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## **Where is the gap in the gender pay gap?**

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Master in Labour Sciences and Industrial Relations

Supervisor:

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ISCTE – University Institute of Lisbon

September, 2024



SOCIOLOGIA  
E POLÍTICAS PÚBLICAS

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**Department of Sociology**

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*“Aqueles que passam por nós, não vão sós, não nos deixam sós. Deixam um pouco de si, levam um pouco de nós.” (Antoine de Saint-Exupéry)*

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## Resumo

A OIT reconheceu a importância do pagamento igual para homens e mulheres por trabalho de igual valor em 1919, destacando-o como um aspeto crucial da justiça social. Embora várias políticas comunitárias e nacionais tenham sido implementadas para lidar com as desigualdades de género no mercado de trabalho, as mulheres ainda vivenciam essas desigualdades em diferentes estados-membros da União Europeia (Vosko et al., 2009). Várias medidas (ex. Tratado sobre o Funcionamento da União Europeia, Diretriz de Igualdade Salarial da Comunidade Europeia) foram implementadas para eliminar qualquer tipo de discriminação em razão do sexo no que se refere a todos os aspetos e condições de remuneração. A Comissão Europeia considera uma prioridade acabar com as disparidades salariais entre homens e mulheres, conforme declarado na Estratégia para a Igualdade de Género 2020-2025 (Leythienne & Pérez-Julián, 2021). No entanto, segundo o Eurostat (2022), as mulheres ainda ganham em média 13% menos por hora do que os homens, com variações significativas entre os países.

Embora a disparidade salarial de género tenha diminuído na maioria dos países, não existe uma solução ou política única para alcançar a igualdade de género (Pascal & Lewis, 2004).

Tendo em conta a importância deste tema, este trabalho visa responder às perguntas: “Quais as diferenças entre os países da Europa no que diz respeito à discrepância salarial entre géneros? Quais as causas e especificidades das mesmas, quando estas existem?”. Além de analisar e perceber quais as diferenças entre os valores de discrepância salarial, entre os países da Europa, procuro também perceber quais as causas e especificidades dessas diferenças. Por outras palavras, perceber o porquê de alguns países como o Luxemburgo apresentarem uma discrepância tão baixa comparativamente a países como, por exemplo, a Letónia, que registam uma discrepância tão elevada.

Considero esta questão particularmente pertinente, uma vez que as políticas e medidas comunitárias são aplicadas à generalidade dos países e as questões inerentes ao capital humano, como o nível de escolaridade, já foram provadas como apenas responsáveis por uma pequena parte do “gap”. Resta a questão, como alguns países conseguiriam ter sucesso na diminuição da discrepância salarial entre géneros e outros não. A discrepância salarial entre mulheres e homens é um fenómeno já estudado, e um tema alvo de vários inquéritos nacionais e internacionais, bem como de estudos de organizações como a Organização Internacional do Trabalho. No meu caso, o meu objetivo é focar-me na ocorrência deste fenómeno em países da Europa, através da comparação não só dos valores de salário hora como também à análise de estudos que possam explicar as causas e especificidades por detrás desta diferença.

**Palavras-chave:** Género, discrepância salarial, disparidade salarial, discriminação entre género no mercado de trabalho.



## Abstract

In 1919, the ILO acknowledged the vital importance of equal pay for men and women for equal-value work, emphasising it as a critical component of social justice. Despite multiple EU and national programs addressing gender inequalities in the labour market, women continue to face these discrepancies in various EU member states (Vosko et al., 2009). Various measures (for example, the Treaty on the Functioning of the European Union and the European Community Equal Pay Directive) have been executed to remove all forms of gender discrimination in all aspects and circumstances of remuneration. The European Commission prioritises closing the gender pay gap, as stated in the Gender Equality Strategy 2020-2025 (Leythienne & Pérez-Julián, 2021). However, according to Eurostat (2022), women still earn 13% less per hour than males, with large variations by country.

Although the gender pay gap has decreased in most countries, there is no single solution or policy for achieving gender equality (Pascal & Lewis, 2004).

Given the relevance of this problem, the purpose of the project is to answer the following questions: "What are the differences in gender pay gaps between European countries?" "What are their causes and characteristics when they occur?" In addition to examining and comprehending the salary disparities between European countries, I am attempting to understand the reasons and specifics of these disparities. In other words, to understand why certain countries, such as Luxembourg, have such a small difference while others, such as Latvia, have a large gap.

This is especially relevant to me because EU laws and regulations apply to the majority of countries, and human capital factors, such as educational qualifications, have already been shown to be responsible for just a small portion of the disparity. The question remains as to why some countries succeed in closing the gender pay gap while others do not. The gender wage gap is a well-studied issue that has been the topic of numerous national and international surveys, as well as investigations by organizations such as the International Labour Organization. In my case, my goal is to focus on the occurrence of this issue in European countries, by not only comparing hourly pay levels but also reviewing studies that can explain the causes and specificities behind this difference.

This research will provide valuable insights into the factors contributing to gender pay gaps in Europe and inform potential policy interventions to promote gender equality in the region. By analyzing the variations in pay gaps and their underlying causes, we can work towards creating a more equitable and inclusive society for all individuals.

**Keywords:** Gender, wage gap, gender pay gap, gender discrimination in the labor market.





## Table of Contents

|  |    |
|--|----|
| Acknowledgement.....   | i  |
| Abstract .....   | v  |
| INTRODUCTION .....   | 1  |
| CHAPTER 1 – LITERATURE REVIEW .....  | 5  |
| 1.1.Efforts to Address the Gender Pay Gap .....                                      | 5  |
| 1.2.Understanding the Gender Pay Gap .....   | 10 |
| 1.2.1.    The Role of Trade Unions.....  | 13 |
| 1.2.2.    The role of gender-neutral job evaluation and job classification.....      | 15 |
| 1.2.3.    Exploring working time regimes .....                                       | 17 |
| CHAPTER 2 – METHODOLOGY .....  | 21 |
| 2.1. Research Objectives .....   | 21 |
| 2.2. Research Methods.....   | 21 |
| 2.3. Data Sources and Variables .....  | 23 |
| 2.4. Statistical Analysis.....   | 29 |
| 2.4.1.    Person Correlation .....   | 29 |
| 2.4.2.    ETA Analysis.....  | 30 |
| CHAPTER 3 – RESULTS.....   | 31 |
| 3.1. Union Density and Coverage .....  | 31 |
| 3.1.1.    Union Density.....   | 31 |
| 3.1.2.    Collective Bargaining Coverage and Level .....                             | 34 |
| 3.1.3.    Gender Equality in Collective Agreements .....                             | 37 |
| 3.2. Job Evaluation and Classification System .....                                  | 40 |
| 3.2.1.    ETA Analysis .....   | 42 |
| 3.3.Working Time Regimes .....   | 42 |
| 3.3.1.    Person Correlation Analysis: Working Time Regimes and Gender Pay Gap ..... | 44 |
| 3.4.Results Overview .....   | 44 |
| CHAPTER 4 – DISCUSSION .....   | 47 |
| CHAPTER 5 – CONCLUSIONS.....   | 53 |

5.1. Main Research Conclusions .....53

5.2. Implications for Policy and Practice.....54

5.3. Limitations and recommendations for future studies .....54

REFERENCES .....57

Appendixes .....63

Appendix A – Data Overview .....63

Appendix B - Union Density and Gender Pay Gap Correlation .....63

Appendix C - Collective Bargaining Coverage and Gender Pay Gap Correlation .....65

Appendix D – Gender Equality on Agenda ETA Analysis .....67

Appendix E – Job Classification Schemes and Gender Pay Gap ETA Analysis .....69

Appendix F - Part-time Employment and Gender Pay Gap Correlation.....71

## List of Figures

|  |    |
|--|----|
| Figure 1.1 - Gender Pay Gap in EU (2018 vs. 2023)              | 7  |
| Figure 1.2 - Gender Pay Gap Variation (2018 vs. 2023)          | 9  |
| Table 2.1 - Research Topics and Keywords                       | 20 |
| Table 2.2 - Gender Pay Gap EU between 2018 and 2023            | 21 |
| Figure 2.1 - Union Density % EU                                | 23 |
| Figure 2.2 - Collective Bargaining Coverage % EU               | 24 |
| Table 2.3 - Collective Bargaining Level EU                     | 25 |
| Table 2.4 - Gender Equality Status EU                          | 25 |
| Table 2.5 - Job Classification Sector EU                       | 26 |
| Figure 2.3 - Part-time % EU                                    | 27 |
| Figure 3.1 - Union Density vs. Gender Pay Gap                  | 30 |
| Figure 3.2 - Collective Bargaining Coverage vs. Gender Pay Gap | 33 |
| Table 3.1 - Gender Equality on Agenda vs. Gender Pay Gap       | 38 |
| Table 3.2 - Job Classification Sector vs. Gender Pay Gap       | 38 |
| Figure 3.3 - Part-time vs. Gender Pay Gap                      | 41 |
| Figure 3.4 - Results Overview                                  | 43 |



## INTRODUCTION

The gender pay gap has long been a topic of concern for scholars, with Blau and Kahn (2017), Sorrentino (1983), and Blau and Ferber (1986) among the key researchers highlighting the persistence of this issue despite significant changes in labour market conditions. Although women's participation in the labour market has increased, the pay gap remains an important phenomenon across Europe. Defined as the difference in average hourly earnings between men and women, this disparity continues to affect labour markets globally, as discussed in the literature. According to recent reports, regardless of ongoing efforts by the European Union and national bodies, women in Europe still earn about 13% less than men on average (Ramamurthy, 2022).

Additionally, the Global Gender Gap Report 2022 (World Economic Forum, 2022) estimates that it will take 132 years to close the gender gap worldwide, with Europe still coping with significant challenges despite some progress. This pay disparity highlights the broader issue of gender inequality in the labour market, where men and women performing jobs of equal value continue to be compensated unevenly—a violation of the principle of "equal pay for equal work." While there have been marked improvements in women's participation in the workforce since the post-World War II era, structural factors continue to hinder gender pay equity (Blau & Kahn, 2017; Sorrentino, 1983; Blau & Ferber, 1986).

The issue of gender pay inequality has been on the political agenda for decades, with the International Labor Organization (ILO) recognising equal pay for men and women for work of equal value as a fundamental principle in 1919 (Abendschon & Steinmetz, 2014). Legislative frameworks such as Article 141 of the Treaty on the Functioning of the European Union (TFEU) and Directive 75/117 have enshrined the principle of equal pay, yet disparities in wages continue to persist across European Union (EU) member states (Vosko et al., 2009; Leythienne & Pérez-Julián, 2021). More recently, the European Commission's Gender Equality Strategy 2020-2025 has identified the gender pay gap as a key priority, aiming to achieve a gender-equal Europe by 2025. According to Eurostat data, European women effectively work for free for 59 days each year due to an average gender pay gap of 12.7% in 2023, with significant variations among member states (European Parliament, 2023).

Despite numerous legislative efforts and policy interventions, the gender pay gap remains major across European countries, despite its social, economic and psychological importance (Bishu & Alkadry, 2017). This raises critical questions, such as:

*What are the differences in gender pay gaps between European countries?*

*What factors contribute to gender pay disparities in European countries, particularly in relation to union strength, job classification systems, and working time regimes?*

This research paper aims to investigate the variations in gender pay gaps across European countries and understand how factors such as union strength and presence, job classification schemes and working time regimes, might influence these variations.

Gender discrimination in the labour market can take many forms, ranging from unequal access to professional opportunities and working conditions to discrepancies in training and recruitment methods. However, this study will focus primarily on the gender pay gap, rather than the broader range of gender discrimination types.

The adjusted gender pay gap considers criteria like education, experience, and employment, allowing for a more realistic comparison of earnings between men and women with similar qualifications. However, this study will focus on the unadjusted gender pay gap, also known as the unexplained part, which shows the earnings disparity between genders that cannot be linked to observable factors. By examining the unexplained gender pay gap, this study hopes to reveal some reasons behind the differences in the gender pay gap for European Union Countries, where community measures are equal but their impact varies.

In developing this study, I sought the most successful method and theoretical perspective, driven by Campenhoudt's (2022) belief that describing a problem is equivalent to offering a novel solution. My research began with an assessment of the literature, to identify new methodologies or unique components that could help us better comprehend the gender wage gap.

In conducting this analysis, I observed that while numerous studies have explored various dimensions of the gender wage gap, many tend to focus on specific demographics or particular areas, such as education levels or industry sectors. Some studies have provided a literature review of past studies (such as Bishu & Alkadry, 2017 and Bennedsen et al., 2022) but again these studies focused on particular demographics, differences between the private and public sector or specific gender discrimination factors.

Drawing from my initial exploration of the literature, the Equal Pay: An Introductory Guide by Oelz et al. (2013) from the International Labour Organization (ILO) report served as a foundational inspiration. This report highlighted key factors contributing to the gender pay gap, with special emphasis on the ones here in the analysis. This report, as well as other reports and studies from the ILO, OECD, and various academic articles, often highlighted the role of trade unions (Gould & McNicholas, 2020; Rubery & Grimshaw, 2011;), the prevalence of part-time employment—often related to family responsibilities (Matteazzi et al., 2017; Fagan et al., 2014)—and job classification systems (Rubery & Koukiadaki, 2016; International Labour Organization, 2008) as significant contributors to wage disparities. Inspired by this

body of research, I have chosen to focus on these three key variables that frequently emerge in the discussions. This study aims to investigate the gender pay gap across European countries (EU-27), to understand how these specific factors impact pay disparities across various national contexts.

This study will take a mixed-methods approach, combining quantitative data analysis with qualitative research to fully understand the gender pay gap in Europe. Quantitative data will be gathered from Eurostat and other reliable databases, allowing for cross-country comparisons. Correlation analyses will be conducted to look into the relationships between these variables and the gender wage gap in European countries. To provide a thorough knowledge of the issue, a qualitative review of existing literature on gender pay discrepancies will be conducted in addition to the quantitative analysis. By combining these approaches, the study aims to provide valuable insights into the complexities of gender pay inequalities in Europe and possibly uncover some trends and factors that might be useful for future policy interventions.

The first chapter will provide a qualitative analysis of the existing literature, not only on attempts to close the gender wage gap but also on the relation between the three variables and the gender pay gap. The second chapter will go over the methods utilized, namely outlining the objectives, identifying which databases and research words were employed and presenting the quantitative data that was collected and their sources. The following chapter will present the findings by analyzing how the presence of the three factors in the analysis impacts the gender pay gap. In the fourth chapter, I will address the findings, including whether or not the hypotheses were valid, as well as some study limitations, implications for practice, and final conclusions.





# CHAPTER 1 – LITERATURE REVIEW

## 1.1. Efforts to address the Gender Pay Gap

The principle of equal pay for equal work has long been acknowledged as essential to social justice. It was established by the International Labour Organization in 1919 and continues to serve as a cornerstone of efforts to combat gender inequality in the labour market. Despite the implementation of various EU and national policies aimed at eliminating gender disparities in employment, women in European Union member states continue to face unequal pay (ILO, 2018; Vosko et al., 2009).

Within the European Union, legislative measures such as Article 141 of the Treaty on the Functioning of the European Union (TFEU) and Directive 75/117 emphasize the principle of equal pay for equal work. However, disparities persist, as evidenced by the European Commission's Gender Equality Strategy 2020-2025 (Leythienne & Pérez-Julián, 2021). Eurostat data supports this, revealing that European women effectively work for free for 59 days per year, with an average gender wage gap of 12.7% in 2023 (Cedefop, 2022). Notably, this gap varies greatly between member countries, ranging from less than 5% in Luxembourg, Romania, Slovenia, Italy, and Poland to more than 18% in Austria and Estonia.

Recent legislative actions, such as the adoption of the Pay Transparency Directive by the European Parliament (European Parliament, 2023), reflect ongoing efforts to close the gender pay gap. This legislation requires employers with more than 100 employees to report on the gender pay gap and take corrective action if disparities exceed 5% and are not explained by objective factors (Deloitte, 2023). Furthermore, gender-neutral vacancy notices and job titles are required, with the goal of promoting pay transparency and accountability. These measures aim to address systemic issues that contribute to unequal pay for men and women in the workforce and reinforce that people should be evaluated and screened based on factorial aspects such as skills, qualifications and contributions instead of being based on gender-biased ones.

Reducing the gender pay gap promotes greater gender equality while also providing broader societal and economic benefits. According to studies, closing the gap could result in higher gross domestic product (GDP), lower poverty rates, and more equitable resource distribution (Pascal & Lewis, 2004). Furthermore, addressing the gender pay gap can lead to increased productivity and innovation within organizations. This can ultimately contribute to a more inclusive and diverse workforce, leading to better decision-making and overall business success. By promoting transparency in pay practices, organizations can create a fairer and more equal workplace and, overall, break down barriers to progression for women and other marginalized groups, ultimately benefiting both individuals and the economy as a whole.

Examining the trends in gender pay gaps over time also reveals notable variations. While most EU countries have seen a gradual narrowing of the gender pay gap since World War Two (WW2) the reduction has slowed down since (Weichselbaumer & Winter-Ebmer, 2005) and the pace of progress has been uneven between countries (Cuberes et al., 2018).

According to Eurostat data, the Gender Pay Gap (GPG) variation from 2018 to 2023 highlights how wage disparities between men and women have shifted across various European countries. The data from 2018 and 2023 reveals significant differences in gender pay gaps across European Union countries, with some countries, like Luxembourg maintaining consistently low gender pay gaps, while others, such as Estonia and Austria, continue to report persistently high disparities. Notably, a few countries, including Latvia and Czechia, have shown considerable improvement, with notable reductions in their pay gaps over the five years. In contrast, countries like Hungary and Portugal have seen a worrying increase in wage disparities. Grouping countries by these trends allows us to understand better how structural factors and policy initiatives may contribute to or hinder progress toward pay equality.

