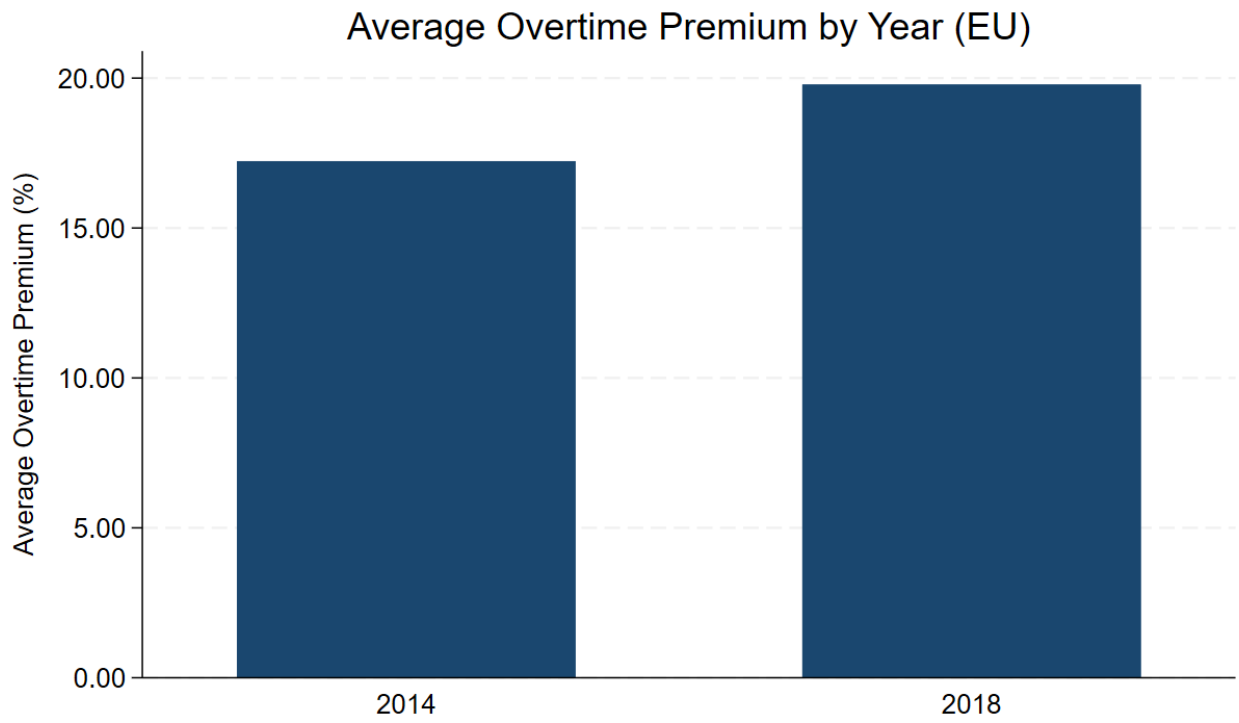


Figure 1: Average Overtime Premium in the European Union. Source: SES.

4.2. Average Overtime Premiums by Country

Figure 2 presents the average overtime premiums by country for 2014 and 2018. On visual inspection, the cross-country average hovers around 20%, consistent with the EU-wide averages reported above. However, the figure also highlights substantial heterogeneity across Member States, reflecting the diverse collective bargaining traditions and institutional frameworks that shape pay determination in Europe.[1]

As expected, the Nordic countries—where collective bargaining coverage is extensive and overtime compensation is typically well-regulated—show the highest overtime premiums. In particular, Finland and Sweden record average premiums of around 50%, while Denmark follows with

[1] The negative premiums in Greece (2018) and the Netherlands (2014) are consistent with the raw data in the Structure of Earnings Survey.

approximately 35%. These results align with the strong role of sectoral agreements in setting generous overtime pay rates in these countries.

In contrast, Germany stands out with remarkably low overtime premiums, around 5% in both 2014 and 2018. Given that Germany is the most populous country in the EU, its relatively low premium exerts a downward influence on the overall EU average, explaining why the aggregate overtime premium across Member States remains around 17–19% despite high premiums in several other countries.

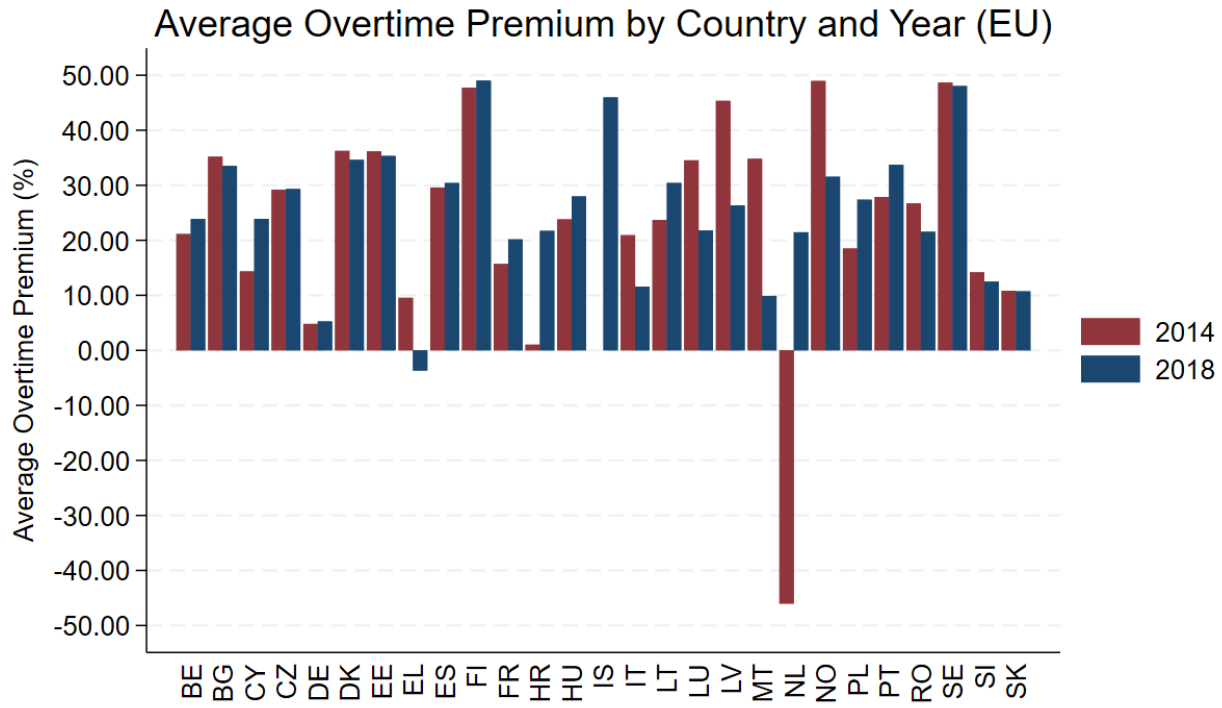


Figure 2: Average Overtime Premium by Country. Source: SES.

4.3. Average Overtime Premiums by Sector

Figure 3 displays the average overtime premiums by sector for 2014 and 2018. Overall, the sectoral patterns are relatively stable, with most sectors showing average overtime premiums of around 20% in both years. This suggests a broadly consistent compensation structure for overtime work across the main branches of economic activity.

Nonetheless, some sectors exhibit notable changes over time. In particular, the arts, mining, and real estate sectors show marked variations between 2014 and 2018. In the arts sector, the premium rose significantly, reaching close to 30% in 2018, while in mining and real estate, the premiums also increased sharply. These shifts may reflect changes in sectoral bargaining coverage, the introduction or revision of collective agreements, or fluctuations in the composition of workers performing overtime in these industries.

