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REASONS FOR THE GENDER WAGE GAP INEQUALITY IN THE EXAMPLE OF 13 OECD COUNTRIES

Bachelor's thesis

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I hereby declare that I have compiled the thesis independently
and all works, important standpoints and data by other authors
have been properly referenced and same paper
has not been referenced previously presented for grading.
The document length is 9606 words from introduction to the end of conclusion.

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ABSTRACT

The purposes of this thesis are to assess the gender wage gap, whose role in shaping the wage gap in Organization for Economic-Cooperation and Development (OECD) countries as well as to quantify the wage gap between men and women before and during the COVID-19 outbreak, to identify the most successful gender-responsive Human Resource (HR) practices. Data for 13 OECD countries (Spain, Slovenia, Portugal, Poland, Netherlands, Italy, Hungary, Germany, France, Finland, Denmark, Belgium, and Austria) for the period 2010-2020 are under consideration. The author discusses the theoretical approaches behind the wage gap, presents an overview of the trends in the development of the wage gap in OECD countries over the past decade, and prepares a regression analysis of the wage gap. Selected indicators to explain the gender wage gap are wage gap, women of managerial positions, fertility rate, unemployment gender gap for native-born, unemployment gender gap for foreign-born, participation gender gap for native-born, participation gender gap for foreign-born, basic education gender gap, intermediate education gender gap, advanced education gender gap, gender remote workers gender gap, not working remote gender gap.

This bachelor's work consists of three chapters. The first chapter summaries with the theory related to the topic, and results from previous studies. The second chapter provides an overview of the variables, data, and methods used in the analysis. The third chapter shows the influence of independent factors on the wage gap, for which an econometric analysis is carried out, and conclusions are drawn based on the results.

Keywords: gender wage gap, COVID-19 pandemic, OECD countries, gender inequality, econometric analysis

INTRODUCTION

The COVID-19 pandemic has had a disproportionate impact on women, jeopardizing progress on gender equality that has been made globally over the past two decades. First and foremost, women are leading the health response: women make up almost 70% of the health care workforce, exposing them to a greater risk of infection (OECD, 2020). The recession in the economy, caused by restrictions in economic activity, has left many people without work. During normal cyclical downturns, the unemployed individuals are usually men working in industries whose dynamics are closely related to the economic cycle (industry, construction). But at present, women have been hit hardest by unemployment as the COVID-19 crisis has mainly affected industries where the share of women was larger than men (tourism, social services, etc.) (UN Women, 2020).

During the pandemic, the burden on women in the household has also increased. Quarantine and isolation have led to a significant increase in unpaid domestic work, including caring for children, sick relatives, parents, etc. At the same time, isolation, restrictions on movement, lack of exercise, overcrowding, and material deprivation led to a deterioration in the psychological situation of families and a surge in domestic violence around the world (Usher, *et al*. 2020). A hot topic is gender equality in the Baltic countries (Khoma, Kozma, 2021) and it is especially pronounced in terms of wages (Eurostat 2019) where Latvia ranked second to last among European Union (EU) countries regarding the gender wage gap in 2019 (Eurostat, 2021). With the onset of the COVID-19 pandemic, the situation has only worsened. On average in the EU, women's gross hourly earnings are 14.1% lower than men's, while in Latvia this gap was 21.2%. In neighboring Estonia, the difference in wages between men and women was 21.7% (Eurostat, 2021).

The pandemic has led to a large-scale (though possibly temporary) transition to remote work for a large part of the employed population. Preliminary data from the EU for 2021 show that more women than men (50% and 37% respectively) among those aged 18-34 have switched to remote work (European Parliament, 2022). As a result of the spread of teleworking, the living conditions

of many women and the balance of their work and household responsibilities have changed significantly.

The choice of the subject for research has been dictated by its topicality. The crisis caused by the pandemic has negatively affected the workforce of most people in the world, but women have been the most vulnerable. The pandemic could likely lead to a prolonged drop in women's income and labor force participation.

The tasks set in the thesis have determined their structure. The thesis consists of three chapters and a conclusion. The first chapter is a theoretical part, which summarizes the literature in the field of the gender wage gap. The second chapter includes the analysis of data and an explanation of the empirical model. The third chapter is devoted to discuss the empirical data, which made it possible to analyze the situation in the format planned in this thesis.