The following analysis will explore these trends in greater detail, focusing on the distinct groupings of countries based on their pay gap evolution.

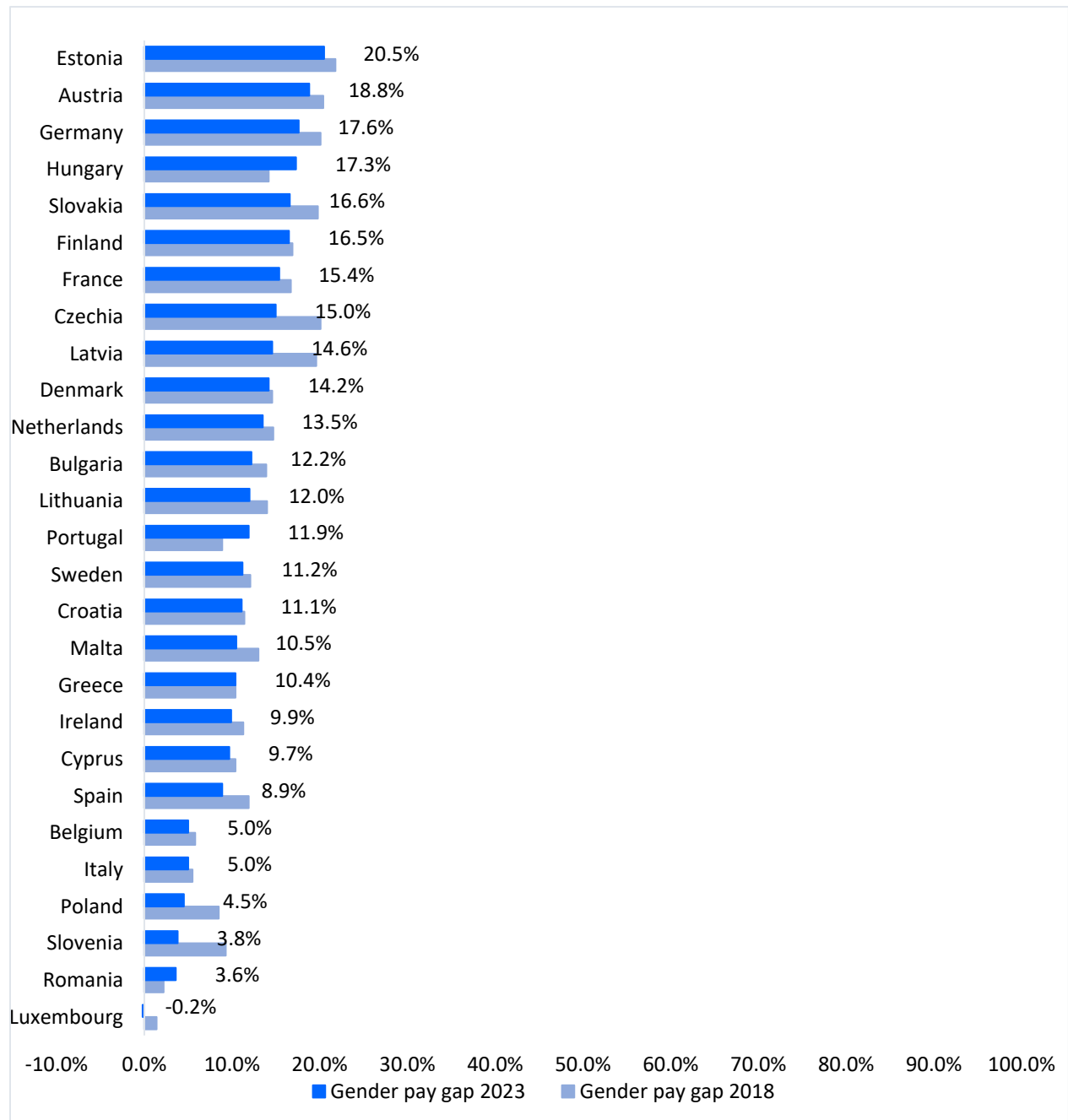


Figure 1.1 - Gender Pay Gap in EU (own creation)

When examining the gender pay gaps in 2018 and 2023, as shown in Figure 1.1, clear patterns emerge across European Union countries. The gender pay gap % in 2023 is identified in the Figure to facilitate the analysis. These can be grouped into a few distinct categories:

- Countries with Low and Stable Gender Pay Gaps:

Countries like Luxembourg (1,40% to -0,20%) and Romania (2,20% to 3,60%) consistently exhibit some of the lowest gender pay gaps. The GPG in these countries has remained low, between 2018 and 2023. Belgium (5,80% to 5,00%) and Italy (5,50% to 5,00%), also kept a low stable GPG between the period.

- Countries with High and Persistent GPGs:

At the other end of the spectrum, countries like Estonia (21,80% to 20,50%), Austria (20,40% to 18,80%), and Germany (20,10% to 17,60%) continue to have some of the highest gender pay gaps. Despite ongoing efforts to reduce wage inequality, these countries still experience significant pay disparities, suggesting that entrenched structural or cultural factors may hinder progress. This raises questions about the effectiveness of possible existing gender equality policies in these countries.

- Countries with Moderate Gaps but Little Change:

Countries such as Ireland (11,30% to 9,90%), and Sweden (12,10% to 11,20%) present gender pay gaps around the EU average (12,7% in 2023 according to European Parliament) with minimal variation between 2018 and 2023. This suggests that while they have not experienced significant setbacks, their progress has also been limited, highlighting potential stagnation in policy efforts aimed at reducing wage inequality. In this group, it is also important to mention the case of Greece, for which the last available data is from 2018 (10.40%), which highlights the absence of updated figures and raises questions about the country's recent progress or stagnation in addressing gender pay disparities.

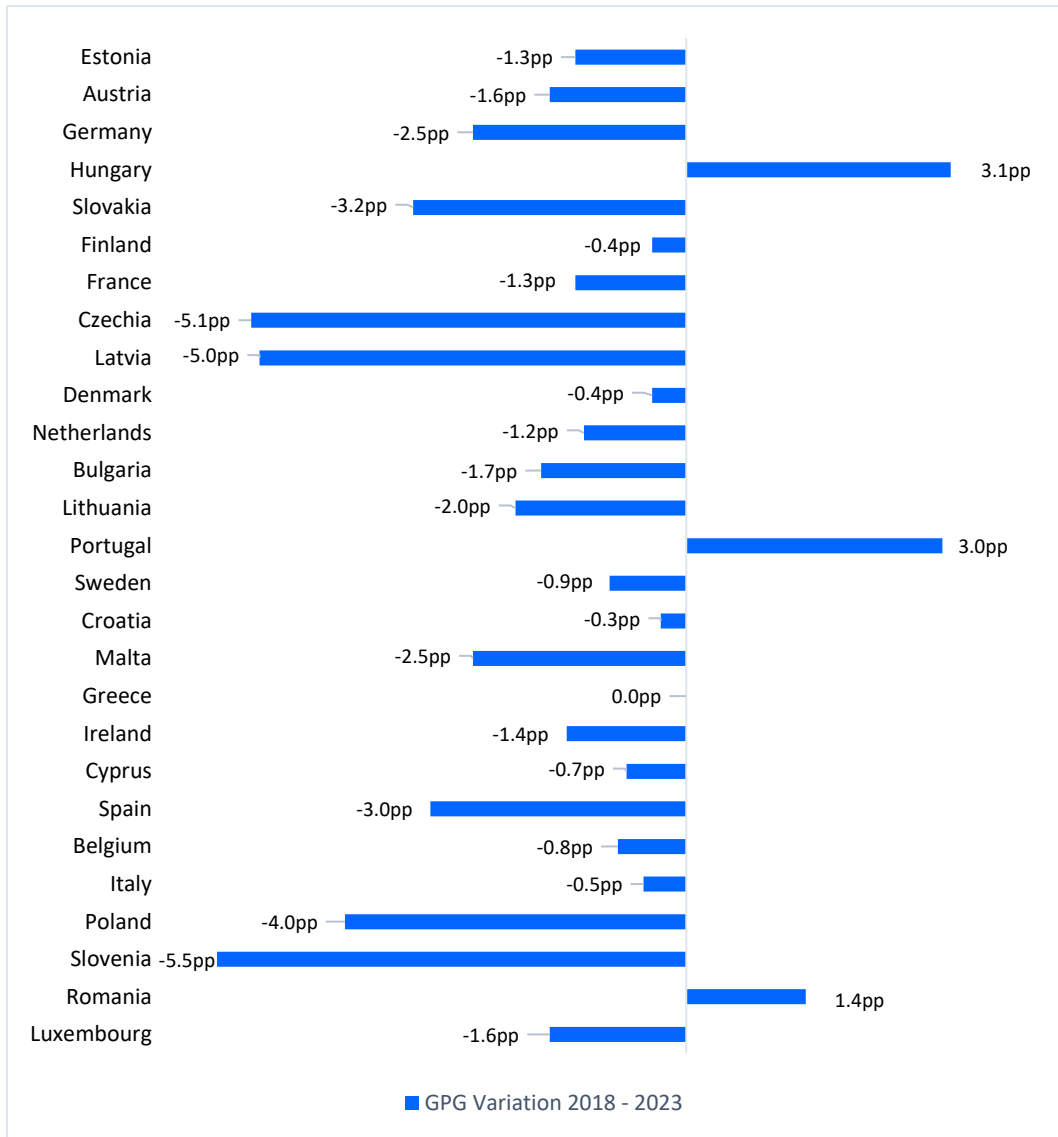


Figure 1.2 - Gender Pay Gap Variation (pp) (own creation)

The second graph, Figure 1.2, highlights the percentage point change in gender pay gaps across the EU. 23 out of the 27 countries showed improvements, while 3 have a bigger GPG in 2023 compared to 2018.

By focusing on the variation, we can identify countries where significant shifts have occurred:

- Countries with the Greatest Improvement:

Slovenia (-5,50 pp), Czechia (-5,10 pp), and Latvia (-5,00 pp) have seen the most substantial reductions in their gender pay gaps.

- Countries with Minimal or No Change:

In contrast, Sweden (-0,90 pp), and Belgium (-0,80 pp) have experienced little to no change in their gender pay gaps over the same period. This lack of progress suggests that while these countries may have strong

existing frameworks for gender equality, there may be additional barriers preventing further reductions in wage disparities.

- Countries with Worsening GPG:

Remarkably, countries such as Hungary (3.10 pp), Portugal (3.00 pp), and Romania (1.40 pp) have seen an increasing gender wage disparity, owing to similar underlying causes. In Hungary and Romania, the rise is largely due to traditional family norms and gender beliefs. In Hungary, many mothers take extended paid leave after childbirth, frequently until their child is two to three years old (OECD, 2022). Women in Romania continue to confront barriers to good occupations, high pay, and top positions (World Bank Group, 2023).

In contrast, Portugal's growing gender wage disparity is caused by several variables, including traditional family responsibilities, the "glass ceiling effect," and horizontal segregation. Women in Portugal face cultural expectations to devote more time to unpaid care work, but their concentration in lower-paying jobs and sectors, as well as significant challenges in accessing well-paid, high-level positions, exacerbates the gender gap (Comissão para an Igualdade no Trabalho e Emprego, 2023).

Overall, the analysis of these graphs confirms what is pointed out in the literature, while certain EU countries are making treads toward reducing the gender pay gap, others are either stagnating or regressing (Cuberes et al., 2018). This reinforces the need for tailored, country-specific approaches to gender pay equality, rather than one-size-fits-all solutions.

In response to persistent disparities, the European Commission has launched several initiatives, including the annual European Equal Pay Day and the inclusion of gender pay gap monitoring within the European Semester framework. These initiatives seek to coordinate member states' efforts to address the root causes of the gender pay gap and promote pay equality.

## **1.2. Understanding the Gender Pay Gap**

Several economic, sociological, and psychological theories have attempted to explain the persistence of the gender wage gap, with the following being the most notable:

*a. Gender Role Theory* (Eagly & Sczesny, 2019; Eagly, 1987): According to this theory, each gender unconsciously adopts a "role" from a young age, which has a significant impact on everything in personal terms, academic career, personal relationships, family life, and work environment.

*b. Human Capital Theory* (Mincer & Polachek, 1978): This theory contends that women have historically possessed less "human capital" than men. That is, less knowledge, capacity, and skills lead to lower productivity and, as a result, lower wages (Manning & Swaffield, 2008; Polachek, 1981). The Human

Capital Theory suggests that this disparity in human capital accumulation is due to societal factors such as access to education, training opportunities, and discriminatory practices in the labour market. As a result, women are often paid less than men for similar work despite having the same qualifications and experience.

*c. Occupational Segregation:* Also known as horizontal segregation, this is linked to the feminization of certain occupations. According to this theory, professions dominated by women have lower average pay, even when performed by men (Blau & Kahn 2003; Bettio & Verashchagina, 2009; Levanon et al. 2009). Lewis and Soo Oh (2009) pointed out that occupation segregation explains part of the GPG, although, they reported that when women transition to male-dominated occupations, it still doesn't help to close the gap.

*d. Vertical segregation:* like occupational/horizontal segregation, explains the pay gap between men and women by stating that men have traditionally held hierarchical positions of greater power, prestige, and, thus, better compensation (Alkadry & Tower, 2014; Dex et al., 2000). Vertical segregation is also referred to as hierarchical position segregation or "sticky floors" and highlights the unequal distribution of power and prestige between genders in the workplace, stating that women are denied opportunities to advance from lower-level positions in the organization (Cotter et al., 2001), which lead to lower wages for women (Xiu & Gunderson, 2014; Arulampalam, 2007).

*e. Undervaluation Theory:* Finally, according to this theory, women's work is socially and economically undervalued, compared to men's work, resulting in "equal work" but with a different value. This theory suggests that occupations traditionally dominated by women are perceived as less important or valuable, leading to lower wages compared to male-dominated occupations. Undervaluation theory underscores the societal norms and biases that contribute to the devaluation of women's contributions in the workforce (Grimshaw & Rubery, 2007).

Historically, some of the gender pay gaps may have been explained by the theories and arguments listed above, such as human capital factors like education level or labour market participation. However, data from various countries show that these only account for a small portion of the pay gap. In Belgium (Meulders & Sissoko, 2002), Finland (Vartiainen, 2001), and Greece (Karamessini & Ioakimoglou, 2002), the educational gap accounts for less than 5% of the disparity. Lewis and Soo Oh (2009) also stated that even when women transition to male-dominated professions, the pay gap remains.

Cedefop data (2022) show that, while more women than men complete higher education in the EU, they remain underrepresented. In the labour market, 30% work part-time, compared to 8.4% for men. As a result, despite recent data showing that these inequalities are no longer visible, the gender wage gap

persists (Institute for Women's Policy Research, 2020; Rubery & Koukiadaki, 2016), and the true causes of this disparity are unknown.

Some of the reasons for the gender pay gap are structural, involving differences in factors such as employment duration, level of education, and work experience. When we remove the portion that can be explained by these factors, what remains is known as the adjusted. The explained portion of the gender pay gap is due to different (observable) characteristics of men and women, which amounted to 4.8% in 2014. According to Boll and Lagemann (2019), the unexplained component (adjusted gap) between men and women with similar characteristics was 9.4% and therefore the larger portion of the overall gap remains unexplained.

One of the ILO Global Wage Reports, which focuses on the factors behind the gender pay gap reports on equal pay (ILO, 2018) identifies some plausible reasons for the gap's persistence, in addition to those previously disclosed and denied as accounting for only a portion of the gap:

*Working time regime (Part-time vs. full-time work)*

In OECD countries, women account for three out of every four part-time employees. In this sense, discrimination can be direct (the hourly wage scale for part-time work is lower than for full-time work) or indirect (limiting social security contributions for lower salaries affects part-time workers). Gallen et al. (2019) add to this, stating that some studies have attributed a large part of the GPG to the fact that women work fewer hours than men.

*Company size and union density*

Studies have found that the gender wage gap is generally smaller in larger companies, where pay structures and policies are more formalized, and in workplaces with higher union density, where collective bargaining can help to reduce wage inequality (Biasi & Sarsoon, 2021; Gornick, 1999). Companies that employ more women are smaller and have lower unionization rates (Mitra, 2003; Whitehouse, 1992; Kidd & Shannon, 1996; Blau & Kahn, 2003).

*Indirect discrimination*

When we talk about direct wage discrimination, we mean explicit and intentional discrimination in salary allocation to women versus men. Indirect discrimination, on the other hand, can be caused by gender bias in work evaluation methods and job classification systems, in which women frequently perform occupations of equal value to men but are paid differently because of their gender. In this spirit, it is necessary to mention the concept of "equal pay for equal work," one of the EU's fundamental values, as stated in Article 157 of the Treaty on the Functioning of the European Union and later reinforced by Convention No. 100.



### **1.2.1. The Role of Trade Unions**

The role of trade unions in addressing the gender pay gap has garnered increasing attention within the dialogue of inequalities, as countries with largely unregulated labour markets tend to have higher unexplained gender wage gaps (Christofides et al., 2013). As cited by (O'Reilly et al., 2015) gender pay gaps are linked to both the representation of women and men at different points of the distribution and the form of wage distribution itself (Blau & Kahn, 1997, 2017), having the capacity to reduce wage inequality (Rubery & Grimshaw, 2011).

Moreover, industrial relations institutions independently affect wage gaps, and more inclusive systems including higher collective bargaining coverage, higher union density and universal low-wage protection schemes, have been shown to narrow inequalities (Blau & Kahn, 2003; Kidd & Shannon, 1996; Whitehouse, 1992). Plinger (2014) further states that unions are important agents in pushing for gender-sensitive policies which can improve work-life balance and minimize gender disparities.