Across other sectors—such as manufacturing, construction, finance, and public administration—overtime premiums remain close to the EU average and show little change over time, indicating that the reward for overtime work has been relatively stable in the majority of economic sectors.

In Figure 7 we plot the average overtime premiums by sector and country for 2018.

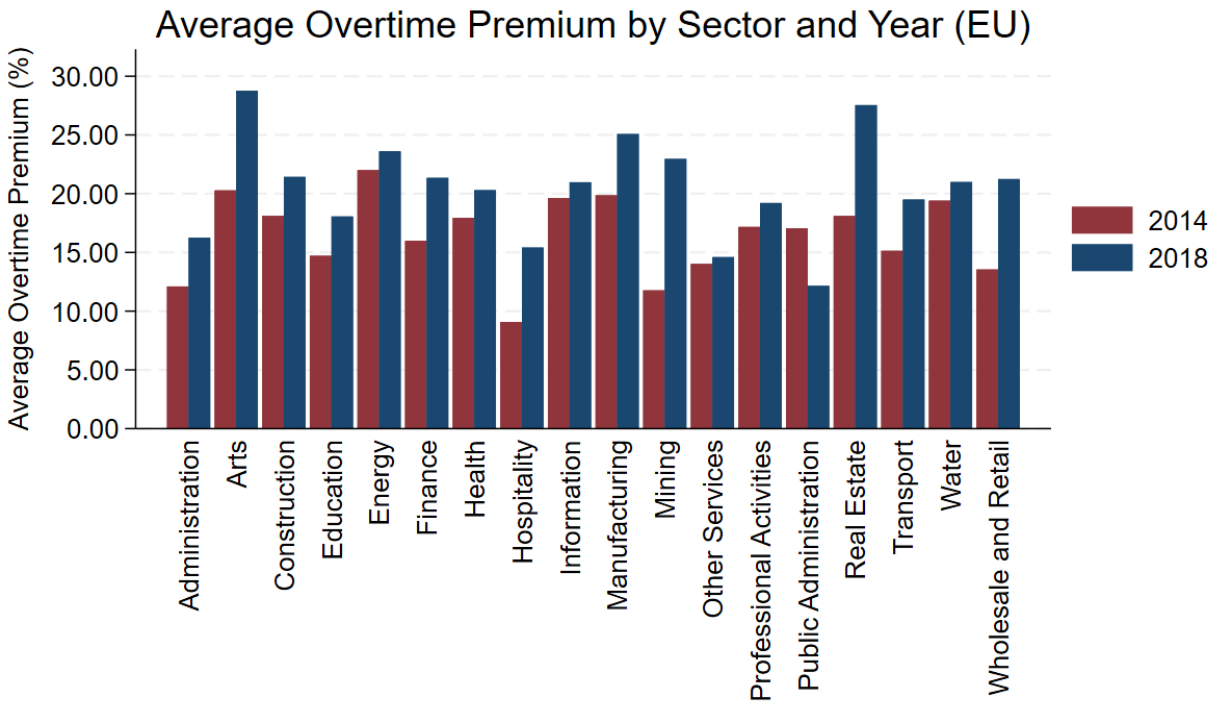


Figure 3: Average Overtime Premium by Sector. Source: SES.

4.4. Average Overtime Premiums by Gender, Collective Bargaining Coverage and Age

Figures 4 to 6 present the estimated overtime premiums across three key dimensions: gender, collective bargaining coverage, and age. These results provide additional insights into the distributional patterns of overtime compensation within the European Union.

Gender. Figure 4 shows that the average overtime premium is slightly higher for female workers than for male workers, although the difference is very small—around one percentage point. On average, women receive an overtime premium of approximately 20.5 percent compared to 19.5 percent for men. This similarity indicates that overtime compensation practices are broadly comparable between genders, suggesting that gender-based pay differentiation does not extend strongly into the domain of overtime pay. However, if women are less likely to perform overtime work overall, the higher average premium may partly reflect selection effects, with women who do work overtime being concentrated in sectors or occupations where overtime pay is more generous or more frequently negotiated.

Collective bargaining coverage. Figure 5 compares the average overtime premium between workers covered by collective agreements and those not covered. The results confirm that coverage is associated with higher overtime pay premiums. On average, covered workers earn an overtime premium of about 22 percent, while non-covered workers receive roughly 17 percent. This difference of five percentage points underscores the role of collective bargaining in securing better compensation for non-standard hours. It also reinforces the evidence from collective agreement data showing that overtime premiums are more systematically defined in covered workplaces, where negotiated provisions help ensure transparency and enforcement.

Age. Finally, Figure 6 illustrates overtime premiums by age group. The premium is higher for older workers (aged 30–65) than for younger workers (aged 16–30). On average, older employees receive overtime premiums of around 23 percent, compared to roughly 21 percent among younger workers. This age gradient may reflect differences in seniority, occupational level, and bargaining power, as well as the types of jobs in which overtime is more common. Younger workers tend to be overrepresented in sectors with lower pay structures and more irregular work patterns, where negotiated overtime compensation is less generous.

Overall, these results suggest that overtime pay practices are not uniform across the workforce. Collective bargaining coverage and worker characteristics such as age and gender play a role in shaping the extent of compensation received for non-standard hours. While the differences are moderate, they highlight how institutional and demographic factors interact with bargaining outcomes to influence the fairness and effectiveness of overtime remuneration across the European Union.

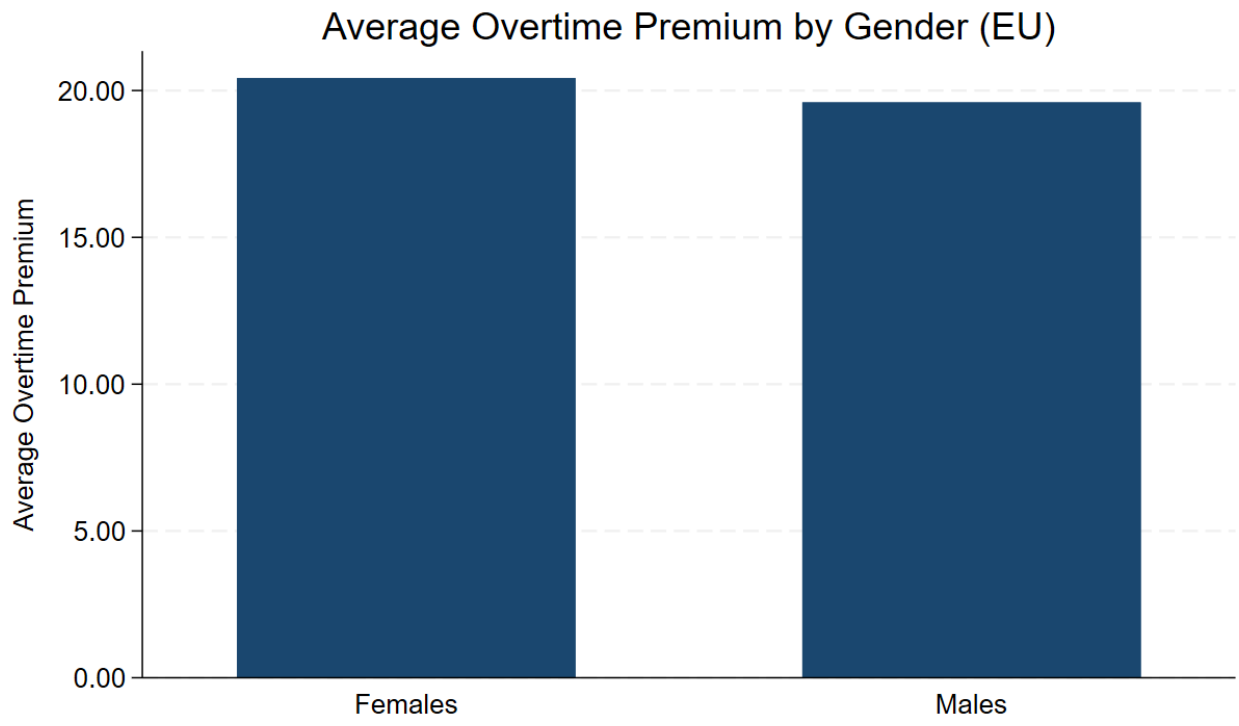


Figure 4: Average Overtime Premium by Gender. Source: SES.