The purpose of the thesis is to quantify the differences in wages between men and women before and during the COVID-19 outbreak, to identify the most successful Human Resources (HR) practices that are gender-sensitive in HR management, based on a comparative analysis of approaches companies to gender diversification of the composition employees.

Research questions that should help the author to achieve the goal of the thesis:

1. What are the factors that influence the gender wage gap?
2. What are the dynamics of fluctuations in the ratio of women's wages to men's wages in the study period?

Based on the research questions in the thesis, the author put forward two hypotheses:

Hypothesis 1. Despite the identical conditions created for the professional activities of women and men, women are more often exposed to factors such as family and household, number of children per woman, unemployment, participation and educations rates, managerial positions which may not suit the employer and affect the wages in the future.

Hypothesis 2. The transfer of company employees to remote work has exacerbated the situation of women's wage gaps, and discrimination in gender wage gap has increased.

The data used in this thesis covers the time period from 2010 to 2020. For some variables, the data sample has a shorter time span from 2020 to 2021, due to the availability of data or the relevance of the variable's data (may change depending on data availability). Data originates from 13 EU countries: Spain, Slovenia, Portugal, Poland, Netherlands, Italy, Hungary, Germany, France, Finland, Denmark, Belgium, Austria. In order to answer the research questions, the relevant scientific literature is first studied, and then correlation and regression analysis is carried out. To establish relationships between variables, find out how interrelated they are or not, and confirm or refute these hypotheses. To write the thesis, the author also uses Eurostat, ILOSTAT, World Bank, OECD data and science articles.

1. GENDER INEQUALITY AND COVID-19

Gender inequality has existed for centuries. Over the years, the situation has improved and the wage gap began to narrow, but the unexpected and prolonged outbreak of the COVID-19 pandemic has exacerbated the situation and all the accumulated work has almost evaporated. Many people have lost their jobs, but this issue has particularly affected the women half of society (UN Women, 2020). The section is divided into two subsections. The first subsection analyzes how the COVID-19 crisis has affected gender inequality. The second subsection looks at women's unpaid work during the pandemic.

1.1. Gender inequality in the managerial positions

Women who hold high positions are role models for other women. By this example, they show what women can achieve if they follow their chosen profession, and do not indulge the world around them. At the same time, the majority of women work on an equal footing in rather masculine positions according to the norms of society and are in no way inferior, also possessing leadership qualities. But because there are quite a lot of styles to be a leader, women face prejudice, which significantly reduces their chances for high leadership positions (Holst, 2016).

Today, most women are well-educated, but their human capital is still underused. Women are still paid less than men, even though there has been a significant increase in their participation in education and the labor market in recent years. Also, women are not often found in leadership positions (Eurostat, 2019). Several factors prevent women from taking leading positions. One of them is that the male rejects such options as having a female boss. Also because of long working hours, tight work schedules, and seniority, women are less likely to close the wage gap with men and move up the corporate hierarchy (to move forward). And often positions such as senior manager and top manager may have additional responsibilities, in connection with which women might need to regularly travel , and it might be difficult for women who have a family and children and balance private life and job (Sooriapriya, 2022). Conversely, family-friendly work practices such as part-time work, flexible working hours, and parental leave make it easier for families with care responsibilities (especially women) to balance work and private life (OECD, 2020).

A study on the influence of women in cooperative enterprises, which have pronounced organizational and target characteristics, shows that their influence leads to increased motivation and increased productivity. Women's entrepreneurship and women's participation in management teams has a positive effect on organizational social motivations and achievements (Sooriapriya, 2022). What is more, in the year 2020 Harvard Business Review's study shows that women were more effective leaders during the pandemic. And surveys of independent judges have proven that women are better at coping with stressful situations and solving problems faster. The 360-degree method was chosen for the survey, and bosses, colleagues, their direct reports, and customers were interviewed from March to June 2020. It turned out that most of all people appreciate leaders who inspire and motivate others, communicate a lot, build relationships, and establish cooperation/teamwork. Women outperformed men in each of these competencies (Zenger, Folkman, 2020).