At the same time, the relationship between trade unions, collective bargaining, and the gender pay gap is not straightforward. The extent to which unions can address gender pay inequalities may depend on factors such as the degree of union density, the level of coordination in bargaining, and the extent to which unions prioritize gender equality in their agenda (OECD, 2023; Blau & Kahn, 2017; Misra & Murray-Close, 2014). Grimshaw and Rubery (2015) add to this idea, mentioning that in countries where there is a high labour market segmentation and even a high union density, unions may face difficulties in addressing disparities in sectors where women are overrepresented.

Numerous OECD countries have implemented requirements or incentives to address equal pay in collective bargaining. This is consistent with the European Commission's 2014 Recommendation on Pay Transparency (European Commission (2014/124/EU), which calls for equal pay discussions, including pay audits, at the appropriate level of collective bargaining. An ILO report (Oeltz et al., 2013) highlights that collective bargaining can facilitate the application of the equal pay for equal value principle, whenever the country's legislation doesn't force it and even when this principle is included in the country's legislation, trade unions can facilitate its application and monitoring.

According to the European Trade Union Confederation (ETUC, 2007), collective agreements benefit workers overall, with particular benefits for women in the labour market. Unionized companies and sectors with high collective bargaining coverage have shorter working hours for both men and women, flexible work options, secure employment conditions, better protection for non-standard workers, and a smaller gender pay gap.

Collective bargaining emerges as an effective tool for closing the gender pay gap, combating low pay, increasing the value of women's work, and facilitating work arrangements that promote better work-life balance for parents. Collective agreements play an important role in wage setting throughout Europe, allowing social partners to address pay disparities and prevent new ones from emerging. Centrally negotiated collective agreements have shown efficacy in promoting equal pay, whereas decentralized bargaining yields fewer benefits.

Examples from Finland and Portugal demonstrate the incorporation of gender pay gap considerations into social dialogue and collective bargaining agreements. In Finland, separately negotiated pay scale adjustments, including an 'equality allowance,' highlight the explicit emphasis on addressing gender pay disparities in national pay agreements. Similarly, Portugal's Gender Equality Agency in Employment identifies and addresses collective bargaining clauses that perpetuate pay discrimination. (European Commission, 2018).

Since the beginning of 2000, collective bargaining systems and processes in the EU have been changing, a process accelerated by the 2007-2008 financial crisis. The primary indicators of these changes are rapidly declining coverage rates and regulatory changes in a few collective bargaining practices and processes, particularly the extension of collective agreements, shifting functional hierarchies, and the growing importance of company-based bargaining processes (Eurofund, 2022). Trade union density has also been decreasing since the early 1980s (Eurofund, 2019), mainly due to the expansion of non-standard forms of employment which led to a decline in membership figures.

Union density figures vary significantly across EU member states. Scandinavian countries have a very high and relatively stable union density compared to central and eastern European Member States, where union density is low and declining. There are significant differences between continental and Mediterranean countries, but they all share a declining trend. Union density rates also differ significantly across sectors within a country, although it is generally higher in the public sector than in private services. This is related to the increased security and better working conditions enjoyed by public sector employees, which outweigh the potential disadvantages of membership for workers. Smith (2010) found that women's pay can benefit more than men's from trade union membership, although these positive outcomes are not always by design. Despite all these benefits, the declining trend in the power of unions is preventing progress in closing the gap (Smith, 2012).

According to Schulte (2008) as cited by Smith (2012) the engagement of social partners in addressing the gender pay gap might be considered an appropriate response to institutional heterogeneity within the

EU, facilitating action that works with a variety of national industrial systems and also target policies that may vary between national system.

Wage inequalities are typically higher in countries with a liberal market economy, low bargaining coverage, and highly decentralized wage-setting regimes than in more coordinated economies. According to comparative research, wage-setting institutions have an impact on gender wage inequalities countries with largely unregulated labour markets have larger unexplained gender wage gaps (Christofides et al. 2013).

### **1.2.2. The role of gender-neutral job evaluation and job classification**

Comparable worth, also known as pay equity, addresses the gender-based wage gap caused by occupational segregation, which occurs when certain occupations are dominated by one gender. This segregation has an impact on compensation practices, often perpetuating cultural stereotypes about the value of male versus female work (Alksnis et al., 2008). Job evaluation systems are recognized as an important tool for determining work of equal value and thus have the potential to promote pay equality.

However, the efficacy of job evaluation in achieving pay equity has been widely debated. One of the primary challenges in achieving pay equity is the difficulty in identifying the appropriate methodology for evaluating jobs and determining fair wages. Different job evaluation methods can produce significantly different versions of an equitable pay structure, and the cost of implementing "pay equity" for positions held predominantly by women can vary significantly depending on the evaluation method employed. Therefore, it is crucial to develop a comprehensive, gender-neutral job evaluation system that accurately reflects the value and responsibilities of different roles, irrespective of the gender of the employees. (Weiner, 2002)

The link between job evaluation and gender biases in wage determination takes place when the job evaluation system discriminates against traditional female-dominated roles (Steinberg, 2001). In contrast, a non-biased job evaluation system has the potential to expose the undervaluation of women's work (Rubery & Koukiadaki, 2016; England, 1992). According to research, when organizations use the same job evaluation system to assess all jobs within their scope, female-dominated positions are frequently undervalued. Furthermore, job classification systems help maintain the principle of equal value by assessing the relative worth of jobs in a gender-neutral manner. To ensure fairness in job evaluation, these systems rely on objective work-related criteria that are free of characteristics such as gender. In theory, job classification systems should result in equal pay for male- and female-dominated work with the same job-related characteristics, especially when explicitly gender-neutral (ILO, 2008.).

Job classification systems have been shown as an important tool to identify and address pay inequities, but their effectiveness is limited if the underlying issue of occupational segregation is not addressed (Carvalho et al., 2014). Their application can benefit wage equality within a sector, but not necessarily across sectors or the broader labour market (Hegewisch & Hartmann, 2014).

While job evaluation and performance-based pay were originally intended for managerial purposes such as determining wage levels, their potential to promote equal pay has been documented. Despite pay systems that typically prioritize objectives other than equal pay, job evaluation remains central to efforts to address gender pay disparities, as recommended by organizations such as the European Commission and the International Labour Organization (England, 1992).

Employers use job classification systems to create consistent and systematic pay structures, which influence individual employee pay outcomes. These systems make job evaluation easier by comparing each role in an organization to objective criteria such as required skills, effort, responsibilities, working conditions, education, and difficulty. Each job is then ranked according to a specific pay scale (European Commission, 2017). Job evaluation methodologies vary around the world, but the most common methods include ranking, classification, factor comparison, and points. Analytical job evaluation methods, which compare various factors while taking into account their importance and complexity, determine job positions relative to others within a sector or organization, regardless of the job holder's gender. Due to their systematic and comprehensive nature, analytical methods are considered less discriminatory and thus preferred for job evaluation in the context of gender equality. They help to establish the principle of "work of equal value," which is a key component of equal pay (European Commission, 2013).

While job classification systems are typically developed and implemented by an organization's human resources department, they can also be developed by social partners or commercial management consulting firms (European Commission, 2013). In some cases, governments require the use of these systems, especially in the public sector. However, in the private sector, their implementation is frequently left to businesses or social partners, sometimes as part of collective bargaining processes. Surprisingly, only about half of the European private sector conducts official job evaluations, and even fewer small and medium-sized enterprises (SMEs) use such systems. Inadequate evaluation procedures can lead to unfair compensation practices and missed opportunities for employee career advancement (European Commission, 2013).

Recent developments in the EU, such as the adoption of a new pay transparency directive on March 30, 2023 (Eurodev, 2024.), seek to address the persistent gender pay gap and improve transparency for job seekers. Despite equal pay being a founding principle of the European Union, the gender pay gap

remains a significant issue. A lack of pay transparency prevented the proper implementation and enforcement of equal pay principles throughout the EU. The new directive requires gender-neutral vacancy notices and job titles, as well as nondiscriminatory recruitment processes. Furthermore, if pay reporting reveals a gender pay gap of at least 5%, employers must conduct a joint pay assessment with employee representatives. Member states must establish "effective, proportionate, and dissuasive" penalties, such as fines, for employers who fail to follow these rules. Moreover, recent legislative initiatives at the European Union level highlight the importance of pay transparency and non-discriminatory recruitment practices in combating long-standing inequalities in the labour market. Through promoting pay transparency and fair recruitment practices, organizations can create a more inclusive and diverse workforce. This not only improves overall employees' satisfaction and retention but also enhances the organization's reputation as a socially responsible employer.

### **1.2.3. Exploring working time regimes**

Finally, understanding the complex relationship between working time regimes, such as part-time work, and the gender wage gap is critical for developing effective labour-market policies that promote gender equality.

Governments are increasingly being pressed to implement policies that promote work-life balance, particularly through the expansion of part-time employment, which has become increasingly common in Europe. As of 2022, 29.2% of women in Europe work part-time, a notable increase from 16% a decade ago (Cedefop, 2022; Matteazzi et al., 2017). However, the rise of part-time work poses significant challenges in addressing the gender earnings gap (ILO, 2018). Part-time workers, the majority of whom are women, tend to earn lower hourly wages (Fagan et al., 2014; Warren et al., 2010) and face limited opportunities for career advancement (Bettio & Verashchagina, 2009). Additionally, part-time jobs are often concentrated in lower-paid, feminized sectors, further exacerbating wage inequality (Antonie et al., 2020; Rubery & Koukiadaki, 2016).

Cross-national research has revealed distinct part-time employment patterns influenced by country-specific social policies, labour relations, and welfare regimes (Anxo et al., 2011, cited by Matteazzi et al., 2017). Nordic countries, for example, follow a "universal breadwinner" model, with high female employment rates in both full-time and long-term part-time jobs. In contrast, Mediterranean countries adhere to an "exit or full-time model," with low female employment rates and limited part-time opportunities.

Furthermore, the rise of non-standard employment (NSE) in many countries has highlighted the impact of various employment forms on gender disparities (ILO, 2008). Across several countries, large and persistent wage disparities exist between different types of contract holders. Besides, employees in precarious positions are subjected to lower protection by labour legislation and union membership because of higher turnover and lack of integration into collective bodies (Rubery and Grimshaw, 2011; Vosko et al., 2009). These disparities are particularly pronounced in industries such as retail, hospitality, and caregiving, where women are overrepresented in non-standard employment.

Part-time female employees frequently earn less than their male counterparts, despite having similar qualifications, contributing to the gender pay gap's persistence (Antonie et al., 2020). Matteazzi (2013) discovered empirical evidence that suggests a link between the prevalence of part-time employment and the width of the gender wage gap, with countries like Austria and Germany showing larger gaps where female part-time employment is higher. In contrast, Southern European countries with lower rates of female part-time employment tend to have smaller wage disparities. However, while part-time employment contributes significantly to the gender wage gap, its impact varies by country. Part-time work is common in Northern European countries such as Belgium and Austria, but it plays a secondary role in wage disparities when compared to countries like Spain and Italy, where it contributes more significantly.

Matteazzi et al. (2017) carried out an econometric investigation across European countries and discovered numerous similar trends. Women working part-time are typically separated into low-wage sectors and occupations, resulting in both vertical (within) and horizontal segregation (between jobs or sectors). This pattern explains the vast majority of compensation discrepancies (Xiu & Gunderson, 2014; Arulampalem, 2007) between full-time and part-time female employees. However, the same study discovered that the gender wage disparity is greater in countries where part-time employment is prevalent, this gap is mostly the result of observable traits rather than complete discrimination against part-time workers.

Meurs and Ponthieux (2015) also look at the progression of the French wage disparity from 1990 to 2002. Their findings indicate that disparities in working hours across genders account for a sizable share (60%) of the explained gender wage disparity throughout this period. Similarly, Gallen et al. (2009) also pointed out that a larger part of the GPG is explained by the fact women work fewer hours than men. Part-time work contributes to roughly 20% of the gender pay disparity in countries with a high frequency of part-time employment and a considerable gender salary gap. In contrast, it accounts for almost 40% of the gender salary disparity in countries where part-time employment is less common and the raw gender wage gap is lower (Matteazzi et al., 2017).

The gender dynamics of part-time work are also important to consider. Women are more likely to work part-time in order to balance paid employment with unpaid domestic and caregiving responsibilities. This "second shift" of unpaid labour creates significant barriers to women's career advancement and contributes to the persistent gender pay gap (Sullivan, 2019).





## CHAPTER 2 – METHODOLOGY

### 2.1. Research Objectives

In creating this study, I aimed to establish the most appropriate method and theoretical framework, in line with Campenhoudt's (1992) view that describing a problem is equivalent to offering an innovative solution. The research started with a comprehensive review of gender pay gap studies to understand the “state of the art”. This involved examining several sources to determine the most suitable approach, drawing from both qualitative and quantitative perspectives (Maxwell, 1996).

The primary objectives of this study are:

- To investigate the gender pay gap (the theoretical object) among European countries (the empirical object).
- To identify the key factors contributing to disparities in gender pay gaps, particularly concerning union density and coverage, job classification systems, and working time regimes.

Based on these objectives and exploratory research, the following hypotheses are considered relevant:

*Hypothesis 1:* Countries with lower gender pay gaps may have higher union coverage and density, leading to more equitable compensation through collective bargaining. Conversely, countries with larger gender pay gaps may have lower union density, allowing for greater employer discretion in salary determination.

*Hypothesis 2:* Countries with lower gender pay gaps may employ more advanced and transparent job evaluation and classification systems, promoting equitable compensation practices by enabling fairer comparisons of work value.

*Hypothesis 3:* Variations in the prevalence of part-time contracts, which are more likely to be held by women, may contribute to differences in gender pay gaps across countries. Countries with larger gender pay gaps may have higher rates of part-time employment compared to those with smaller gaps, where full-time employment is more common.

### 2.2. Research Methods

Due to the absence of a definitive theoretical framework, the grounded theory approach by Strauss and Corbin (2004) was adopted. Grounded theory is beneficial when no existing theory fully explains the phenomenon being studied (Thornberg & Dunne, 2019). This approach allows for the discovery of theories from data, making it well-suited for developing explanations through qualitative analysis (Glasser & Strauss, 1967).

The research design for this study combines qualitative and quantitative methods to provide a more holistic understanding of the research problem (ElHaffar et al., 2020; McMeekin et al., 2020). This mixed-methods approach allows for in-depth exploration of complex social phenomena, as well as the generation of empirical data to support the analysis.

As noted by Johnson et al., "Mixed-methods research involves the collection, analysis, and integration of both qualitative and quantitative data in a single study or a series of studies" (Bashir, 2017).

The qualitative analysis of the literature encompassed keyword-based searches across diverse interdisciplinary databases to ensure comprehensive coverage of relevant studies. Key data sources included organizations such as the European Parliament, European Unions, OECD, ETUI, Eurofound, the International Labour Organization, and the Confederation Syndicate European Trade Union.

The research was conducted through a series of four targeted searches, each focusing on a specific aspect:

*Table 2.1 - Research Topics and Keywords*

| Type of Research | Main Topic                 | Keywords  |
|------------------|----------------------------|---|
| General          | Gender Pay Gap             | gender pay gap, gender wage gap, and gender discrimination in the labour market.  |
| Topic Specific   | Union Density and Coverage | Trade unions and gender pay gap, collective agreements and gender equality Europe, collective bargaining and gender pay equality Europe, collective bargaining Europe, union density Europe, evolution of union density in Europe, trade unions and gender pay gap, how to measure trade unions strength, agreements addressing gender pay equity |
| Topic Specific   | Job Evaluation Systems     | Job evaluation and job classification in European countries, gender-neutral job evaluation and job classification Europe, job evaluation and classification Europe  |
| Topic Specific   | Working time schedules     | Part-time jobs and gender pay, atypical jobs and gender pay   |

To maintain precision while avoiding overly restrictive searches, no complex keyword combinations were used. The search was completed in April 2024, with no time constraints on the scope of the literature review.

### 2.3. Data Sources and Variables

This section outlines the key data sources used for analyzing the gender pay gap and the related factors in European countries. The data was gathered from reliable international institutions, including Eurostat, OECD, and the European Commission, to ensure consistency and accuracy. The study explores the relationship between gender pay gaps and three key factors: union density and coverage, job classification systems, and working time regimes (focusing on part-time employment).