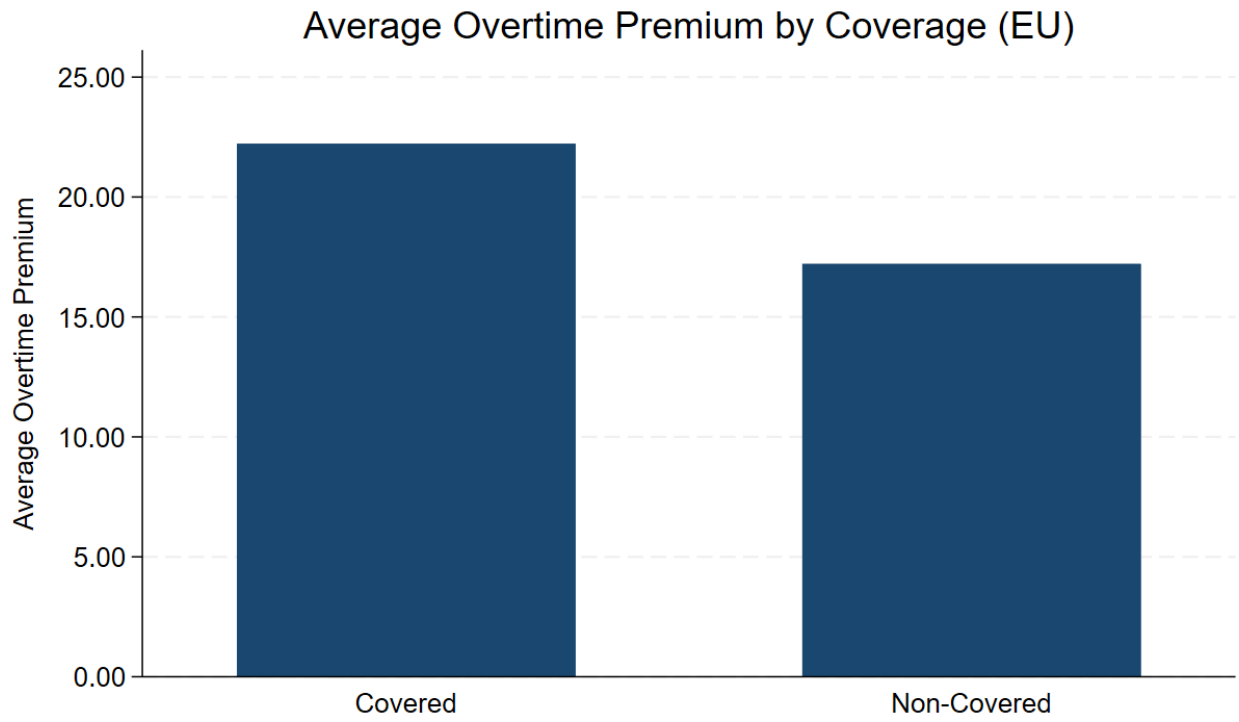


Figure 5: Average Overtime Premium by Coverage. Source: SES.

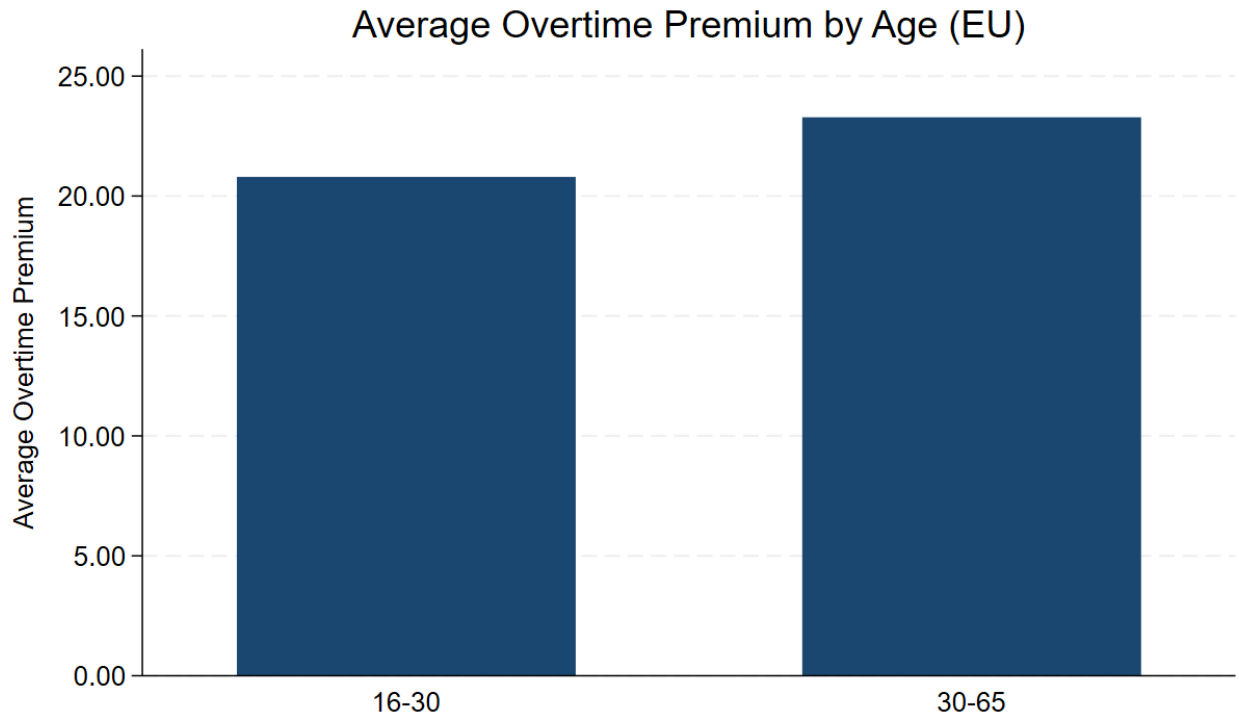


Figure 6: Average Overtime Premium by Age. Source: SES.