1.1.1. Impact of the COVID-19 crisis on gender inequality

The COVID-19 pandemic has had a disproportionately negative impact on the employment opportunities of women compared to men. Since the end of 2019, the gender wage gap has become even more significant. A large number of people were left without job, and sectors such as travel, leisure, entertainment, accommodation and catering, sports, school/university education, and social services were especially hard hit. Moreover, a big problem was self-isolation, which has become a forced decision and from which people also suffered losses, such as mental and emotional health, and the development of healthy self-esteem. According to statistics, the largest percentage of employees and owners in these sectors are women (World Health Organization, 2019). While women tend to be better at coping with stressful situations than men, there are still factors that can prevent them from being hired and earning higher salaries than men.

The factors influencing the gender wage gap are closely related to socio-economic factors. Therefore, their classification is somewhat not easy. Gender inequality is the economic, political, and social characters irregularly between women and men. Factors such as age, education, marital status, type of contract, employment status, career prospects, and working conditions are most often of interest to the employer. Women are not less educated than men or on their career prospects, but as a rule, age and marital status, which put them at risk, play a large part in a manager's decision on hiring. After all, as soon as a woman has a family, she has a huge number of responsibilities to perform daily, from cleaning and cooking to raising children. The European

Institute for Gender Equality (EIGE) believes that inequalities are caused by discriminatory norms and attitudes as well as unequal care distribution within households and institutional structures (European Parliament, 2022).

1.1.2. Women in the labor market and women's unpaid work during the COVID-19 pandemic

Women's participation in the labor market is important for many reasons. It is a source of women's economic independence, entitles them to social and pension security and related health services, as well as opportunities for social improvement and personal development. In the context of the family, women's paid work reflects their role and authority in the home and not only generates income but also serves as a role model for family members, especially children.

About half of the work in the world is unpaid. Most of it is done by women. This imbalance not only deprives women of economic opportunities but it also comes at a high cost to society in the form of lower productivity and lower economic growth. It follows that a more equitable distribution of unpaid work will not only benefit women, but will also lead to greater labor force efficiency and increased economic growth. For these reasons, reducing gender imbalances in unpaid work is part of the UN Sustainable Development Goals (European Institute for Gender Equality, 2020). Examples of unpaid work include cooking, cleaning, delivering food or water, and caring for children and the elderly. These jobs are not counted as part of economic activity because they are difficult to measure based on market values. However, their economic cost is significant, with estimates ranging from 10 to 60 percent of GDP (European Institute for Gender Equality, 2020).

Women, indeed, bear a disproportionate burden of unpaid work. It is less clear exactly how many hours a day women work unpaid than men. Globally, on average, women work 4.4 hours without pay, while men work only 1.7 hours (International Monetary Fund, 2020). By not fully integrating women into the workforce, the economy misallocates resources, forcing women to perform low-productivity tasks at home instead of reaching their full potential in the marketplace. The economy also does not exploit the complementarity of women and men at work. The result is reduced productivity and economic growth. Gender inequality in unpaid work is not only unfair. It is ineffective (Khoreva, 2011).

When the COVID-19 pandemic began, all people had to cope with conditions such as remote work and isolation. These facts contributed to both a positive outcome and, unfortunately, a negative one. Under normal conditions of life, women are usually assigned a lot of additional duties that they must perform, and when a person is 24/7 within four walls, then working capacity naturally decreases. Considering this during the period of COVID-19, before pandemic 37.5% of women in the EU watched for children, seniors, or people with disabilities every day, compared with 24.7% of men. This time difference adds up to a normal of some additional 13 hours of overdue work per week for women. Likewise, the EIGE underlined the fact that caregiving liabilities keep some 7.7 million women out of the labour request. The consequences of this inequality could be seen in employment rates of men (78%) surpassing the Europe 2020 target of 75%, while employment rates of women reached only 66.5% (European Institute for Gender Equality, 2022).

1.2. Remote work and its impact on gender inequality

The crisis caused by COVID-19 has revealed several aspects of the vulnerability of the social policies and economic systems of the countries of the world. The pandemic has had an impact on the labor market and labor practices. Some of the employees switched to remote work, some lost their jobs, and some continued to work in traditional jobs, risking infection. Families faced the closure of childcare and educational institutions and the need to take care of children throughout the day, as well as organize their homeschooling (Fortune, 2020).