#### *Gender Pay Gap (%) - Eurostat (2023)*

Gender pay gap data for the time frame 2018-2023 was extracted from the Eurostat statistics database. This data reflects the percentage differences between the average gross hourly earnings of men and women, highlighting wage disparities across the EU. Table 2.3 below shows the % of GPG across the time frame 2018-2023:

*Table 2.2 - Gender Pay Gap EU between 2018 and 2023 (own creation)*

| Country            | Gender pay gap 2018 | Gender pay gap 2019 | Gender pay gap 2020 | Gender pay gap 2021 | Gender pay gap 2022 | Gender pay gap 2023 |
|--------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| <b>Luxembourg</b>  | 1.4%                | 1.3%                | 0.7%                | -0.2%               | -0.7%               | -0.2%               |
| <b>Romania</b>     | 2.2%                | 3.3%                | 2.4%                | 3.6%                | 4.5%                | 3.6%                |
| <b>Slovenia</b>    | 9.3%                | 7.9%                | 3.1%                | 3.8%                | 8.2%                | 3.8%                |
| <b>Poland</b>      | 8.5%                | 8.5%                | 4.5%                | 6.2%                | 7.8%                | 4.5%                |
| <b>Belgium</b>     | 5.5%                | 4.7%                | 4.2%                | 5.0%                | 4.3%                | 5.0%                |
| <b>Italy</b>       | 5.8%                | 5.8%                | 5.3%                | 5.0%                | 5.0%                | 5.0%                |
| <b>Spain</b>       | 11.9%               | 11.9%               | 9.4%                | 8.7%                | 8.7%                | 8.9%                |
| <b>Cyprus</b>      | 10.4%               | 10.1%               | 10.1%               | 10.2%               | 10.2%               | 9.7%                |
| <b>Ireland</b>     | 11.3%               | 11.3%               | -                   | -                   | 9.9%                | 9.9%                |
| <b>Greece</b>      | 10.4%               | -                   | -                   | -                   | -                   | 10.4%               |
| <b>Malta</b>       | 13.0%               | 11.6%               | 10.0%               | 10.5%               | 10.2%               | 10.5%               |
| <b>Croatia</b>     | 11.4%               | 11.5%               | 11.2%               | 11.1%               | 12.5%               | 11.1%               |
| <b>Sweden</b>      | 12.1%               | 11.8%               | 11.2%               | 11.2%               | 11.1%               | 11.2%               |
| <b>Portugal</b>    | 8.9%                | 10.6%               | 11.4%               | 11.8%               | 12.5%               | 11.9%               |
| <b>Lithuania</b>   | 14.0%               | 13.3%               | 13.0%               | 12.0%               | 12.0%               | 12.0%               |
| <b>Bulgaria</b>    | 13.9%               | 14.1%               | 12.7%               | 12.2%               | 13.0%               | 12.2%               |
| <b>Netherlands</b> | 14.7%               | 14.6%               | 14.2%               | 13.5%               | 13.0%               | 13.5%               |

|                 |       |       |       |       |       |       |
|-----------------|-------|-------|-------|-------|-------|-------|
| <b>Denmark</b>  | 14.6% | 14.0% | 13.9% | 14.2% | 13.9% | 14.2% |
| <b>Latvia</b>   | 19.6% | 21.2% | 22.3% | 14.6% | 17.1% | 14.6% |
| <b>Czechia</b>  | 20.1% | 18.9% | 16.4% | 15.0% | 17.9% | 15.0% |
| <b>France</b>   | 16.7% | 16.5% | 15.8% | 14.7% | 13.9% | 15.4% |
| <b>Finland</b>  | 16.9% | 16.6% | 16.7% | 16.5% | 15.5% | 16.5% |
| <b>Slovakia</b> | 19.8% | 18.4% | 15.8% | 16.6% | 17.7% | 16.6% |
| <b>Hungary</b>  | 14.2% | 18.2% | 17.2% | 17.3% | 17.5% | 17.3% |
| <b>Germany</b>  | 20.1% | 19.2% | 18.3% | 17.6% | 17.7% | 17.6% |
| <b>Austria</b>  | 20.4% | 19.9% | 18.9% | 18.8% | 18.4% | 18.8% |
| <b>Estonia</b>  | 21.8% | 21.7% | 21.1% | 20.5% | 21.3% | 20.5% |

*Union Density - OECD (2023)*

Union density data, which represents the proportion of employees who are members of a trade union, was sourced from the OECD ICTWSS database and is displayed in Figure 2.1 below. This variable will be used to explore the relationship between union representation and gender pay inequality.

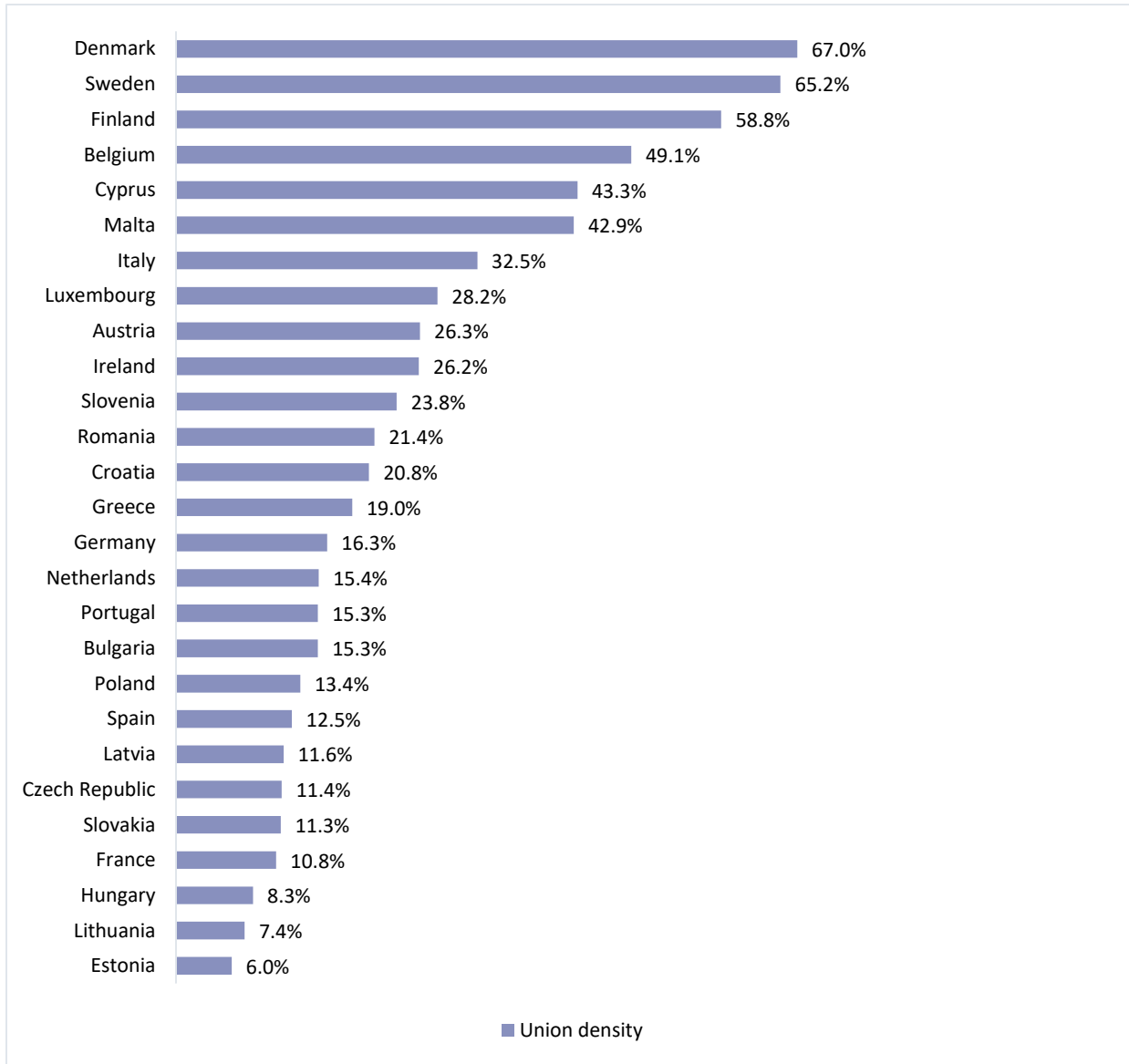


Figure 2.1 - Union Density % EU (own creation)

*Collective Bargaining Coverage and Level - OECD (2023)*

Data on the proportion of workers covered by collective bargaining agreements was sourced from the OECD ICTWSS database. The OECD also provides data on the level at which collective bargaining occurs (company, industry, national) which impacts the effectiveness of Collective Bargaining. These metrics provide insight into the influence of collective bargaining on wage-setting mechanisms across countries and are present in Figures 2.2 and 2.3 below.

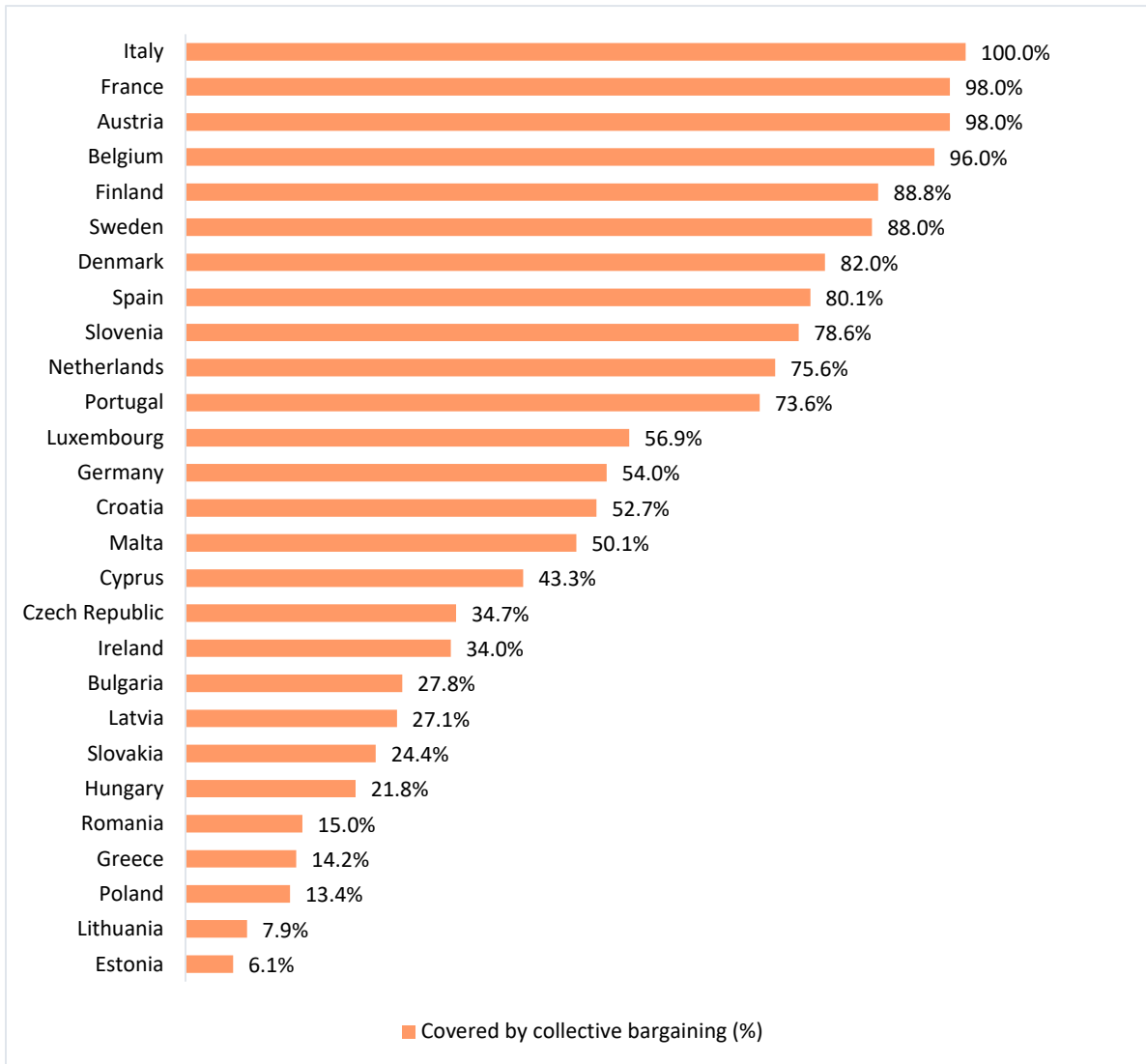


Figure 2.2 - Collective Bargaining Coverage % EU (own creation)

Table 2.3 - Collective Bargaining Level EU (own creation)

| Collective Bargaining Coverage (%) and Level |             |                      |                       |
|--|-------------|----------------------|-----------------------|
| Company                                      | Industry    | Industry and Company | National and Industry |
| Estonia                                      | Germany     | Greece               | Belgium               |
| Lithuania                                    | Portugal    | Romania              |                       |
| Poland                                       | Netherlands | Slovakia             |                       |
| Hungary                                      | Slovenia    | Bulgaria             |                       |
| Latvia                                       | Spain       | Czech Republic       |                       |
| Ireland                                      | Denmark     | Cyprus               |                       |
| Malta  | Sweden      | Croatia              |                       |
|  | Finland     | Luxembourg           |                       |
|  | Austria     |                      |                       |
|  | France      |                      |                       |
|  | Italy       |                      |                       |

*Gender Equality on Agenda (Collective Bargaining) - OECD (2021)*

Information regarding the inclusion of gender equality topics in collective bargaining agendas was sourced from the OECD ICTWSS database and is presented in Table 2.3. The n.a. results mean that there is no information available for these countries. This variable is relevant for understanding whether gender equality initiatives are formally addressed in labour negotiations.

Table 2.4 - Gender Equality Status EU (own creation)

| Gender equality on the agenda |             |             |          |
|-------------------------------|-------------|-------------|----------|
| Mandatory                     | In progress | Not in Use  | n.a.     |
| Belgium                       | Spain       | Luxembourg  | Romania  |
| Sweden                        | Germany     | Slovenia    | Cyprus   |
| France                        | Austria     | Poland      | Malta    |
|                               |             | Italy       | Croatia  |
|                               |             | Ireland     | Bulgaria |
|                               |             | Greece      |          |
|                               |             | Portugal    |          |
|                               |             | Lithuania   |          |
|                               |             | Netherlands |          |
|                               |             | Denmark     |          |
|                               |             | Latvia      |          |
|                               |             | Czechia     |          |
|                               |             | Finland     |          |
|                               |             | Slovakia    |          |
|                               |             | Hungary     |          |
|                               |             | Estonia     |          |

*Job Classification Schemes - OECD (2021)*

Data on job evaluation and classification schemes was sourced from the OECD. These schemes categorize jobs based on skill, responsibility, and other criteria, and their transparency can influence gender pay gaps by ensuring fair comparisons of work value. In table 2.5. we can identify if these are applied in each country and if so, in which sector (public or private or both). For the n.a., these are countries to which there is no information available (Bulgary, Croatia, Malta, Romania and Cyprus) or which they did not reply to this question in the survey (Estonia, Greece and Slovenia).

*Table 2.5 - Job Classification Sector EU (own creation)*

| <b>Job Classification Sector</b> |               |                           |                   |             |
|----------------------------------|---------------|---------------------------|-------------------|-------------|
| <b>Private</b>                   | <b>Public</b> | <b>Public and Private</b> | <b>Not in Use</b> | <b>n.a.</b> |
| Belgium                          | Hungary       | Finland                   | Denmark           | Estonia     |
| Luxembourg                       | Italy         | France                    | Ireland           | Greece      |
| Slovakia                         | Latvia        | Germany                   |                   | Slovenia    |
|                                  | Lithuania     | Portugal                  |                   | Bulgaria    |
|                                  | Netherlands   | Spain                     |                   | Croatia     |
|                                  | Poland        |                           |                   | Malta       |
|                                  | Sweden        |                           |                   | Romania     |
|                                  |               |                           |                   | Cyprus      |

**Part-Time Employment (%) - European Commission (2022)**

Data on the percentage of part-time employment, which is more frequently held by women, was obtained from the European Commission and is highlighted below in Figure 2.3. This variable will be used to examine the potential link between part-time work and gender pay disparities.



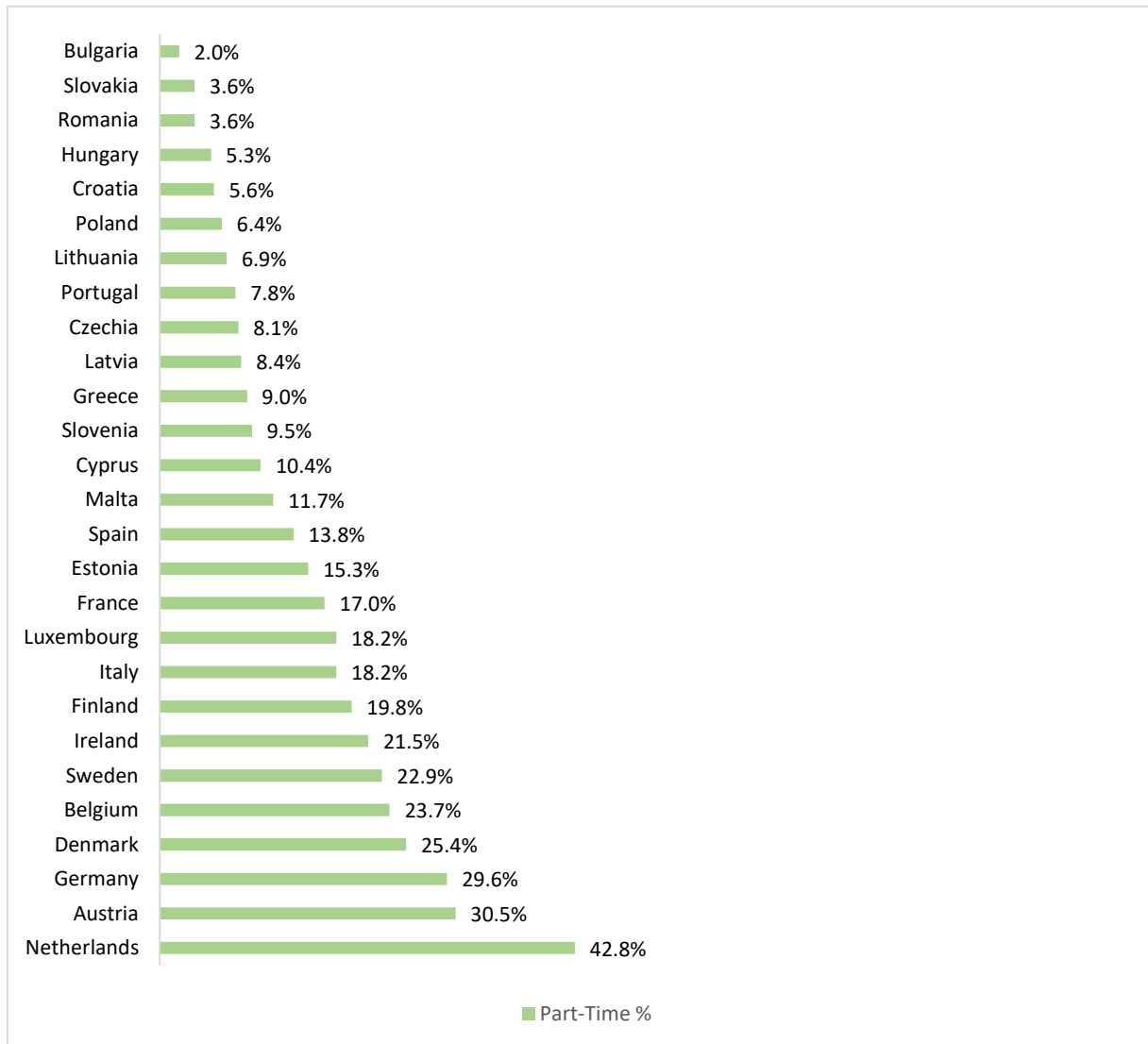


Figure 2.3 - Part-time % EU (own creation)

## 2.4. Statistical Analysis

To assess the relationships between the gender pay gap and the variables mentioned above, both Pearson correlation and ETA analyses were employed. This technique will be used to determine the strength of the link between variables.