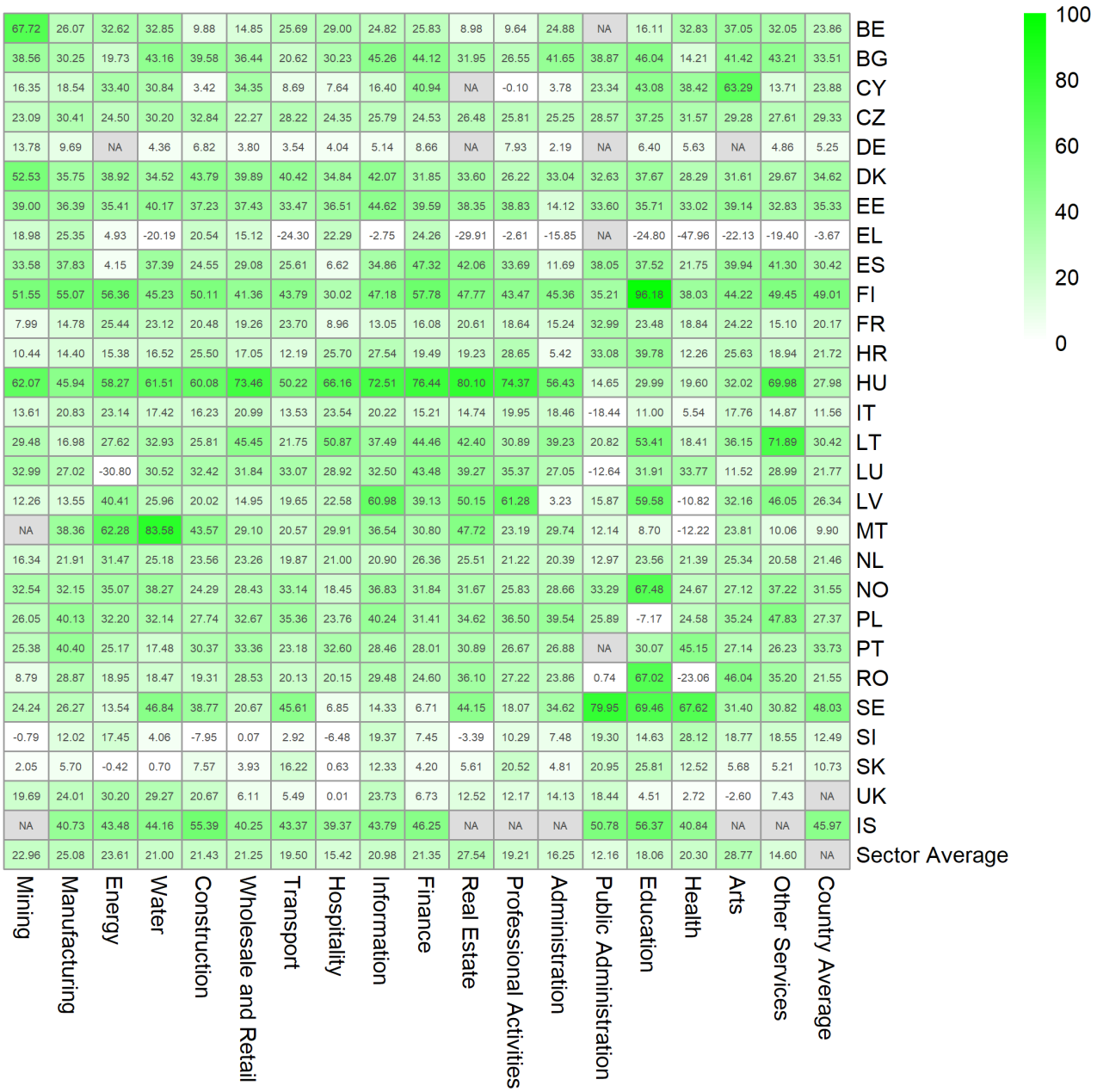


Figure 7: Overtime Premium. Source: SES.

5. Estimating the Part-Time Hourly Wage Premium

We estimate the hourly wage premium (or penalty) associated with part-time employment using a specification closely aligned with that applied to overtime premiums. The objective is to compare the hourly remuneration of part-time and full-time workers while holding constant observable worker, job, and institutional characteristics.

Using the Structure of Earnings Survey (SES), we compute an hourly wage measure that excludes overtime hours and overtime pay, ensuring that differences in remuneration are not mechanically driven by overtime compensation.

$$\log(w_{istc}) = \alpha + \sum_{j=1}^{S} \beta_{sc}\ 1[j = s]\ \text{parttime}_{istc} + \delta_{FE} + \gamma X_{istc} + \varepsilon_{istc}$$

where $w_{istc}$is the hourly wage of individual *i* working in sector *s*, in year *t*, and in country *c*. The term δ_{FE}denotes the set of fixed effects for which we control — including location, sector, gender, contract type, level of education, occupation, and collective bargaining coverage. X_{istc}represents a quadratic polynomial in tenure.

The coefficients of interest are β_{sc}, which capture the interaction between sector dummies $1[j = s]$and the part-time indicator (equal to 1 for part-time hours and 0 for standard hours). These coefficients therefore measure the part-time wage premium — that is, the percentage additional pay received for part-time work compared to standard hours. We compute $\beta_{sc}$for each country–sector pair.

Findings. Figure 8 presents a heatmap of the estimated part-time hourly wage premiums by country and sector. Several clear patterns emerge.

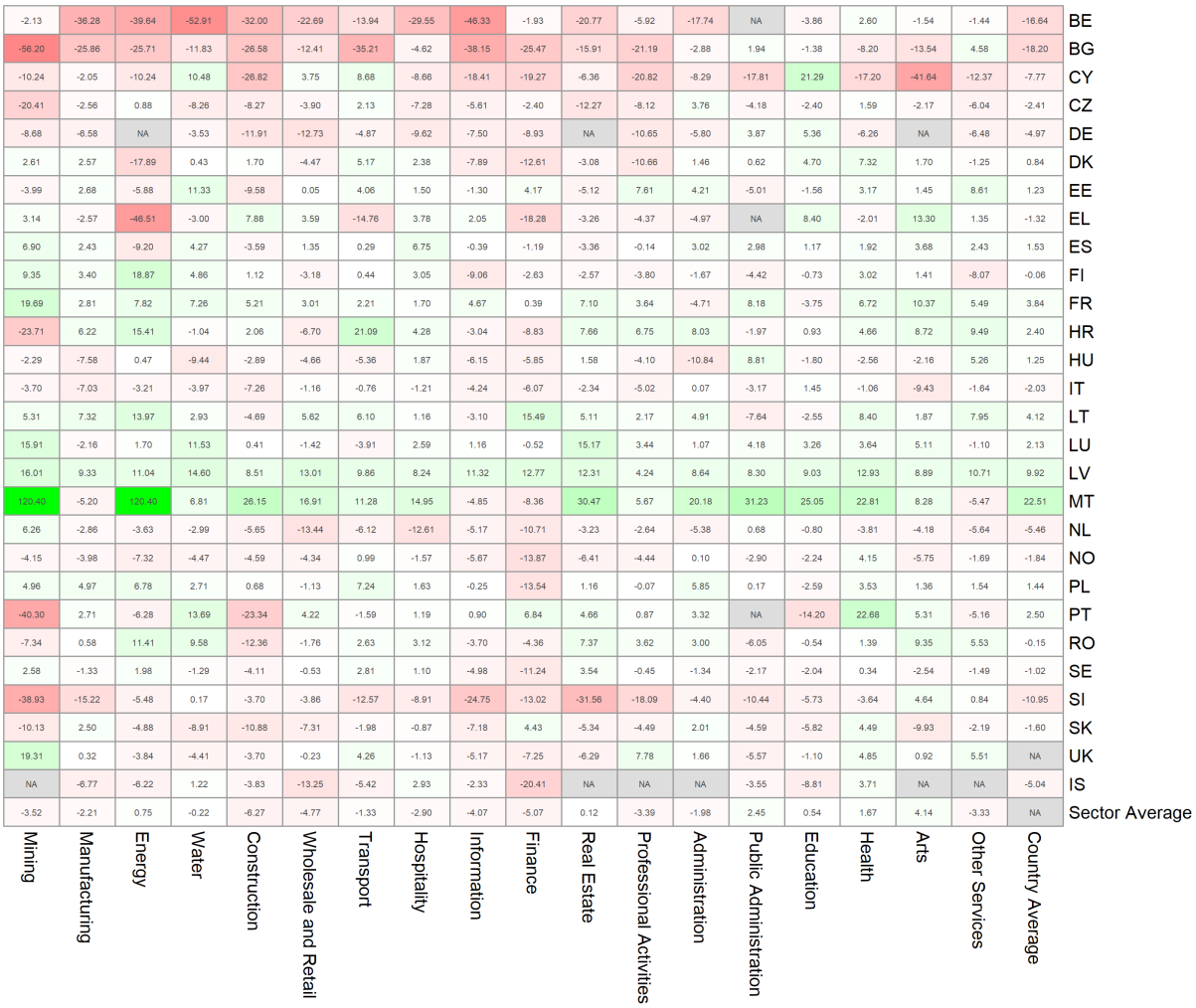
First, the average part-time hourly wage premium is close to zero in most countries and sectors. This indicates that, conditional on observed characteristics, part-time workers generally earn hourly wages that are broadly comparable to those of full-time workers. This finding is consistent with European labour law principles prohibiting discrimination against part-time workers and guaranteeing equal pay on a pro-rata basis.