### 2.4.1. Person Correlation

Pearson correlation was used to measure the strength and direction of the linear relationship between the gender pay gap and each of the quantitative variables, such as union density and part-time employment rates. Pearson correlation is commonly used when the goal is to assess how strongly two continuous variables are associated. This method calculates the extent to which increases or decreases in

one variable (e.g., union density) are associated with increases or decreases in another variable (e.g., the gender pay gap).

The Pearson correlation coefficient ( $r$ ) ranges from -1 to 1, where  $r=1$  indicates a perfect positive linear relationship (as one variable increases, the other increases),  $r = -1$  indicates a perfect negative linear relationship (as one variable increases, the other decreases) and  $r = 0$  suggests no linear relationship between the two variables.

Pearson correlation was calculated using Excel's CORREL or PEARSON.

#### **2.4.2. ETA Analysis**

ETA was used to determine the relation between the categorical variables (e.g., collective bargaining levels, and job classification schemes) and the gender pay gap. This technique is especially useful when examining the association between these types of variables (Field, 2018).

The formula for the ETA coefficient is:

(2.1)

$$\eta = \sqrt{\frac{SSB}{SST}}$$

Where:

- $\eta$  = ETA coefficient
- SSB = Sum of squares between the groups (variation between categories)
- SST = Total sum of squares (total variation)

## **CHAPTER 3 – RESULTS**

The 3<sup>rd</sup> Chapter presents the findings of my investigation of the gender pay gap in European countries, with an emphasis on three topics: union coverage and density, job evaluation and categorization systems, and working time regimes. Data were gathered from a variety of secondary sources, including national labour data, EU reports, and academic research. The study seeks to discover trends and connections that could explain variances in gender wage discrepancies.

### **3.1. Union Density and Coverage**

#### **3.1.1. Union Density**

Higher union density is typically connected with more egalitarian wage practices and fewer gender pay discrepancies. However, union density is not the only indicator of union strength and impact. In France, unions have repeatedly demonstrated that, despite low levels of membership, they can mobilize workers in mass actions, and, as in Germany and Spain, two other countries with low-density levels, support for unions is evident in the election of workplace representatives.

Figure 3.1 below displays the analysis of union density and gender pay gap across European countries and shows notable variations, with clear patterns emerging when grouping countries by region (Nordic, Southern Europe, Eastern Europe, etc.). These groupings provide insight into the role that regional labour market structures and policies play in shaping gender pay inequalities.

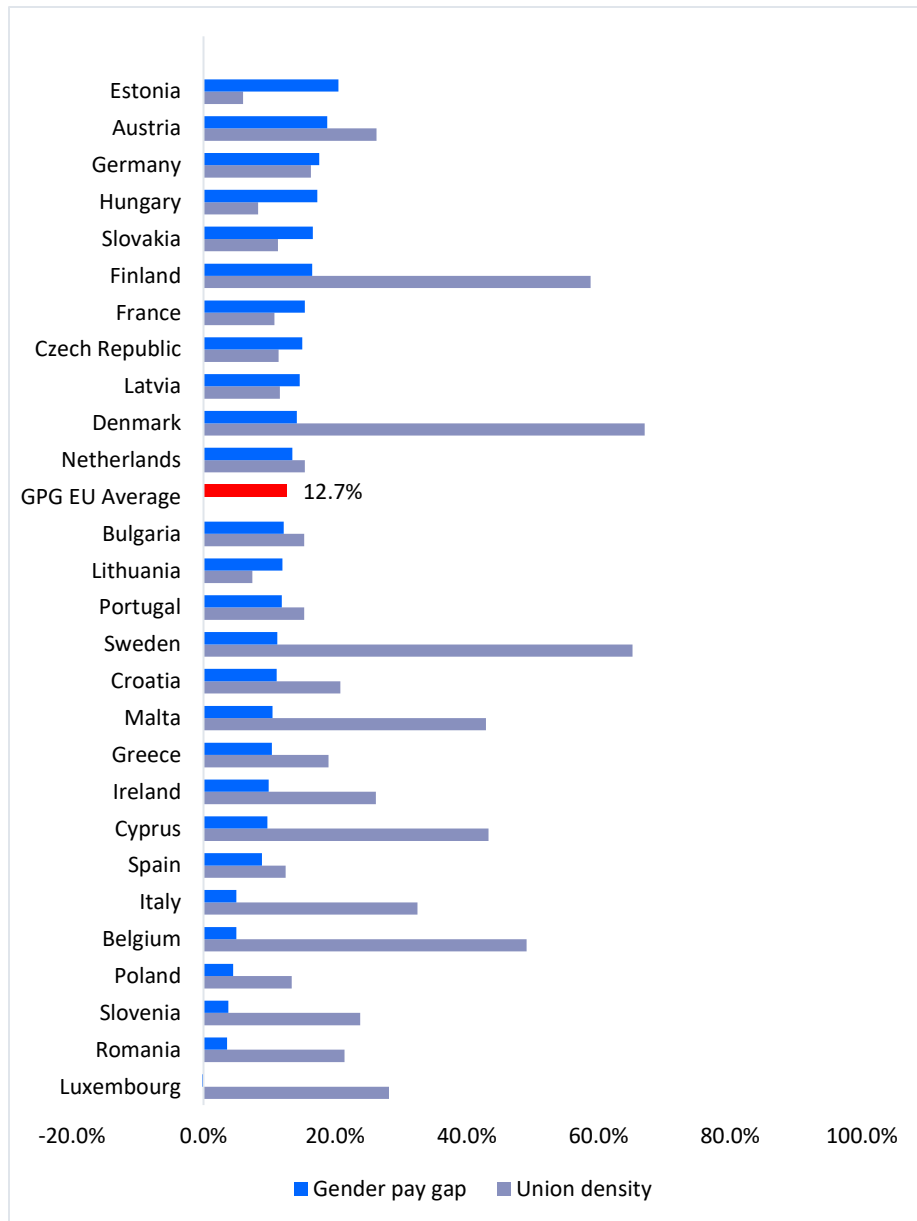


Figure 3.1 - Union Density (OECD, 2023) vs. Gender Pay Gap (own creation)

- Nordic Countries

Nordic countries are known for their strong labour unions. Countries like Sweden (Union Density: 65.20%, GPG: 11.20%), Finland (Union Density: 58.80%, GPG: 16.50%), and Denmark (Union Density: 67.20%, GPG: 14.2%) exemplify this trend, with high union densities. Although, only Sweden has a GPG below the EU average (12,70%).

- Southern Europe

Southern European countries, such as Italy (Union Density: 32.5%, GPG: 5%), Spain (Union Density: 12.5%, GPG: 9.9%), Portugal (Union Density: 23.1%, GPG: 11.9%), and Greece (Union Density: 19%, GPG: 10.4%), tend to show moderate union densities but lower gender pay gaps compared to Nordic countries. In these countries, union density hovers around or below the European average, and gender pay gaps are generally lower than in Eastern Europe.

- Eastern Europe

Countries in Eastern Europe, including Estonia (Union Density: 6%, GPG: 20.5%), Latvia (Union Density: 11.6%, GPG: 14.6%), Hungary (Union Density: 8.3%, GPG: 17.3%), and Slovakia (Union Density: 11.3%, GPG: 16.6%), tend to exhibit both lower union densities and higher gender pay gaps compared to other regions.

In these countries, the weaker union presence might allow employers greater flexibility in wage-setting practices, which could contribute to the significant gender pay gaps observed.

- Western and Central Europe

Countries in Western and Central Europe, like Germany, France (Union Density: 10.8%, GPG: 15.4%), Belgium (Union Density: 49.1%, GPG: 5%) and the Netherlands (Union Density: 15.4%, GPG: 13.5%), display a mix of union density levels and gender pay gaps, with some countries demonstrating relatively equitable outcomes, while others, like Germany (Union Density: 16.3%, GPG: 17.6%), still struggle with notable disparities.

In Germany and France, relatively low union density is accompanied by persistent gender pay gaps, indicating that labour market structures or cultural factors may be influencing these disparities. In contrast, Belgium shows a strong union density and a correspondingly low gender pay gap.

- Low Union Density, Low Gender Pay Gap (Outliers)

Some countries, such as Luxembourg (Union Density: 28.2%, GPG: -0.2%), Romania (Union Density: 21.4%, GPG: 3.6%), and Slovenia (Union Density: 23.8%, GPG: 3.8%), present exceptions to the overall trends. These countries have low union densities but also feature very small gender pay gaps.

### **3.1.1.1. Pearson Correlation Analysis: Union Density and Gender Pay Gap**

The Pearson correlation coefficient between union density and the gender pay gap across EU countries was calculated to be  $r = -0.177$ . This negative value indicates an inverse relationship, suggesting that as union density increases, the gender pay gap tends to decrease. However, the strength of this correlation is weak, as the coefficient lies within the range classified as weak ( $-0.3 \leq r < -0.1$ ).

### **3.1.2. Collective Bargaining Coverage and Level**

Collective bargaining, facilitated by strong unions, is an important component in reducing pay gaps, particularly gender inequality (Gould & McNicholas, 2020; European Commission, 2010). The proportion of employees affected by collective bargaining, known as coverage, is one indicator of its relevance. Collective bargaining covers six out of ten employees (60%) across the EU, with significant differences across countries. It becomes apparent that certain countries have extremely high levels of collective bargaining coverage (about 80% or higher), which is far higher than union density. In most cases, this reflects the distinctive legal structure for collective bargaining in each country. Collective bargaining occurs at three levels: company, industry, and national. Analyzing the relationship between collective bargaining coverage and the gender pay gap across European countries, illustrated in Figure 3.2, reveals interesting trends when organized by region.

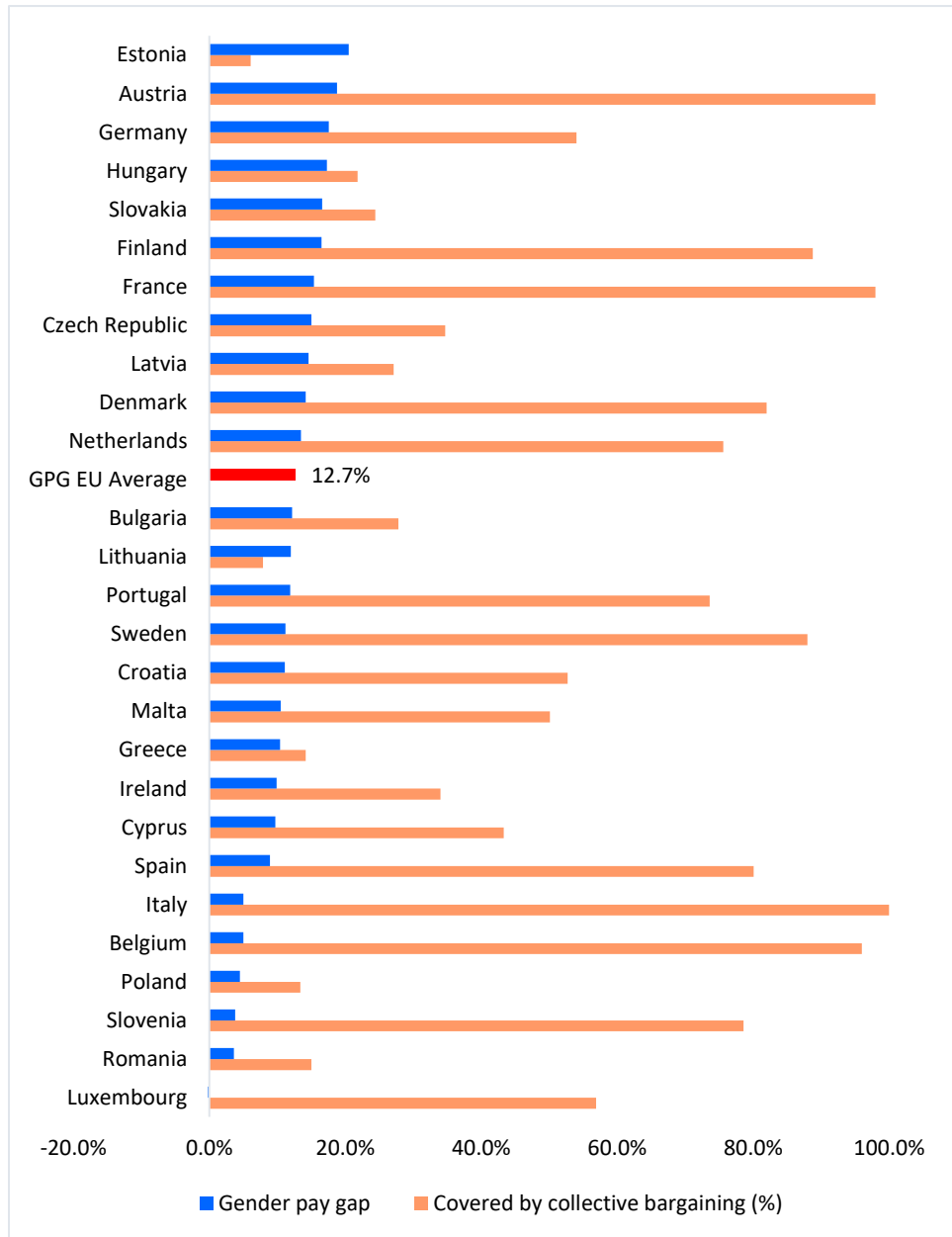


Figure 3.2 - Collective Bargaining Coverage (OECD, 2023) vs. Gender Pay Gap (own creation)

- Nordic Countries

Nordic countries are characterized by high collective bargaining coverage, and they generally show low to moderate gender pay gaps, reinforcing the importance of broad labour representation in wage negotiations. Sweden has a high collective bargaining coverage of 88% and a relatively low gender pay gap of 11.2%. Finland similarly shows strong collective bargaining coverage at 88.8% with a moderate gender pay gap of 16.5%. Denmark also has a high collective bargaining coverage of 82%, paired with a gender pay gap of 14.2%. This high coverage suggests that collective bargaining plays a significant role in

promoting wage equality in the Nordic region, as a large portion of the workforce benefits from negotiated wages.

- Southern Europe

Southern European countries present a more varied picture, with collective bargaining coverage levels ranging from low to high and gender pay gaps tending to fall around or below the European average.

Italy and Spain stand out with very high collective bargaining coverage of 100% and 80.1%, respectively. Italy's gender pay gap is quite low at 5%, while Spain's is moderately low at 9.9%.

Portugal (73.6% collective bargaining coverage, GPG: 11.9%) and Greece (14.2% collective bargaining coverage, GPG: 10.4%) illustrate that even when collective bargaining coverage is limited, gender pay gaps remain moderate, perhaps reflecting other labour market policies in play.

- Eastern Europe

Eastern European countries tend to exhibit lower collective bargaining coverage, which is often associated with higher gender pay gaps. This pattern is consistent with the notion that weaker labour representation may allow for greater wage inequality. Estonia shows very low collective bargaining coverage (6.1%) and the highest gender pay gap in the region (20.5%). Hungary (coverage: 21.8%, GPG: 17.3%) and Slovakia (coverage: 24.4%, GPG: 16.6%) also demonstrate a pattern of low bargaining coverage and higher-than-average gender pay gaps. Latvia and Lithuania, both with low bargaining coverage (27.1% and 7.9%, respectively), exhibit lower gender pay gaps (14.6% and 12%) compared to the rest of the countries in this region.

- Western and Central Europe

In Western and Central Europe, the relationship between collective bargaining coverage and the gender pay gap is more nuanced, with some countries demonstrating low gender pay gaps despite high coverage, while others still struggle with disparities. Germany shows moderate collective bargaining coverage at 54%, but a relatively high gender pay gap of 17.6%, suggesting that factors beyond collective agreements, such as job classification or labour market segregation, may be influencing wage disparities.

France has a 98% collective bargaining coverage rate and a gender pay gap of 15.4%. Belgium, with 96% of workers covered by collective agreements, demonstrates one of the smallest gender pay gaps in the region at 5%. This region illustrates that while strong collective bargaining coverage is generally associated with lower gender pay gaps, other country-specific labour market characteristics also play a significant role.



- Low Collective Bargaining Coverage, Low Gender Pay Gap (Outliers)

Some countries, such as Luxembourg, Romania, and Slovenia, stand out as exceptions, where low collective bargaining coverage is accompanied by low gender pay gaps. Luxembourg (28.2% coverage, GPG: -0.2%) demonstrates that even with low bargaining coverage, wage parity is achievable, likely due to strong wage-setting policies. Romania (15% coverage, GPG: 3.6%) and Slovenia (78.6% coverage, GPG: 3.8%) similarly present low gender pay gaps despite their relatively lower bargaining coverage.

These outliers suggest that while collective bargaining plays a crucial role in shaping wage structures, other policy interventions or labour market dynamics can also promote wage equity.

### 3.1.2.1. Pearson Correlation Analysis: Collective Bargaining Coverage and Gender Pay Gap

The Pearson correlation coefficient between collective bargaining coverage and the gender pay gap across EU countries was found to be  $r = -0.080$ . This negative coefficient suggests a weak, inverse relationship, indicating that as collective bargaining coverage increases, the gender pay gap tends to decrease. However, the strength of this correlation is weak.

### 3.1.3. Gender Equality in Collective Agreements

Including gender equality as a significant theme in collective bargaining is critical for closing the gender pay gap. When gender equality is explicitly on the agenda, pay differences between men and women are consistently addressed rather than ignored. This integration may result in targeted initiatives such as pay audits, equal pay for equal work rules, and family-friendly work arrangements that benefit both male and female employees. This analysis focuses on whether gender equality is explicitly included in collective agreements, categorized as "Mandatory," "In Progress," "Not in Use," or "N/A" (no information available), and its potential effect on gender pay gaps across European countries. Table 3.1 below shows the Gender Equality in Collective Agreements status per country and correspondent GPGs %.

Table 3.1 - Gender Equality on Agenda (OECD, 2021) vs. Gender Pay Gap (own creation)

| Gender Equality on Agenda vs. Gender Pay Gap % |       |             |       |             |       |          |       |
|--|-------|-------------|-------|-------------|-------|----------|-------|
| Mandatory                                      |       | In progress |       | Not in Use  |       | n.a.     |       |
| Belgium  | 5.0%  | Spain       | 8.9%  | Luxembourg  | -0.2% | Romania  | 3.6%  |
| Sweden   | 11.2% | Germany     | 17.6% | Slovenia    | 3.8%  | Cyprus   | 9.7%  |
| France   | 15.4% | Austria     | 18.8% | Poland      | 4.5%  | Malta    | 10.5% |
|  |       |             |       | Italy       | 5.0%  | Croatia  | 11.1% |
|  |       |             |       | Ireland     | 9.9%  | Bulgaria | 12.2% |
|  |       |             |       | Greece      | 10.4% |          |       |
|  |       |             |       | Portugal    | 11.9% |          |       |
|  |       |             |       | Lithuania   | 12.0% |          |       |
|  |       |             |       | Netherlands | 13.5% |          |       |
|  |       |             |       | Denmark     | 14.2% |          |       |
|  |       |             |       | Latvia      | 14.6% |          |       |
|  |       |             |       | Czechia     | 15.0% |          |       |
|  |       |             |       | Finland     | 16.5% |          |       |
|  |       |             |       | Slovakia    | 16.6% |          |       |
|  |       |             |       | Hungary     | 17.3% |          |       |
|  |       |             |       | Estonia     | 20.5% |          |       |

- Nordic Countries

Nordic countries show a mixed commitment to gender equality in their collective agreements.

Sweden has a mandatory gender equality agenda and a gender pay gap of 11.20%. The mandatory nature of gender equality provisions in collective agreements likely helps to keep the gap relatively low, though some disparities remain.

Finland and Denmark, which don't include gender equality topics in their collective agreements, exhibit higher gender pay gaps of 16.50% and 14.20%, respectively.

- Southern Europe

Southern European countries show a mix of approaches to gender equality in collective agreements, ranging from "In Progress" to "Not in Use." Gender pay gaps in these countries vary accordingly.

Spain (In Progress: 8.9%) and Italy (Not in Use: 5%) both show relatively low gender pay gaps, with Spain working toward formalizing gender equality in agreements. Despite Italy not having such measures in place, its gender pay gap remains low, suggesting other social or economic policies are mitigating wage inequality. Portugal (Not in Use: 11.9%) and Greece (Not in Use: 10.4%) demonstrate moderate gender pay gaps without formal gender equality provisions in collective agreements.

#### - Eastern Europe

Eastern European countries generally lack formal gender equality provisions in collective agreements, which is reflected in their higher gender pay gaps. Estonia (N/A) continues to have the highest gender pay gap in Europe at 20.5%, with no gender equality initiatives on the agenda, suggesting a strong need for structured gender policies to address pay disparities. Hungary (N/A: 17.3%) and Slovakia (N/A: 16.6%) similarly show high gender pay gaps, with no formalized gender equality policies in collective agreements.

#### - Western and Central Europe

Countries in Western and Central Europe display varying approaches to gender equality in collective agreements, with some making significant strides and others falling behind. Belgium (Mandatory: 5%) demonstrates one of the smallest gender pay gaps in Europe, where the inclusion of gender equality in collective agreements appears to play a key role in mitigating wage disparities. France (Mandatory: 11.2%) also includes mandatory gender equality topics in collective agreements, though its gender pay gap is higher than Belgium's, and is still below the EU average (12.70%).

Germany (In Progress: 17.6%) and Austria (In Progress: 18.8%) show high gender pay gaps despite efforts to include gender equality on the agenda. This indicates that while initiatives are in progress, additional measures may be needed to address wage disparities effectively.

#### - Low Gender Pay Gap, No Gender Equality Provisions (Outliers)

Some countries, such as Luxembourg and Romania, show that even in the absence of formal gender equality provisions in collective agreements, they have managed to achieve low gender pay gaps.

Luxembourg (Not in Use: -0.2%) presents the lowest gender pay gap, suggesting that other economic or policy factors contribute to its wage parity, even without gender equality being explicitly addressed in collective agreements. Romania (N/A: 3.6%) similarly has a low gender pay gap, despite the lack of information on the formal agenda for gender equality present in collective agreements.

### **3.1.3.1. ETA Analysis**

The ETA analysis reveals that the status of gender equality on the agenda ('Mandatory,' 'In Progress,' or 'Not in Use') has a moderate influence on the gender pay gap, with an ETA value of 0.2137.

This moderate association indicates that the presence of gender equality measures in collective agreements contributes to the gender pay gap, but it is far from the only influencing factor. With nearly 95% of the variance still unexplained, it suggests that additional factors, such as cultural, economic, and structural elements, are likely playing a more significant role in determining the gender pay gap in

European countries. It is important to note that countries categorized as 'N/A,' for which no information on gender equality in collective agreements was available, were excluded from the analysis.

### 3.2. Job Evaluation and Classification System

The concept of pay transparency has been highlighted as a key tool for reducing the gender wage gap. Job evaluation and classification systems, which provide structured frameworks for assessing and categorizing work, are critical components in ensuring equitable pay practices.

These systems vary significantly across European countries in terms of their implementation and scope. While more advanced and transparent job evaluation systems are often associated with reducing gender pay gaps, their presence alone does not guarantee equitable outcomes. In this second topic's outcomes, I will explore how the use of job classification systems, whether in the public, private, or both sectors, relates to gender pay gaps across European countries. By analyzing the data across these categories, we can observe patterns that indicate the impact of job classification systems on wage disparities, as highlighted in Table 3.2.

Table 3.2 - Job Classification Sector vs. Gender Pay Gap (own creation)

| Job Classification Sector vs. Gender Pay Gap |       |             |       |                    |       |            |       |          |       |
|--|-------|-------------|-------|--------------------|-------|------------|-------|----------|-------|
| Private                                      |       | Public      |       | Public and Private |       | Not in Use |       | n.a.     |       |
| Luxembourg                                   | -0.2% | Poland      | 4.5%  | Spain              | 8.9%  | Ireland    | 9.9%  | Romania  | 3.6%  |
| Belgium                                      | 5.0%  | Italy       | 5.0%  | Portugal           | 11.9% | Denmark    | 14.2% | Slovenia | 3.8%  |
| Slovakia                                     | 16.6% | Sweden      | 11.2% | France             | 15.4% |            |       | Cyprus   | 9.7%  |
|  |       | Lithuania   | 12.0% | Finland            | 16.5% |            |       | Greece   | 10.4% |
|  |       | Netherlands | 13.5% | Germany            | 17.6% |            |       | Malta    | 10.5% |
|  |       | Latvia      | 14.6% |                    |       |            |       | Croatia  | 11.1% |
|  |       | Czechia     | 15.0% |                    |       |            |       | Bulgaria | 12.2% |
|  |       | Hungary     | 17.3% |                    |       |            |       | Estonia  | 20.5% |
|  |       | Austria     | 18.8% |                    |       |            |       |          |       |

#### - Nordic Countries

Nordic countries often serve as models for gender equality, but their gender pay gaps reveal varying outcomes depending on job classification structures.

Sweden (Public: 11.2%) and Finland (Public and Private: 16.5%) show relatively moderate gender pay gaps despite their strong social welfare systems and focus on gender equality. The presence of job classification systems in both the public and private sectors suggests that while classification frameworks exist, they may not be sufficient to eliminate pay disparities.

Denmark (Not in Use: 14.2%), with no formal job classification systems, shows a similar gender pay gap to Sweden and Finland, indicating that other factors may be driving wage inequality in the region.

- Southern Europe

Southern European countries present a mix of public and private sector job classifications, with varying gender pay gaps. Spain (Public and Private: 8.9%) and Portugal (Public and Private: 11.9%) both use classification systems in both sectors and have relatively low gender pay gaps. This suggests that a dual-sector approach may help mitigate disparities to some extent. Italy (Public: 5%) has a significantly lower gender pay gap than its regional counterparts, likely due to its focus on public sector classification systems, which may provide more equitable wage structures within government jobs.

- Eastern Europe

In Eastern Europe, the relationship between job classification systems and gender pay gaps varies, but the overall trend is toward higher pay gaps where classification systems are less structured.

Slovakia (Private: 16.6%) and Hungary (Public: 17.3%) both exhibit high gender pay gaps, suggesting that classification systems, whether in the public or private sector, may not be effectively addressing wage disparities. Lithuania (Public: 12%) and Czechia (Public: 15%) show moderate to high pay gaps, indicating that public sector job classifications alone may not be enough to close the gap.

- Western and Central Europe

Western and Central European countries demonstrate a broad range of job classification structures, with varying impacts on gender pay gaps.

Belgium (Private: 5%) and France (Public and Private: 15.4%) provide contrasting examples. Belgium's focus on private sector classifications appears to help reduce the gender pay gap significantly, while France, despite having classification systems in both sectors, still shows a relatively high gender pay gap. Germany (Public and Private: 17.6%) has one of the highest gender pay gaps in the region, even with job classification systems in place across both sectors. This highlights that classification systems alone may not be sufficient without other supporting policies.

- Low Gender Pay Gap, No Formal Job Classifications (Outliers)

Some countries, such as Luxembourg and Romania, show that even in the absence of formal job classification systems or where the systems are unclear, they maintain low gender pay gaps.

Luxembourg (Private: -0.2%) shows the smallest (even negative) gender pay gap, suggesting that other structural or policy factors may contribute to wage parity, regardless of sector-specific classifications.

Romania (N/A: 3.6%) has a similarly low gender pay gap, despite no formal job classification systems, indicating that other policies or cultural norms may be influencing wage equity.

### **3.2.1. ETA Analysis**

The result of the ETA shows that the job classification sector (whether the job classification schemes are applied in the Private, Public, or in sectors) has a moderate to strong effect on the gender pay gap in these countries. The ETA value of 0.4361 suggests that job classification schemes have a role in shaping gender pay disparities.

This result highlights the importance of how jobs are classified and evaluated across sectors. Countries with comprehensive job classification systems—particularly those covering both the public and private sectors—tend to have lower gender pay gaps, but the effect is still limited. While the ETA value shows that job classification schemes matter, it also underscores those other factors, such as industry, regional policies, or social norms, may influence gender wage disparities as well. It is important also to note that countries categorized as 'N/A,' for which no information on job classification systems application was available, were excluded from the analysis.

### **3.3. Working Time Regimes**

The final topic is the working time regimes, specifically the proportion of part-time employees in different European countries. Countries across Europe exhibit varying levels of both part-time employment and gender pay gaps. A clear trend emerges where countries with higher part-time employment rates often display more significant gender pay gaps, although there are notable exceptions. Figure 3.3, below, illustrates the relation between part-time % and the gender pay gap in the EU.

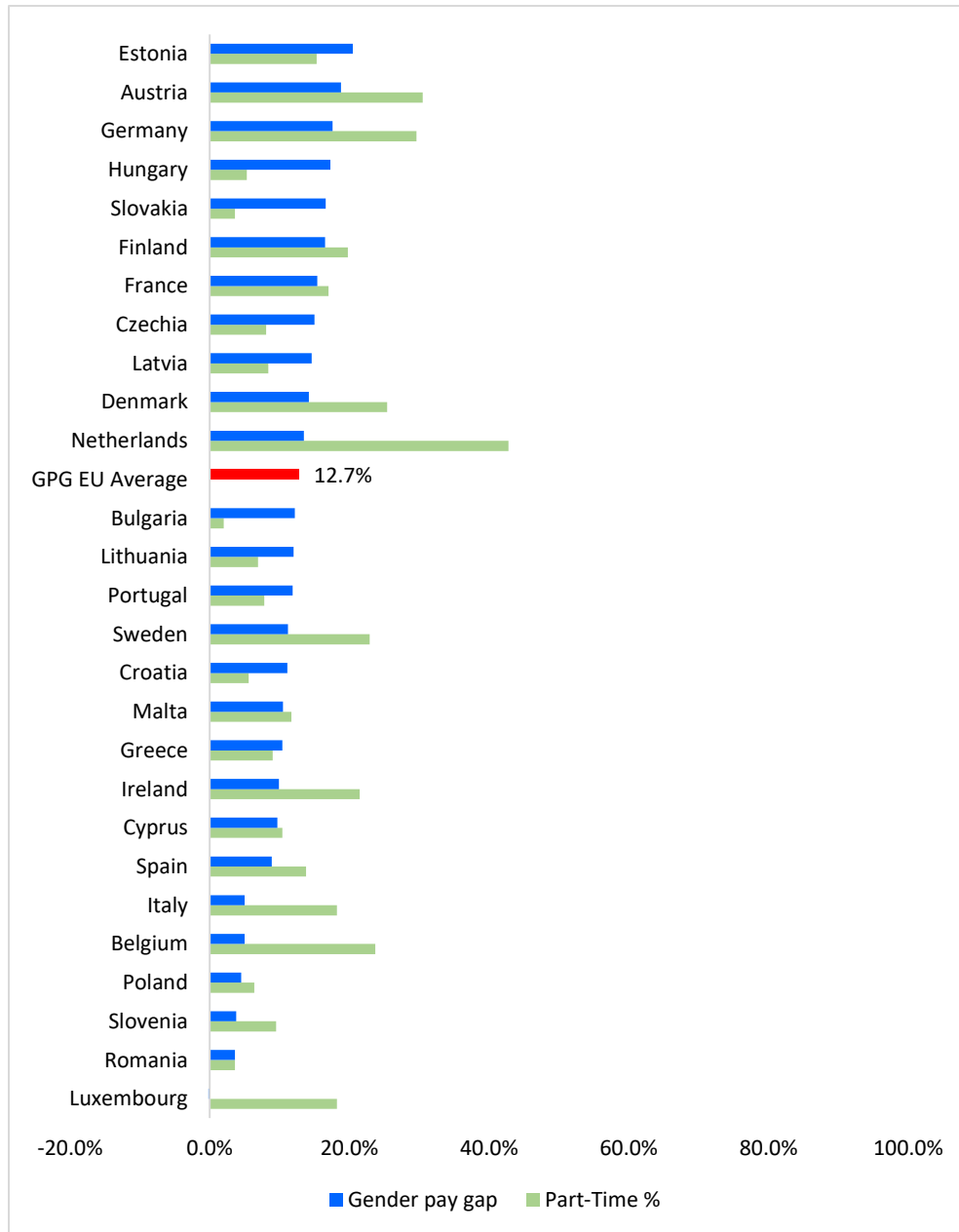


Figure 3.3 - Part-time (European Commission, 2022) vs. Gender Pay Gap (own creation)

- Nordic Countries

Denmark, Sweden, and Finland generally show higher part-time employment rates (Sweden 22.90%) and relatively high gender pay gaps (Denmark 14.20%, Finland 16.50%, Sweden 11.20%).

- Western/Central European Countries

In this group, all countries have relatively high part-time employment rates and high/above-average GPGs.

- Southern European Countries

In Southern Europe, part-time employment is generally lower (Spain 13.80%, Greece 9.00%) and so are gender pay gaps in some cases. Italy and Portugal (part-time rates: 18.20% and 7.80%) both exhibit below the average GPGs (5.00% for Italy and 11.90% for Portugal). Here, lower part-time work combined with strong employment protections likely keeps the gender pay gap closer to the average.

- Eastern European Countries

Eastern European countries generally exhibit lower part-time employment rates and moderate-to-low gender pay gaps. Poland stands out with both low part-time employment (6.40%) and a low GPG (4.50%), while Hungary and Slovakia show higher GPGs (17.30% and 16.60%) despite moderate part-time rates (5.00% and 3.60%).

- Outliers

Both Luxembourg and Romania exhibit very low gender pay gaps (-0.20% and 3.6 %) despite mixed part-time employment rates (18,20% and 3.60%. These countries might benefit from broader policies unrelated to part-time work, such as strong employment and wage regulations across both genders.

### **3.3.1. Person Correlation Analysis: Working Time Regimes and Gender Pay Gap**

The Pearson correlation coefficient between part-time employment and the gender pay gap across EU countries was calculated to be  $r = 0.174$ . This positive coefficient indicates a direct relationship, suggesting that as part-time employment increases, the gender pay gap also tends to increase. The strength of this correlation is weak to moderate.