Second, while average effects are small, the heatmap reveals substantial heterogeneity across countries and sectors. In some country–sector combinations, part-time work is associated with modest hourly wage penalties, whereas in others it is linked to small premiums. These deviations from zero are typically limited in magnitude, suggesting that large systematic hourly penalties for part-time work are uncommon within the formal employment relationships captured by the SES.

Third, sectoral differences are more pronounced than cross-country differences. Sectors characterised by fragmented schedules and high prevalence of short part-time contracts—such as wholesale and retail, hospitality, and personal services—tend to display slightly more negative estimates. In contrast, public administration, education, and health often show neutral or mildly positive part-time premiums, reflecting more standardised pay scales and stronger collective bargaining arrangements.

Importantly, the absence of large average penalties does not imply that part-time work is economically neutral. Part-time employment mechanically reduces total earnings through fewer paid hours, and even small hourly penalties can accumulate over time. Moreover, these estimates do not capture indirect or dynamic disadvantages associated with part-time work, such as reduced access to promotions, training opportunities, or career progression—mechanisms well documented in the literature.
Overall, the results suggest that part-time work in Europe is not systematically penalised in terms of hourly wages, once worker and job characteristics are taken into account. Instead, inequality

associated with part-time employment primarily arises through reduced working hours and longer-term career effects, rather than through large contemporaneous hourly wage penalties.



	Mining	Manufacturing	Energy	Water	Construction	Wholesale and Retail	Transport	Hospitality	Information	Finance	Real Estate	Professional Activities	Administration	Public Administration	Education	Health	Arts	Other Services	Country Average
BE	-2.13	-36.28	-39.64	-52.91	-32.00	-22.69	-13.94	-29.55	-46.33	-1.93	-20.77	-5.92	-17.74	NA	-3.86	2.60	-1.54	-1.44	-16.64
BG	-56.20	-25.86	-25.71	-11.83	-26.58	-12.41	-35.21	-4.62	-38.15	-25.47	-15.91	-21.19	-2.88	1.94	-1.38	-8.20	-13.54	4.58	-18.20
CY	-10.24	-2.05	-10.24	10.48	-26.82	3.75	8.68	-8.66	-18.41	-19.27	-6.36	-20.82	-8.29	-17.81	21.29	-17.20	-41.64	-12.37	-7.77
CZ	-20.41	-2.56	0.88	-8.26	-8.27	-3.90	2.13	-7.28	-5.61	-2.40	-12.27	-8.12	3.76	-4.18	-2.40	1.59	-2.17	-6.04	-2.41
DE	-8.68	-6.58	NA	-3.53	-11.91	-12.73	-4.87	-9.62	-7.50	-8.93	NA	-10.65	-5.80	3.87	5.36	-6.26	NA	-6.48	-4.97
DK	2.61	2.57	-17.89	0.43	1.70	-4.47	5.17	2.38	-7.89	-12.61	-3.08	-10.66	1.46	0.62	4.70	7.32	1.70	-1.25	0.84
EE	-3.99	2.68	-5.88	11.33	-9.58	0.05	4.06	1.50	-1.30	4.17	-5.12	7.61	4.21	-5.01	-1.56	3.17	1.45	8.61	1.23
EL	3.14	-2.57	-46.51	-3.00	7.88	3.59	-14.76	3.78	2.05	-18.28	-3.26	-4.37	-4.97	NA	8.40	-2.01	13.30	1.35	-1.32
ES	6.90	2.43	-9.20	4.27	-3.59	1.35	0.29	6.75	-0.39	-1.19	-3.36	-0.14	3.02	2.98	1.17	1.92	3.68	2.43	1.53
FI	9.35	3.40	18.87	4.86	1.12	-3.18	0.44	3.05	-9.06	-2.63	-2.57	-3.80	-1.67	-4.42	-0.73	3.02	1.41	-8.07	-0.06
FR	19.69	2.81	7.82	7.26	5.21	3.01	2.21	1.70	4.67	0.39	7.10	3.64	-4.71	8.18	-3.75	6.72	10.37	5.49	3.84
HR	-23.71	6.22	15.41	-1.04	2.06	-6.70	21.09	4.28	-3.04	-8.83	7.66	6.75	8.03	-1.97	0.93	4.66	8.72	9.49	2.40
HU	-2.29	-7.58	0.47	-9.44	-2.89	-4.66	-5.36	1.87	-6.15	-5.85	1.58	-4.10	-10.84	8.81	-1.80	-2.56	-2.16	5.26	1.25
IT	-3.70	-7.03	-3.21	-3.97	-7.26	-1.16	-0.76	-1.21	-4.24	-6.07	-2.34	-5.02	0.07	-3.17	1.45	-1.06	-9.43	-1.64	-2.03
LT	5.31	7.32	13.97	2.93	-4.69	5.62	6.10	1.16	-3.10	15.49	5.11	2.17	4.91	-7.64	-2.55	8.40	1.87	7.95	4.12
LU	15.91	-2.16	1.70	11.53	0.41	-1.42	-3.91	2.59	1.16	-0.52	15.17	3.44	1.07	4.18	3.26	3.64	5.11	-1.10	2.13
LV	16.01	9.33	11.04	14.60	8.51	13.01	9.86	8.24	11.32	12.77	12.31	4.24	8.64	8.30	9.03	12.93	8.89	10.71	9.92
MT	120.40	-5.20	120.40	6.81	26.15	16.91	11.28	14.95	-4.85	-8.36	30.47	5.67	20.18	31.23	25.05	22.81	8.28	-5.47	22.51
NL	6.26	-2.86	-3.63	-2.99	-5.65	-13.44	-6.12	-12.61	-5.17	-10.71	-3.23	-2.64	-5.38	0.68	-0.80	-3.81	-4.18	-5.64	-5.46
NO	-4.15	-3.98	-7.32	-4.47	-4.59	-4.34	0.99	-1.57	-5.67	-13.87	-6.41	-4.44	0.10	-2.90	-2.24	4.15	-5.75	-1.69	-1.84
PL	4.96	4.97	6.78	2.71	0.68	-1.13	7.24	1.63	-0.25	-13.54	1.16	-0.07	5.85	0.17	-2.59	3.53	1.36	1.54	1.44
PT	-40.30	2.71	-6.28	13.69	-23.34	4.22	-1.59	1.19	0.90	6.84	4.66	0.87	3.32	NA	-14.20	22.68	5.31	-5.16	2.50
RO	-7.34	0.58	11.41	9.58	-12.36	-1.76	2.63	3.12	-3.70	-4.36	7.37	3.62	3.00	-6.05	-0.54	1.39	9.35	5.53	-0.15
SE	2.58	-1.33	1.98	-1.29	-4.11	-0.53	2.81	1.10	-4.98	-11.24	3.54	-0.45	-1.34	-2.17	-2.04	0.34	-2.54	-1.49	-1.02
SI	-38.93	-15.22	-5.48	0.17	-3.70	-3.86	-12.57	-8.91	-24.75	-13.02	-31.56	-18.09	-4.40	-10.44	-5.73	-3.64	4.64	0.84	-10.95
SK	-10.13	2.50	-4.88	-8.91	-10.88	-7.31	-1.98	-0.87	-7.18	4.43	-5.34	-4.49	2.01	-4.59	-5.82	4.49	-9.93	-2.19	-1.60
UK	19.31	0.32	-3.84	-4.41	-3.70	-0.23	4.26	-1.13	-5.17	-7.25	-6.29	7.78	1.66	-5.57	-1.10	4.85	0.92	5.51	NA
IS	NA	-6.77	-6.22	1.22	-3.83	-13.25	-5.42	2.93	-2.33	-20.41	NA	NA	NA	-3.55	-8.81	3.71	NA	NA	-5.04
Sector Average	-3.52	-2.21	0.75	-0.22	-6.27	-4.77	-1.33	-2.90	-4.07	-5.07	0.12	-3.39	-1.98	2.45	0.54	1.67	4.14	-3.33	NA

Figure 8: Part-Time Earnings Premium. Source: SES.

6. Estimating the Earnings Premium for Shift Work

The estimation of the earnings premium associated with shift work follows the same empirical strategy as the analysis of part-time earnings premiums, with one important data-driven distinction. Unlike overtime work, the Structure of Earnings Survey (SES) does not report the number of hours worked under shift arrangements in the reference month. As a result, it is not possible to compute an hourly shift-work premium. Instead, we estimate the earnings premium from shift work using monthly earnings expressed on a full-time equivalent (FTE) basis.

For each individual, we construct the dependent variable as the logarithm of monthly FTE earnings. This adjustment removes mechanical differences in earnings due to contracted working hours and allows for a meaningful comparison between workers with and without shift arrangements.

For each country, we estimate the following specification:

$$\log(E_{istc}) = \alpha + \sum_{j=1}^{S} \beta_{sc}\ 1[j = s]\ \text{shift}_{istc} + \delta_{FE} + \gamma X_{istc} + \varepsilon_{istc},$$

where E_{istc} denotes the full-time equivalent monthly earnings of individual *i* in sector *s*, year *t*, and country *c*. The variable shift_{istc} is a binary indicator equal to one for workers who report performing shift work. As in the overtime specification, the model includes fixed effects for location and sector, and controls for a wide set of individual characteristics: gender, education, occupation, contract type, tenure, and collective bargaining coverage. Tenure enters the model as a quadratic polynomial.

The coefficient of interest, β_{sc}, measures the percentage difference in monthly FTE earnings between workers who perform shift work and those who do not, after accounting for observable characteristics and structural factors. Unlike the overtime premium, this estimate captures the earnings premium associated with working under shift arrangements, rather than a premium per hour of shift work. It therefore reflects the overall compensation associated with shift work, including any allowances or supplements, but not the intensity of shift hours in the month.

This approach provides a consistent estimate of the additional monthly earnings associated with shift work across countries and sectors, while acknowledging that the absence of shift-hour measures in the SES prevents the calculation of an hourly shift premium comparable to the overtime estimates.

Figure 9 presents a heatmap of estimated shift-work earnings premiums by country and sector. Overall, the results indicate that shift-work premiums are generally modest, but display substantial heterogeneity across sectors and countries.

Across most country–sector combinations, estimated premiums are relatively small, frequently clustering around zero. This suggests that, on average, shift work does not lead to large differences in monthly earnings once observable characteristics and contractual hours are taken into account. In this respect, shift-work premiums are notably smaller than overtime premiums and broadly comparable in magnitude to part-time hourly premiums.

However, the heatmap also reveals clear sectoral patterns. Sectors in which shift systems are structurally embedded in production or service delivery tend to exhibit higher and more consistent premiums. Mining, energy, manufacturing, transport, hospitality, and health stand out as sectors where shift work is more frequently associated with positive earnings premiums. In several of these sectors, estimated premiums exceed 10 percent in a non-negligible number of countries, indicating that shift arrangements are often compensated through allowances or wage supplements.

By contrast, sectors where shift work is less central or more weakly institutionalised—such as professional activities, finance, education, public administration, and arts and entertainment—show consistently small or near-zero premiums. In these sectors, shift work is either relatively rare or incorporated into standard pay structures without explicit financial compensation.

Cross-country variation is pronounced but does not follow a simple institutional gradient. Some countries—such as Malta, Lithuania, France, and Spain—display relatively high shift-work premiums across multiple sectors, while others—most notably Germany, Austria, and several Nordic countries—show limited or negligible premiums in most sectors. This pattern likely reflects differences in how shift work is regulated and remunerated within collective agreements, as well as the extent to which shift allowances are paid as separate supplements or incorporated into base wages.

Finally, the summary rows and columns of the heatmap indicate that sectoral variation dominates country-level variation. That is, the same sectors tend to display relatively high or low shift-work premiums across countries, suggesting that the technical and organisational requirements of production play a stronger role in shaping compensation for shift work than national institutions alone.

Overall, the findings show that shift work is not uniformly rewarded across the European labour market. While premiums are clearly present in sectors where shift systems are unavoidable and tightly regulated, they remain modest or absent elsewhere. As with part-time work, this implies that inequalities associated with shift work may arise less from contemporaneous earnings premiums and more from selection into particular sectors, occupations, and working-time regimes.