### **3.4. Results Overview**

Table 3.3 below displays the overview of the results for all categories. The GPG column is coloured green for below the average and red for above the average (12.70%). The union density %, collective bargaining coverage % and part-time % were coloured in a gradient from green to red according to the amounts, to facilitate the identification of any trends.



| Data Base   | Eurostat (2023) | OECD (2023)   | OECD (2023)                 | OECD (2023)                 | OECD (2023)               | OECD (2023)                | OECD (2023)              | OECD (2021) | European Commission (2022) |
|-------------|-----------------|---------------|-----------------------------|-----------------------------|---------------------------|----------------------------|--------------------------|-------------|----------------------------|
| Country     | Gender pay gap  | Union density | Collective Bargaining cover | Collective Bargaining level | Gender equality on agenda | Job Classification Schemes | Part-time employment (%) |             |                            |
| Luxembourg  | -0.20%          | 28.20%        | 56.90%                      | Industry and Company        | ●                         | Private                    | 18.20%                   |             |                            |
| Romania     | 3.60%           | 21.40%        | 15.00%                      | Industry and Company        | -                         |                            | 3.60%                    |             |                            |
| Slovenia    | 3.80%           | 23.80%        | 78.60%                      | Industry                    | ●                         |                            | 9.50%                    |             |                            |
| Poland      | 4.50%           | 13.40%        | 13.40%                      | Company                     | ●                         | Public                     | 6.40%                    |             |                            |
| Italy       | 5%              | 32.50%        | 100.00%                     | Industry                    | ●                         | Public                     | 18.20%                   |             |                            |
| Belgium     | 5%              | 49.10%        | 96.00%                      | National and Industry       | ●                         | Private                    | 23.70%                   |             |                            |
| Spain       | 8.90%           | 12.50%        | 80.10%                      | Industry                    | ●                         |                            | 13.80%                   |             |                            |
| Cyprus      | 9.70%           | 43.30%        | 43.30%                      | Industry and Company        | -                         |                            | 10.40%                   |             |                            |
| Ireland     | 9.90%           | 26.20%        | 34.00%                      | Company                     | ●                         |                            | 21.50%                   |             |                            |
| Greece      | 10.40%          | 19.00%        | 14.20%                      | Industry and Company        | ●                         |                            | 9.00%                    |             |                            |
| Malta       | 10.50%          | 42.90%        | 50.10%                      | Company                     | -                         |                            | 11.70%                   |             |                            |
| Croatia     | 11.10%          | 20.80%        | 52.70%                      | Industry and Company        | -                         |                            | 5.60%                    |             |                            |
| Sweden      | 11.20%          | 65.20%        | 88.00%                      | Industry                    | ●                         | Public                     | 22.90%                   |             |                            |
| Portugal    | 11.90%          | 15.30%        | 73.60%                      | Industry                    | ●                         |                            | 7.80%                    |             |                            |
| Lithuania   | 12%             | 7.40%         | 7.90%                       | Company                     | ●                         | Public                     | 6.90%                    |             |                            |
| Bulgaria    | 12.20%          | 15.30%        | 27.80%                      | Industry and Company        | -                         |                            | 2.00%                    |             |                            |
| Netherlands | 13.50%          | 15.40%        | 75.60%                      | Industry                    | ●                         | Public                     | 42.80%                   |             |                            |
| Denmark     | 14.20%          | 67.00%        | 82.00%                      | Industry                    | ●                         |                            | 25.40%                   |             |                            |
| Latvia      | 14.60%          | 11.60%        | 27.10%                      | Company                     | ●                         | Public                     | 8.40%                    |             |                            |
| Czechia     | 15%             | 11.40%        | 34.70%                      | Industry and Company        | ●                         | Public                     | 8.10%                    |             |                            |
| France      | 15.40%          | 10.80%        | 98.00%                      | Industry                    | ●                         |                            | 17.00%                   |             |                            |
| Finland     | 16.50%          | 58.80%        | 88.80%                      | Industry                    | ●                         |                            | 19.80%                   |             |                            |
| Slovakia    | 16.60%          | 11.30%        | 24.40%                      | Industry and Company        | ●                         | Private                    | 3.60%                    |             |                            |
| Hungary     | 17.30%          | 8.30%         | 21.80%                      | Company                     | ●                         | Public                     | 5.30%                    |             |                            |
| Germany     | 17.60%          | 16.30%        | 54.00%                      | Industry                    | ●                         |                            | 29.60%                   |             |                            |
| Austria     | 18.80%          | 26.30%        | 98.00%                      | Industry                    | ●                         | Public                     | 30.50%                   |             |                            |
| Estonia     | 20.50%          | 6.00%         | 6.10%                       | Company                     | ●                         |                            | 15.30%                   |             |                            |

● don't include  
 ● in process  
 ● legislation making it mandatory  
 - no data  
 ● not in use  
 ● applied in either private or public sector  
 ● in both private and public sectors  
 - no data

Figure 3.4 - Results Overview

- Nordic Countries (Sweden, Denmark, Finland)

Despite high union density and high collective bargaining coverage, gender pay gaps remain above the average in Denmark and Finland. Part-time employment could explain part of the gap as in this group of countries all have high part-time %, although this doesn't happen in Sweden. Sweden has similar levels of union density, collective bargaining coverage and part-time % but a way lower GPG, compared to the other two countries. The only factor that might justify the lower GPG in Sweden is the fact that in this country legal frameworks are making the inclusion of gender equality topics in collective agreements mandatory.

- Southern Europe (Italy, Spain, Portugal, Greece, Cyprus, Malta)

In this group of countries all present below the average GPG. Despite low union density, collective bargaining coverage is high in most countries, except for Greece, and the part-time % is low. In regards to the other factors displayed in the figure, this group of countries present a wide variety of contexts, without any particular tendency.

- Eastern Europe (Poland, Hungary, Slovakia, Czech Republic, Bulgaria, Romania, Latvia, Lithuania, Estonia, Slovenia, Croatia)

Despite low union density and collective bargaining coverage, some countries (Poland, Slovenia and Romania) exhibit low gender pay gaps. Croatia, Lithuania and Bulgaria also present below the average GPG, but not as low as the other three. Conversely, Latvia, Czechia, Slovakia, Hungary and Estonia, present high GPG, being Estonia the countries in EU with the highest GPG. Looking at the other factors, there is nothing particularly that can explain the diverse GPG % across this group of countries.

- Western/Central Europe (Germany, France, Austria, Belgium, Luxembourg, Netherlands)

Western/Central Europe exhibits mixed results in gender pay gaps, with four countries with above-average GPGs and two below, Luxembourg is the country with the lowest GPG in the EU. In regards to other factors, this group of countries present a very diverse profile, with union density ranging from 10.8% to 49.10%, collective bargaining coverage from 54% to 98% and part-time % from 17% to 42.8%.

## CHAPTER 4 – DISCUSSION

The information gathered in this study seeks to provide insight into the ongoing issue identified by Blau and Kahn (2017), Blau and Ferber (1986), and Sorrentino (1983) that, despite better job opportunities and more women joining the workforce in Europe, the gender pay gap continues to be a problem.

Even though the gender pay difference in 2023 stood at 12.7%, as reported by Eurostat, it fluctuates significantly among European nations (Kunze, 2018; Blau & Khan, 2017; Weichselbaunmer & Winter-Ebmer, 2005), prompting curiosity about the factors in countries like Luxemburg with a minimal -0.2% gap or 3.6% in Romania.

Based on the findings from the preliminary investigation, I collected information on the level of union membership and representation, job categorization and assessment methodologies, as well as the various types of work schedules in every European nation. This information was introduced in the previous section and will be examined next.

*Hypothesis 1: Countries with smaller gender pay disparities might exhibit increased union presence and strength, resulting in fairer pay agreements through joint negotiations. On the other hand, nations with higher gender pay disparities could have decreased levels of union membership, resulting in more flexibility for employers in setting salaries.*

Previous research supports the reasoning behind this hypothesis. For example, Christofides et al. (2013) discovered that in situations with widespread and effective collective bargaining, unions play a key role in securing equal pay for women. Rubery and Grimshaw (2011) also emphasized the importance of unions in decreasing gender pay disparities through bargaining at sector and national levels, but they acknowledged that the impact of unions varies based on factors like the robustness of collective agreements and the legal system's backing of gender equality.

Furthermore, unions have played a crucial role in promoting gender-oriented policies within collective bargaining agreements, including provisions for parental leave, salary disclosure, and adaptable work schedules. Pillinger (2014) suggests that gender pay gaps can be decreased by implementing these measures, but their success is influenced by the political and economic environment, as well as the quality of social dialogue among unions, employers, and government entities. Moreover, Rubery and Grimshaw (2011) highlighted that unions can effectively decrease gender pay disparities by participating in industry-wide or country-wide negotiations, thus lessening wage gaps in various sectors and roles. Nevertheless,

their impact may differ greatly between countries based on factors like the power of union movements, the extent of collective agreements, and the level of legal backing for gender equality measures.

Although high union density and collective bargaining coverage are typically linked to smaller gender pay gaps in certain countries like Belgium and Luxembourg, there are instances where these factors do not have as significant of an effect, such as in Austria and Germany.

These results are consistent with existing research, indicating that unions may help decrease gender pay gap, but their impact could be constrained by other variables. Rubery and Grimshaw (2011) suggest that the effectiveness of unions in reducing gender pay gaps depends largely on the institutional context, specifically the level of centralization in wage bargaining and the strength of legal frameworks promoting gender equality.

The Pearson correlation coefficient of -0.177 implies a mild inverse relationship between union density and the gender pay gap, showing that higher union density is associated with lower gender pay gaps in countries. Nonetheless, the correlation is not sufficiently robust to indicate that the sole factor in explaining the diversity in wage discrepancies is union density. Likewise, the connection between collective bargaining coverage and the gender pay gap ( $r = -0.080$ ) is also not strong, indicating that while collective bargaining coverage has an impact on reducing gender inequalities, it is not a major determinant by itself. In countries with strong union presence but clear labor market divisions, unions may only have a small effect on reducing wage gaps in industries with a high percentage of female employees in low-paying roles (Grimshaw & Rubery, 2015). On the other hand, employers in Eastern European countries, where union membership is low, may have more freedom in determining wages, potentially leading to wider gender pay disparities. Yet, wage disparities can also be affected by labor market regulations and government policies regarding gender equality, which may lessen the influence of union coverage alone (OECD, 2023).

An important discovery in the research is the impact that gender-sensitive provisions in collective bargaining agreements can have on addressing unequal pay. Pillinger (2014) states that collective agreements with gender equality measures like equal pay, anti-discrimination clauses, and flexible working conditions can directly reduce wage inequality. In countries in the Nordic region, including Scandinavia, incorporating gender equality measures into collective agreements has played a vital role in keeping gender pay disparities relatively small. On the other hand, in nations without gender equality measures in collective agreements or with less powerful unions, employers' ability to set wages as they see fit could result in larger wage disparities. For instance, countries such as Hungary and Slovakia exhibit considerably

greater gender pay gaps due to their lower union density and limited gender-specific measures in collective agreements.

In conclusion, trade unions and collective bargaining help decrease gender pay gaps, but their effectiveness is restricted when viewed alone. The limited connection between union membership rates and the gender wage difference underscores the importance of factoring in other elements, like incorporating gender equality provisions in group contracts and the wider institutional and legal structures promoting gender fairness. These results highlight that unions can reduce gender wage disparities, but their impact is influenced by the environment in which they function.

*Hypothesis 2: Countries with lower gender pay gaps may employ more advanced and transparent job evaluation and classification systems, promoting equitable compensation practices by enabling fairer comparisons of work value.*

The second hypothesis suggests that countries with lower gender pay gaps are more likely to have implemented advanced and transparent job evaluation and classification systems. Such systems facilitate fairer comparisons of work value, which can lead to more equitable compensation practices and help mitigate gender-based wage disparities. The rationale behind this hypothesis is that effective job classification systems can address occupational segregation and gender biases in pay scales by evaluating jobs based on objective criteria.

Job classification systems have long been regarded as essential tools in addressing gender pay inequities. Steinberg (2001) argues that occupational segregation—where certain jobs are typically dominated by one gender—can perpetuate stereotypes that undervalue work performed by women, further entrenching wage disparities. Transparent and gender-neutral job classification systems are seen as a corrective mechanism to counteract these biases by ensuring that jobs are evaluated fairly, based on the actual value of the work, rather than preconceived gender roles (Lewis & Soo Oh, 2019; Weiner, 2002). The International Labour Organization (ILO) (2008) also emphasizes the critical role of job classification systems in promoting gender pay equity, especially across European countries. The ILO's report indicates that disparities in the effectiveness of these systems exist across countries and industries, with the public sector generally leading in their implementation. However, inconsistencies often emerge in the private sector, where job classification systems may be less comprehensive, thereby limiting their overall impact on gender pay gaps.

Rubery and Koukiadaki (2016) argue that job classification systems, though vital, must be part of a broader gender equality policy framework to be fully effective. In their research, they highlight the need for supporting mechanisms like pay transparency laws, gender audits, and regular updates to job classification schemes to reflect evolving roles and responsibilities. Without these, even the most comprehensive job classification systems may struggle to fully address gender pay disparities.

The relationship between job classification systems and gender pay gaps is complex and influenced by multiple contextual factors. In some countries, job classification systems are integrated into national labour regulations and collective bargaining agreements, leading to more consistent and equitable pay practices across sectors. The presence of comprehensive job classification systems seems to align with lower gender pay gaps in certain countries, such as Belgium and Luxembourg. However, countries like Germany, which apply these systems widely, still show high pay gaps.

The ETA ( $\eta$ ) analysis revealed an ETA value of 0.4361, suggesting that job classification schemes significantly shape gender pay disparities. In other words, about 19% of the variance ( $ETA^2 = 0.4361^2 = 0.1902$ ) in the gender pay gap can be explained by the employment sector. However, it is important to note that some countries, like Romania and Slovenia, for which no job classification system data is available (marked as N/A), were excluded from the analysis.

While job classification systems can effectively promote pay equity, the data suggests that their impact may be limited if the broader issue of occupational segregation is not addressed. Carvalho et al. (2014) and Hegewisch & Hartmann (2014) argue that job classification systems, though valuable, must be accompanied by policies that address the unequal distribution of men and women across different types of jobs. If women remain concentrated in lower-paying, feminized occupations, even the most objective job evaluation systems may not fully eliminate gender pay gaps.

*Hypothesis 3: Variations in the prevalence of atypical employment and part-time contracts, which are more likely to be held by women, may contribute to differences in gender pay gaps across countries. Countries with larger gender pay gaps may have higher rates of atypical and part-time employment compared to those with smaller gaps, where full-time employment is more common.*

The third hypothesis presented in this research indicates that differences in part-time jobs, often occupied by females, can impact gender wage disparities among European nations. More specifically, it suggests that countries with larger gender pay disparities are more likely to have higher rates of part-time work, while countries with smaller disparities tend to have more women employed full-time.

Labour studies have extensively examined the link between gender pay disparities and part-time employment. The ILO (2018) points out that promoting part-time work for better work-life balance also brings major obstacles in narrowing the gender pay gap. Across Europe, women are disproportionately represented in part-time positions, with 29.2% of women working part-time compared to only 9.4% of men, according to Eurostat's 2022 data. According to Fagan et al. (2014) and Warren et al. (2010), part-time workers generally receive lower pay per hour and have limited chances of progressing in their careers.

Antonie et al. (2020) argue that part-time employment exacerbates the gender pay gap by limiting women's chances to obtain better-paying, full-time jobs. Structural barriers faced by part-time workers, the majority of whom are women, contribute to the persistence of the gender pay gap as they are frequently segregated into lower-paid jobs. Matteazzi and colleagues (2017) discovered that gender wage disparities remain significant in Austria and Germany, countries where part-time employment is widespread, emphasizing the link between job status and unequal pay.

This study used Pearson correlation analysis to examine how part-time employment is linked to the gender pay gap. The findings showed a slight correlation ( $r = 0.17434$ ) between part-time work and the gender pay difference, indicating that nations with more part-time workers may have bigger pay disparities. Yet, the connection is still feeble and does not offer robust evidence to back the theory. This might be a result of the varied situations in which part-time work is found in different countries. In countries such as the Netherlands, opting for part-time jobs is a choice and is regulated effectively, leading to a lesser gender pay gap compared to nations where part-time work is not as safeguarded or obligatory.

Although the weak correlation fits with prior studies suggesting that part-time work can limit women's earnings (Sullivan, 2019), the findings suggest that part-time employment is not the sole factor influencing the gender pay gap variations among countries. Nations with a large number of part-time workers do not always have the largest pay disparities, while countries with fewer part-time workers have varying degrees of pay disparities, ranging from low to high. This variation suggests that the relationship between part-time work and gender pay disparities is not straightforward and may be influenced by a variety of institutional and policy factors.

Overall, the results indicate that gender pay gaps are associated with part-time work, but the extent of its influence differs significantly based on the country's circumstances. Rubery et al. (2018) highlights that wage disparities are worsened by the dominance of part-time work in lower-paid, feminized industries, especially in countries with insufficient wage regulation and gender equality strategies. So, decreasing the number of women in part-time jobs and improving wage transparency and labor protections in those positions are both necessary to tackle gender pay disparities.





## CHAPTER 5 – CONCLUSIONS

### 5.1. Main Research Conclusions

This research explored the factors impacting gender pay disparities in various European nations, concentrating on union presence and membership, job categorization methods, and working hour arrangements. The study showed notable variations in gender pay disparities across European nations, with Luxembourg and Romania showing the narrowest gaps and Estonia and Austria having the widest disparities. Between 2018 and 2023, although several nations witnessed a decrease in their gender pay disparities, Hungary and Romania observed a rise. The differences among nations showcase the complex characteristics of gender wage gaps, which are shaped by a blend of labour market frameworks, social conventions, and policy measures.

The initial hypothesis proposing a positive relationship between smaller gender pay gaps and higher union coverage and density was only partially backed up by the data. Countries that have robust union representation, such as the Nordic countries, usually experience smaller gender pay disparities, since collective bargaining helps create fairer salary arrangements. Yet, Poland stands out as an exception by having a small gender pay gap despite low union membership, indicating that strong unions are not the only factor at play. Therefore, having union representation is important but not the determining factor in decreasing gender wage disparities throughout Europe.

The second hypothesis suggested that countries with lesser gender wage gaps would possess more sophisticated and open job categorization structures. However, this theory was not completely validated. Nations such as Spain and Portugal, which use job classification systems in various sectors, show smaller pay gaps. Conversely, countries like Luxembourg and Romania, which lack such systems, also have low disparities. This indicates that clear job classification can help with fair pay, but it needs to be part of a larger, enforced policy to tackle gender pay disparities effectively.

The third hypothesis explored whether countries with higher rates of part-time employment, which is more common among women, would have larger gender pay gaps. The analysis showed only a weak positive correlation between part-time employment and the gender pay gap. While countries with high part-time employment rates, such as Austria and Germany, reported larger gaps, others, like the Netherlands, maintained low gaps despite high part-time employment due to strong labour protections. This weak correlation suggests that part-time work is not a straightforward contributor to gender wage disparities, and its effects are moderated by other labour policies and protections in place.

In conclusion, the findings suggest that multiple factors contribute to the gender pay gaps observed across Europe. Although higher union coverage, advanced job classification systems, and lower rates of

part-time employment are associated with smaller gaps in some countries, the presence of outliers and inconsistencies points to the importance of broader labour market conditions and national policies. A comprehensive approach to closing the gender pay gap must consider not only these individual factors but also the institutional and cultural contexts within which they operate. Tailored, multi-faceted policy interventions are necessary to achieve more equitable workplaces across Europe.

## **5.2. Implications for Policy and Practice**

To tackle the issue of gender pay differences, one has to take many means including policy changes, organizational efforts and sociocultural change. This research has several noteworthy implications for policy and practice:

First, the observed correlation between trade union density and the gender pay gap suggests that enhancing collective agreement as well as workers' representation could be an appropriate option for combating gender pay inequity. There is a need for the Union membership and bargaining collectivism agitation and support interventions especially where the female population is less active in employment sectors and industries.

Second, the complex, and context-specific nature of the link between job classification, evaluation systems, and the gender pay gap suggest that any blanket policy would not work. There are however suggestions on how this could be dealt with by, 'policymakers and organizations to focus on creating and adopting job evaluation methods that are clear, unbiased, and appropriate for the environments where they are used' (Bender & Pigeyre, 2016).

Third, in the relationship between part-time work and gender pay gap the importance of policies addressing gender division of labour as well as measures enabling reconciliation of professional and family responsibilities come to the fore. Such changes include but are not limited to paid maternity and paternity smear-free leave coupled with medical cost subsidizing for children advocates.

## **5.3. Limitations and recommendations for future studies**

Although the research in this paper sheds light on possible reasons for the gender pay gap in Europe, it's crucial to also explore other viewpoints and potential drawbacks.

This research relies on data from different sources collected in various ways, which hinders the ability to compare the results. Certain nations do not have extensive data on union membership, job categorization, and part-time work, which limits the ability to make final assessments.

A possible argument against this is that the connection between trade union membership rates and the gender pay disparity may not be as simple as it seems. Strong unions sometimes focus on the needs of their mostly male members, which can result in women not benefitting from their bargaining efforts. Furthermore, the decrease in union participation in the past few years might be a result of broader shifts in the labour market that have had diverse impacts on gender parity.

Likewise, the link between part-time work and the gender pay difference might reflect deeper societal and cultural norms that pressure women to bear a larger burden of caregiving duties. Dealing with this problem might necessitate broader policy interventions that extend beyond simply labour market institutions.

Moreover, the paper recognizes the importance of the design and implementation of job classification and evaluation systems in addressing the gender pay gap, given the absence of a distinct pattern in their relationship. This emphasizes the importance of having a more detailed understanding of how various methods of job classification and evaluation can either reduce or worsen gender disparities.

Future studies should strive for improved uniformity in data collection between countries and incorporate qualitative approaches to gain a more thorough understanding of the impact of certain policies on gender wage disparities. An analysis of how laws impact childcare, parental leave, and flexible work options would give a more complete understanding of the issue.

In conclusion, upcoming research should investigate the intersection of gender with ethnicity and socioeconomic status to create more focused interventions.



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# Appendixes

## Appendix A – Union Density and Gender Pay Gap Correlation

| Country        | Union density | Gender pay gap |
|----------------|---------------|----------------|
| Luxembourg     | 28.20%        | -0.20%         |
| Romania        | 21.40%        | 3.60%          |
| Slovenia       | 23.80%        | 3.80%          |
| Poland         | 13.40%        | 4.50%          |
| Belgium        | 49.10%        | 5%             |
| Italy          | 32.50%        | 5%             |
| Spain          | 12.50%        | 8.90%          |
| Cyprus         | 43.30%        | 9.70%          |
| Ireland        | 26.20%        | 9.90%          |
| Greece         | 19.00%        | 10.40%         |
| Malta          | 42.90%        | 10.50%         |
| Croatia        | 20.80%        | 11.10%         |
| Sweden         | 65.20%        | 11.20%         |
| Portugal       | 15.30%        | 11.90%         |
| Lithuania      | 7.40%         | 12%            |
| Bulgaria       | 15.30%        | 12.20%         |
| Netherlands    | 15.40%        | 13.50%         |
| Denmark        | 67.00%        | 14.20%         |
| Latvia         | 11.60%        | 14.60%         |
| Czech Republic | 11.40%        | 15%            |
| France         | 10.80%        | 15.40%         |
| Finland        | 58.80%        | 16.50%         |
| Slovakia       | 11.30%        | 16.60%         |
| Hungary        | 8.30%         | 17.30%         |
| Germany        | 16.30%        | 17.60%         |
| Austria        | 26.30%        | 18.80%         |
| Estonia        | 6.00%         | 20.50%         |

| <i>Pearson Correlation</i> |
|----------------------------|
| -0.17737664                |
| -0.17737664                |

*Correl Function*  
*Pearson Function*

| <i>Pearson Correlation</i> |
|----------------------------|
| =CORREL (C4:C30, D4:D30)   |
| =PEARSON (C4:C30, D4:D30)  |

*Correl Function*  
*Pearson Function*



## Appendix B - Collective Bargaining Coverage and Gender Pay Gap Correlation

| Country        | Covered by collective bargaining (%) | Gender pay gap |
|----------------|--------------------------------------|----------------|
| Luxembourg     | 56.90%                               | -0.20%         |
| Romania        | 15.00%                               | 3.60%          |
| Slovenia       | 78.60%                               | 3.80%          |
| Poland         | 13.40%                               | 4.50%          |
| Belgium        | 96.00%                               | 5%             |
| Italy          | 100.00%                              | 5%             |
| Spain          | 80.10%                               | 8.90%          |
| Cyprus         | 43.30%                               | 9.70%          |
| Ireland        | 34.00%                               | 9.90%          |
| Greece         | 14.20%                               | 10.40%         |
| Malta          | 50.10%                               | 10.50%         |
| Croatia        | 52.70%                               | 11.10%         |
| Sweden         | 88.00%                               | 11.20%         |
| Portugal       | 73.60%                               | 11.90%         |
| Lithuania      | 7.90%                                | 12%            |
| Bulgaria       | 27.80%                               | 12.20%         |
| Netherlands    | 75.60%                               | 13.50%         |
| Denmark        | 82.00%                               | 14.20%         |
| Latvia         | 27.10%                               | 14.60%         |
| Czech Republic | 34.70%                               | 15%            |
| France         | 98.00%                               | 15.40%         |
| Finland        | 88.80%                               | 16.50%         |
| Slovakia       | 24.40%                               | 16.60%         |
| Hungary        | 21.80%                               | 17.30%         |
| Germany        | 54.00%                               | 17.60%         |
| Austria        | 98.00%                               | 18.80%         |
| Estonia        | 6.10%                                | 20.50%         |

| Pearson Correlation |
|---------------------|
| -0.080629474        |
| -0.080629474        |

*Correl Function*  
*Pearson Function*

| Pearson Correlation         |
|-----------------------------|
| =CORREL (C33:C59, D33:D59)  |
| =PEARSON (C33:C59, D33:D59) |

*Correl Function*  
*Pearson Function*



**Appendix C – Gender Equality on Agenda ETA Analysis**

|                         |                                      | Gender equality on agenda vs Gender Pay Gap |             |            |
|-------------------------|--------------------------------------|---|-------------|------------|
|                         |                                      | Mandatory                                   | In progress | Not in use |
| <b>Gender Pay Gap %</b> |                                      | 5.00%                                       | 8.90%       | -0.20%     |
|                         |                                      | 11.20%                                      | 17.60%      | 3.80%      |
|                         |                                      | 15.40%                                      | 18.80%      | 4.50%      |
|                         |                                      |   |             | 5.00%      |
|                         |                                      |   |             | 9.90%      |
|                         |                                      |   |             | 10.40%     |
|                         |                                      |   |             | 11.90%     |
|                         |                                      |   |             | 12.00%     |
|                         |                                      |   |             | 13.50%     |
|                         |                                      |   |             | 14.20%     |
|                         |                                      |   |             | 14.60%     |
|                         |                                      |   |             | 15.00%     |
|                         |                                      |   |             | 16.50%     |
|                         |                                      | 16.60%                                      |             |            |
|                         |                                      | 17.30%                                      |             |            |
|                         |                                      | 20.50%                                      |             |            |
| <b>Step 1</b>           | Category Means                       | 10.53%                                      | 15.10%      | 11.59%     |
| <b>Step 2</b>           | Grand Mean                           |   | 11.93%      |            |
| <b>Step 3</b>           | Difference Mean / Grande Mean        | -1.39%                                      | 3.17%       | -0.33%     |
|                         | Square differences                   | 1.93%                                       | 10.05%      | 0.11%      |
|                         | Square differences x nº observations | 5.79%                                       | 30.15%      | 1.76%      |
|                         | Sum of Squares Between Groups (SSB)  |   | 37.70%      |            |

|               |             | <b>SST (Total Sum of Squares)</b>                              |                               |                   |
|---------------|-------------|--|-------------------------------|-------------------|
|               |             | Category %   | Difference between grand mean | Square difference |
| <b>Step 4</b> | Mandatory   |  |                               |                   |
|               | 5.00%       | -6.93%   | 48.02%                        |                   |
|               | 11.20%      | -0.73%   | 0.53%                         |                   |
|               | 15.4%       | 3.47%  | 12%                           |                   |
|               | In progress |  |                               |                   |
|               | 8.90%       | -3.10%   | 9.61%                         |                   |
|               | 17.60%      | 5.60%  | 31.36%                        |                   |
|               | 18.80%      | 6.80%  | 46.24%                        |                   |
|               | Not in use  |  |                               |                   |
|               | -0.20%      | -12.13%  | 147.14%                       |                   |
|               | 3.80%       | -8.13%   | 66.10%                        |                   |
|               | 4.50%       | -7.43%   | 55.20%                        |                   |
|               | 5.00%       | -6.93%   | 48.02%                        |                   |
|               | 9.90%       | -2.03%   | 4.12%                         |                   |
|               | 10.40%      | -1.53%   | 2.34%                         |                   |
|               | 11.90%      | -0.03%   | 0.09%                         |                   |
|               | 12.00%      | 0.07%  | 0.49%                         |                   |
|               | 13.50%      | 1.57%  | 2.45%                         |                   |
|               | 14.20%      | 2.27%  | 5.15%                         |                   |
|               | 14.60%      | 2.67%  | 7.13%                         |                   |
| 15.00%        | 3.07%       | 9.42%  |                               |                   |
| 16.50%        | 4.57%       | 20.88%   |                               |                   |
| 16.60%        | 4.67%       | 21.81%   |                               |                   |
| 17.30%        | 5.37%       | 28.84%   |                               |                   |
| 20.50%        | 8.57%       | 73.44%   |                               |                   |
|               |             | <b>Total Sum of Squares (SST)</b>                              |                               |                   |
|               | Mandatory   | 60.59%   |                               |                   |
|               | In progress | 87.21%   | 823,72%                       |                   |
|               | Not in use  | 492.62%  |                               |                   |
| <b>Step 5</b> | <b>ETA</b>  | $x = \sqrt{\frac{37.70}{823.72}} = \sqrt{0,0457} \cong 0,2137$ |                               |                   |



**Appendix D – Job Classification Schemes and Gender Pay Gap ETA Analysis**

|                         |  | Job Classification Sector vs. Gender Pay Gap |        |                    |            |
|-------------------------|--|--|--------|--------------------|------------|
|                         |  | Private                                      | Public | Public and Private | Not in Use |
| <b>Gender Pay Gap %</b> |  | -0.20%                                       | 4.50%  | 8.90%              | 9.90%      |
|                         |  | 5.00%  | 5.00%  | 11.90%             | 14.20%     |
|                         |  | 16.60%                                       | 11.20% | 15.40%             |            |
|                         |  |  | 12.00% | 16.50%             |            |
|                         |  |  | 13.50% | 17.60%             |            |
|                         |  |  | 14.60% |                    |            |
|                         |  |  | 15.00% |                    |            |
|                         |  |  | 17.30% |                    |            |
|                         | 18.80%   |  |        |                    |            |
| <b>Step 1</b>           | Category Means                                   | 7.13%  | 12.43% | 14.06%             | 12.05%     |
| <b>Step 2</b>           | Grand Mean                                       | 11.98%                                       |        |                    |            |
| <b>Step 3</b>           | Difference Mean / Grande Mean                    | -4.85%                                       | 0.45%  | 2.08%              | 0.07%      |
|                         | Square differences                               | 23.52%                                       | 0.20%  | 4.33%              | 0.49%      |
|                         | Square differences x n <sup>o</sup> observations | 70.56%                                       | 1.80%  | 21.65%             | 0.98%      |
|                         | Sum of Squares Between Groups (SSB)              | 94.99%                                       |        |                    |            |

|                                   |                    | SST (Total Sum of Squares) |                               |                   |
|-----------------------------------|--------------------|----------------------------|-------------------------------|-------------------|
|                                   |                    | Category %                 | Difference between grand mean | Square difference |
| Step<br>4                         | Private            |                            |                               |                   |
|                                   | -0.20%             | -12.18%                    | 148.35%                       |                   |
|                                   | 5.00%              | -6.98%                     | 48.72%                        |                   |
|                                   | 16.60%             | 4.62%                      | 21.34%                        |                   |
|                                   | Public             |                            |                               |                   |
|                                   | 4.50%              | -7.48%                     | 55.95%                        |                   |
|                                   | 5.00%              | -6.98%                     | 48.72%                        |                   |
|                                   | 11.20%             | -0.78%                     | 0.61%                         |                   |
|                                   | 12.00%             | 0.02%                      | 0.00%                         |                   |
|                                   | 13.50%             | 1.52%                      | 2.31%                         |                   |
|                                   | 14.60%             | 2.62%                      | 6.86%                         |                   |
|                                   | 15.00%             | 3.02%                      | 9.12%                         |                   |
|                                   | 17.30%             | 5.32%                      | 28.30%                        |                   |
|                                   | 18.80%             | 6.82%                      | 46.51%                        |                   |
|                                   | Public and Private |                            |                               |                   |
|                                   | 8.90%              | -3.08%                     | 9.49%                         |                   |
|                                   | 11.90%             | -0.08%                     | 0.01%                         |                   |
|                                   | 15.40%             | 3.42%                      | 11.70%                        |                   |
|                                   | 16.50%             | 4.52%                      | 20.43%                        |                   |
|                                   | 17.60%             | 5.62%                      | 31.58%                        |                   |
| Not in use                        |                    |                            |                               |                   |
| 9.90%                             | -2.08%             | 4.33%                      |                               |                   |
| 14.20%                            | 2.22%              | 4.93%                      |                               |                   |
| <b>Total Sum of Squares (SST)</b> |                    |                            |                               |                   |
|                                   | Private            | 218.41%                    |                               |                   |
|                                   | Publica            | 198.38%                    | 499.26%                       |                   |
|                                   | Private and Public | 73.21%                     |                               |                   |
|                                   | Not in use         | 9.26%                      |                               |                   |

|           |     |  |
|-----------|-----|--|
| Step<br>5 | ETA | $\eta = \sqrt{\frac{SSB}{SST}} \quad x = \sqrt{\frac{94.99}{499.26}} = \sqrt{0.1902} \cong 0.4361$ |
|-----------|-----|--|

## Appendix E - Part-time Employment and Gender Pay Gap Correlation

| Countries   | Part-Time | Gender pay gap |
|-------------|-----------|----------------|
| Austria     | 30.50%    | 18.80%         |
| Belgium     | 23.70%    | 5%             |
| Bulgaria    | 2.00%     | 12.20%         |
| Croatia     | 5.60%     | 11.10%         |
| Cyprus      | 10.40%    | 9.70%          |
| Czechia     | 8.10%     | 15%            |
| Denmark     | 25.40%    | 14.20%         |
| Estonia     | 15.30%    | 20.50%         |
| Finland     | 19.80%    | 16.50%         |
| France      | 17.00%    | 15.40%         |
| Germany     | 29.60%    | 17.60%         |
| Greece      | 9.00%     | 10.40%         |
| Hungary     | 5.30%     | 17.30%         |
| Ireland     | 21.50%    | 9.90%          |
| Italy       | 18.20%    | 5%             |
| Latvia      | 8.40%     | 14.60%         |
| Lithuania   | 6.90%     | 12%            |
| Luxembourg  | 18.20%    | -0.20%         |
| Malta       | 11.70%    | 10.50%         |
| Netherlands | 42.80%    | 13.50%         |
| Poland      | 6.40%     | 4.50%          |
| Portugal    | 7.80%     | 11.90%         |
| Romania     | 3.60%     | 3.60%          |
| Slovakia    | 3.60%     | 16.60%         |
| Slovenia    | 9.50%     | 3.80%          |
| Spain       | 13.80%    | 8.90%          |
| Sweden      | 22.90%    | 11.20%         |

| <i>Pearson Correlation</i> |
|----------------------------|
| 0.174340783                |
| 0.174340783                |

*Correl Function*

*Pearson Function*

| <i>Pearson Correlation</i> |
|----------------------------|
| =CORREL (B2:B28, C2:C28)   |
| =PEARSON (B2:B28, C2:C28)  |

*Correl Function*

*Pearson Function*