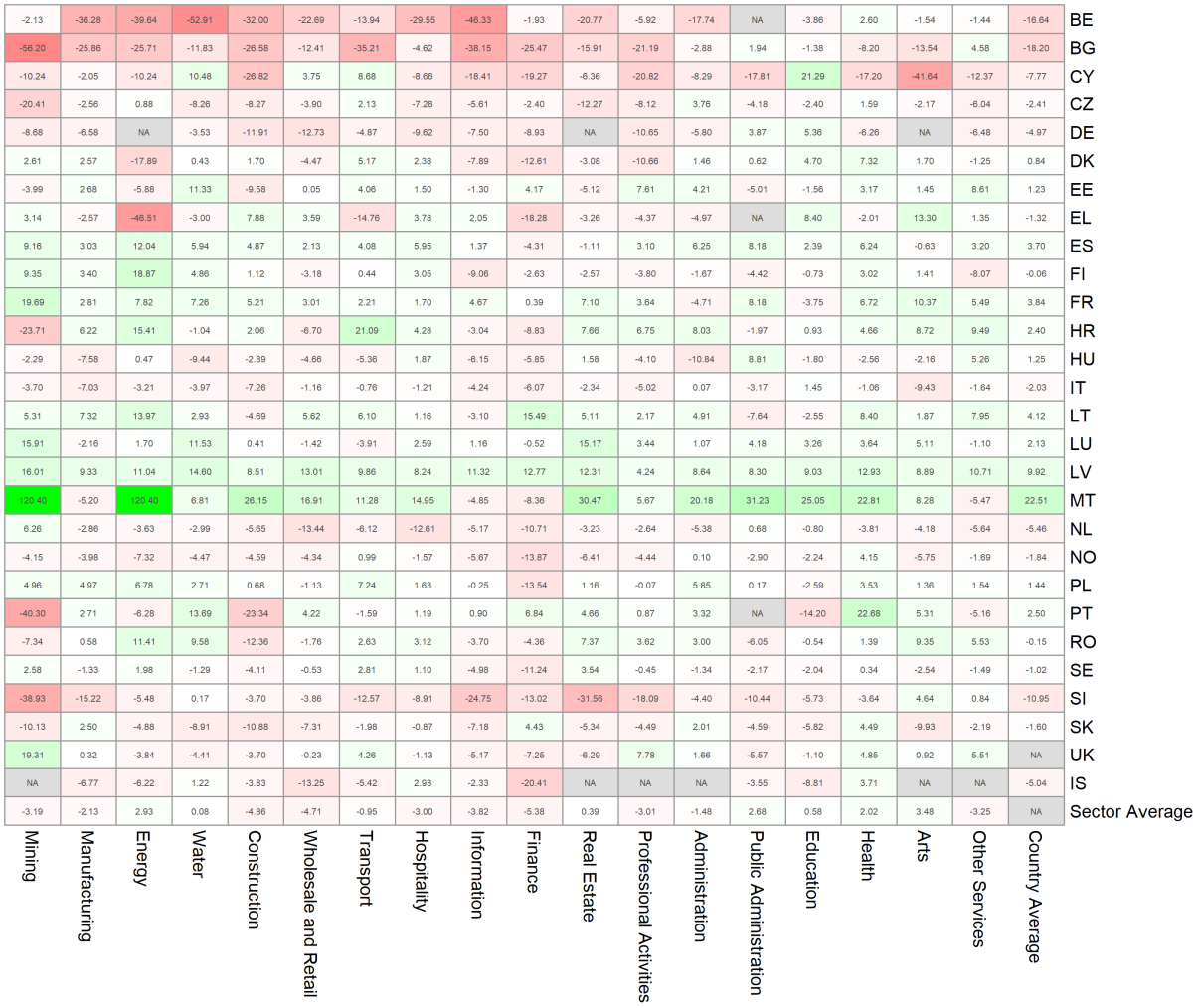


Figure 9: Shift Earnings Premium. Source: SES.

7. Conclusions

This report set out to examine how non-standard working time is rewarded in European labour markets, focusing on three key dimensions: overtime work, part-time employment, and shift work. Using harmonised microdata from the Structure of Earnings Survey (SES), we estimated wage and earnings premiums associated with these arrangements across countries and sectors, while accounting for worker characteristics, job attributes, and institutional factors such as collective bargaining coverage. Three main conclusions emerge.

First, overtime work remains the most clearly and consistently rewarded form of non-standard working time. Across Europe, overtime hours are generally compensated at a substantial premium relative to standard hours, with an EU-wide average close to 20 percent. While there is significant heterogeneity across countries and sectors, the presence of a positive overtime premium in most contexts confirms that overtime pay continues to function as a core mechanism through which collective agreements and regulations compensate workers for working beyond standard hours.

At the same time, cross-country differences—most notably the comparatively low premiums observed in large economies such as Germany—underscore the importance of national institutional frameworks in shaping the effective value of overtime compensation.

Second, part-time work is not systematically associated with large hourly wage penalties once observable characteristics are taken into account. On average, hourly wages of part-time and full-time workers are remarkably similar, in line with European non-discrimination principles and pro-rata pay regulations. Although some sectoral and country-level variation exists, deviations from zero are generally modest. This suggests that inequality associated with part-time employment arises primarily through reduced working hours and longer-term career dynamics—such as limited progression, training, or access to higher-paying roles—rather than through contemporaneous hourly wage penalties. These findings nuance a large literature on part-time wage penalties by highlighting the distinction between hourly pay and total earnings.

Third, shift work is associated with modest and highly heterogeneous earnings premiums. Unlike overtime, shift-work compensation does not appear as a strong or universal premium across European labour markets. Positive earnings effects are concentrated in sectors where shift systems are structurally embedded—such as mining, energy, manufacturing, transport, hospitality, and health—while premiums are small or absent in sectors where shift work is less prevalent or less formally regulated. Sectoral patterns are more pronounced than country-level patterns, suggesting that technological and organisational requirements of production play a central role in shaping whether and how shift work is financially rewarded.

Taken together, these results point to an important asymmetry in the regulation and compensation of non-standard working time. Overtime remains a clearly demarcated and monetarily compensated deviation from standard hours, whereas part-time and shift work are more often absorbed into regular pay structures, with limited explicit compensation. This asymmetry reflects both legal frameworks—particularly strong protections for part-time workers—and the evolving nature of working-time arrangements in 24/7 economies, where shift work is increasingly normalised rather than treated as exceptional.

From a policy and collective bargaining perspective, the findings suggest that the erosion of "standard" working time does not automatically translate into stronger monetary compensation for non-standard schedules. While overtime premiums continue to play a compensatory and deterrent role, shift work and part-time arrangements appear less consistently rewarded, raising questions about whether current bargaining practices adequately reflect the social and health costs associated with irregular and anti-social hours.

Finally, this report highlights several avenues for future research. First, the SES captures only paid hours, leaving unpaid overtime outside the scope of analysis. Second, the absence of detailed information on the intensity of shift work limits the ability to estimate hourly shift premiums comparable to overtime. Third, understanding the long-term earnings and career consequences of non-standard working time requires a dynamic perspective that goes beyond cross-sectional

wage comparisons. Addressing these gaps is essential for a fuller assessment of how working-time arrangements shape inequality and well-being in European labour markets.

References

Anxo, D., & Karlsson, M. (2019). *Overtime work: A review of literature and initial empirical analysis*. International Labour Office, Inclusive Labour Markets, Labour Relations and Working Conditions Branch.

Anxo, D. and O'Reilly, J. 2000. "Working time regimes and transitions in comparative perspective", in O'Reilly, J., Cebrién, I. and Lallement, M. (eds.), *Working time changes: Social integration through transitional labour markets*, Cheltenham, UK: Edward Elgar Publishing, Chapter 3, pp. 61-92.

Arrowsmith, J. (2018). Working time in Europe. In: J. Arrowsmith & V. Pugliagnano (Eds.) *The Transformation of Employment Relations in Europe* (pp. 111-132). Routledge.

Bardasi, E., & Gornick, J. C. (2008). Working for less? Women's part-time wage penalties across countries. *Feminist economics*, *14*(1), 37-72.Berg, P., Bosch, G., & Charest, J. (2014). Working-Time Configurations. *ILR Review*, *67*(3), 805–837. https://doi.org/10.1177/0019793914537452

Bell, D. N., & Hart, R. A. (2023). The decline of paid overtime working in Britain. *British Journal of Industrial Relations*, *61*(2), 235-258.

Besamusca, Janna. (2025a). *How the standard disappeared from standard working time. A scoping review of literature on collective bargaining regarding standard and non-standard working times in Europe.* WageIndicator Foundation, Utrecht University, Central European Labour Studies Institute, University of Girona.

Besamusca, Janna. (2025b). Does the night shift still pay? A comparative analysis of pay-related working time provisions in European collective agreements. *BARTIME Report 2.* WageIndicator Foundation, Utrecht University, Central European Labour Studies Institute, University of Girona.

Blackwell, L. (2001). Occupational sex segregation and part-time work in modern britain. Gender, Work & Organization, 8(2), 146–163. https://doi.org/10.1111/1468-0432.00126

Conway, N., & Sturges, J. (2014). Investigating unpaid overtime working among the part-time workforce. *British Journal of Management*, *25*(4), 755-771.

Cousineau, Jean-Michel, Robert Lacroix, and Anne-Marie Girard. 1992. "Occupational Hazard and Wage Compensating Differentials." *Review of Economics and Statistics* 74 (1): 166–69.

Doellgast, V., & Berg, P. (2018). Negotiating flexibility: external contracting and working time control in German and Danish telecommunications firms. *Industrial and Labor Relations Review*, *71*(1), 117–142. https://doi.org/10.2307/4126655

Elias Moreno, Ferran & Besamusca, Janna. (2025 Europe After Hours: Mapping Non-Standard Working Time. *BARTIME Report 5.* WageIndicator Foundation, Utrecht University, Central European Labour Studies Institute, University of Girona.

Eurofound (2022), Overtime in Europe: Regulation and practice, Publications Office of the European Union, Luxembourg.

Eurostat (2025a). *Employed persons by actual hours worked in main and second job during the reference week - quarterly data*. DOI: https://doi.org/10.2908/LFSI_HWA_Q

Eurostat (2025b). *Employees working shifts - % of total employees*. DOI: https://doi.org/10.2908/LFSA_EWPSHI

Eurostat (2025c). *Employed persons working at nights by professional status - % of total employment*. DOI: https://doi.org/10.2908/LFSA_EWPNIG

Eurostat (2025d). *Employed persons working in the evenings by professional status - % of total employment*. DOI: https://doi.org/10.2908/LFSA_EWPEVE

Eurostat (2025e). *Work on weekends by professional status and occupation*. DOI: https://doi.org/10.2908/LFSA_QOE_3B3

Fernández-Kranz, D., & Rodríguez-Planas, N. (2011). The part-time pay penalty in a segmented labor market. *Labour Economics*, *18*(5), 591-606.

Figart, D. M., & Golden, L. (2000). Working time: International trends, theory and policy perspectives. Routledge.

Haipeter, T., & Lehndorff, S. (2005). Decentralised bargaining of working time in the German automotive industry. *Industrial Relations Journal*, *36*(2), 140–156. https://doi.org/10.1111/J.1468-2338.2005.00350.X

Hart, R. A., & Ma, Y. (2010). Wage–hours contracts, overtime working and premium pay. *Labour Economics*, *17*(1), 170-179.

Ilsøe, A. (2010). Between trust and control: company-level bargaining on flexible working hours in the Danish and German metal industries. *Industrial Relations Journal*, *41*(1), 34–51. https://doi.org/10.1111/J.1468-2338.2009.00552.X

Ilsøe, A. (2011). Signs of segmentation? A flexicurity perspective on decentralized collective bargaining in Denmark. *Economic and Industrial Democracy*, *33*(2), 245–265. https://doi.org/10.1177/0143831X11408144

Ilsøe, A. (2012). Safety nets or straitjackets? Regulating working time in the Danish, German and American metal industries. *European Journal of Industrial Relations*, *18*(1), 37–51. https://doi.org/10.1177/0959680111430563

Jirjahn, U. (2008). On the determinants of shift work and overtime work: Evidence from German establishment data. *British Journal of Industrial Relations*, *46*(1), 133-168.

Keune, M. (2007). *Collective bargaining and working time in Europe : an overview*. ETUI.

Lehndorff, S. (2007). Flexibility and Control: New Challenges for Working-Time Policy in the European Union. *Labour & Industry: A Journal of the Social and Economic Relations of Work*, *17*(3), 9–28. https://doi.org/10.1080/10301763.2007.10669349

Leschke, J. (2015). Non-standard employment of women in service sector occupations: A comparison of European countries. In *Non-standard employment in post-industrial labour markets* (pp. 324-352). Edward Elgar Publishing.

Lewis P. (2014) Paying the penalty? The high price of penalty rates in Australian restaurants | Agenda: A Journal of Policy Analysis and Reform. *Agenda: A Journal of Policy Analysis Reform*.21(1), 5-26.

Lewis, J., Campbell, M., & Huerta, C. (2008). Patterns of paid and unpaid work in Western Europe: gender, commodification, preferences and the implications for policy. *Journal of European social policy*, *18*(1), 21-37.

Manning, A., & Petrongolo, B. (2008). The part-time Pay penalty for women in Britain. The Economic Journal, 118(526), F28–F51. https://doi.org/10.1111/j.1468-0297.2007.02115.x

Nicolaisen, H., & Kavli, H. C. (2019). Dualisation of part-time work: The development of labour market insiders and outsiders. Policy Press.

Nightingale, M. (2018). Looking beyond average earnings: Why are male and Female part-time employees in the UK more likely to be low paid than their full-time counterparts? Work, Employment and Society, 33(1), 131–148. https://doi.org/10.1177/0950017018796471

OECD & AIAS (2025). OECD/AIAS database on Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts (ICTWSS). Version 2.0. Paris: OECD.

Paolucci, V., & Galetto, M. (2020). The collective bargaining of flexicurity: A case for sector-level analysis? The Italian chemical and metalworking sectors compared. *Human Resource Management Journal*, *30*(2), 165–179. https://doi.org/10.1111/1748-8583.12255

Peetz D, Bruynius S, Murray G. (2019) Choice and the impact of changes to Sunday premiums in the Australian retail and hospitality industries. *J Ind Relations*. 61(5), 657-681.

Piasna, A., Cetrulo, A., & Moro, A. (2024). Negotiating Working Time Reduction. In *SSRN Electronic Journal* (2024.12; ETUI Research Papers). https://doi.org/10.2139/SSRN.5026070

Piso, A. (2022). Controlling the clock: Working hours in the UK hotel sector. *Research in Hospitality Management*, *12*(1), 1-11–1–11. https://doi.org/10.1080/22243534.2021.2007589

Pulignano, V., Doerflinger, N., & Keune, M. (2020). Re-introducing the company in the analysis of labour market dualisation: Variety of patterns and diversity of outcomes between standard and non-standard workers in multinational subsidiaries in Belgium, Germany and Britain. *Economic and Industrial Democracy*, *41*(3), 586–609. https://doi.org/10.1177/0143831X17731610

Richbell, S., Brookes, M., Brewster, C., & Wood, G. (2011). Non-standard working time: an international and comparative analysis. *The International Journal of Human Resource Management*, *22*(04), 945-962.

Rubery, J., Ward, K., Grimshaw, D., & Beynon, H. (2005). Working Time, Industrial Relations and the Employment Relationship. *Time & Society*, *14*(1), 89–111.

Taiji, R., & Mills, M. C. (2020). Non-standard schedules, work–family conflict, and the moderating role of national labour context: evidence from 32 European countries. *European Sociological Review*, *36*(2), 179-197.

Wharton AS, Blair-Loy M. (2016). The "Overtime Culture" in a Global Corporation. *Work & Occupations,* 29(1). doi:10.1177/0730888402029001003

Williams, J.C., Blair-Loy, M. and Berdahl, J.L. (2013) "Cultural Schemas, Social Class, and the Flexibility Stigma," *Journal of Social Issues*, 69(2), pp. 209–234. Available at: https://doi.org/10.1111/JOSI.12012.

Yu, W. H., & Kuo, J. C. L. (2022). Time is money? Wage premiums and penalties for time-related occupational demands. *American Journal of Sociology*, *128*(3), 820-865.