At the same time, the pandemic has had a greater negative impact on the situation of women than men and contributed to the growth of gender inequality. In particular, the pandemic has exacerbated pre-existing gender wage gaps and socioeconomic indicators that record the disadvantaged position of women relative to men (UN Women, 2020). The increase in gender inequality during 2020 confirms the Global Gender Gap Index, an integral indicator of gender equality, which was calculated by the World Economic Forum. As the impact of the COVID-19 pandemic continues to be felt, closing the global gender gap has increased by a generation from 99.5 years to 135.6 years (Global Gender Gap Report, 2021, p.5-6).

The fact that the effects of the pandemic have an asymmetric impact on the situation of men and women is reflected in the fact that, on the one hand, men showed higher mortality from COVID-19 (From insights 2020, p.4). On the other hand, women face more social and economic pressures.

Therefore, according to the calculations of experts from the United Nations Development Program (UNDP), by the beginning of 2021, about 435 million women and girls were living on less than $1.90 a day, while 47 million of them were in this poverty level as a result of COVID-19 (From insights 2020, p.3). The International Labor Organization (ILO) in 2020 recorded a significant drop in the working income of women in both developed and developing countries, in particular in Peru, Brazil, Vietnam, Italy, and the United States (ILO Monitor 2021, p.17).

A study conducted in the United Kingdom (UK) showed that among working parents, mothers are 9 percentage points more likely to lose a paid place than fathers (World Health Organization, 2020). Since the onset of the pandemic in the UK, 16% of mothers have stopped working in paid work because they were fired or were forced to quit themselves due to the need to look after their children in the face of the closure of children's educational institutions. This figure is higher for mothers compared to 11% of fathers in the same situation (Institute of Labor Economics, 2020, p. 10). As a result of the processes of adaptation of the labor market to new conditions and the need for mothers to spend more time caring for children, the risk of losing a job due to layoffs or dismissal due to the inability to maintain labor productivity at the same level has increased for working mothers and exceeds similar risks for working fathers.

1.2.1. Risks of remote work for gender inequality

Even before the pandemic, people began to choose remote work, but with its advent it has become a necessary measure. This experience has been both positive and negative. For example, you do not need to waste time on getting ready and getting to work, this saved time can be spent on yourself. Remote work means flexible schedules, so you can make more convenient plans for the day, which will also help you cover more of your work and personal goals. Naturally, there are also negative aspects to everything, usually working from home, as women and men reported they exceed the number of working hours, because there are no time limits, but they are not paid.

Ipsos for UN Women in 16 countries conducted a study and found that before the COVID-19 pandemic, women spent on average about 26 hours a week caring for children; but since the beginning of the pandemic, they spend about 31 hours (UN Women, 2020). In the case of a man, before the crisis they spent about 20 hours a week caring for children, and since then this figure has increased to 24 hours. Consequently, women's time spent caring for children averages an additional 5.2 hours per week than men's 3.5 additional hours, but the gender wage gap varies greatly by country. This means that in most countries, women spend more than 30 hours a week

solely on childcare, which is almost equivalent to the average time spent in a full-time job per week (UN Women, 2021).

Public spending and tax policies and extrabudgetary interventions play a critical role in building more resilient and inclusive societies and economies. Over the medium term, fiscal policy is an essential driver of an inclusive economic recovery that accelerates progress toward gender equality, which in turn can contribute to poverty reduction. The need to reform tax systems during and after the pandemic also provides an opportunity to address some longstanding structural hurdles. Focusing on narrowing gender wage gaps is particularly important in the post-pandemic world as many countries face containment factors in the fiscal arena, and experience has shown that the economic empowerment of women brings additional growth dividends. In the post-COVID-19 era, the focus should be on policies that promote the inclusion of women in the workforce, as well as the creation of secure, decent jobs (Alon, *et al.* 2020).

1.2.2. Problems of organization and control

There is another common problem of remote work - scheduling both work and personal time. People over the age of 30 usually had no previous experience working remotely, only the usual standards of office work. Therefore, they have a clear understanding and separation of work and personal time and space. With the onset of the pandemic and remote work, this framework has been erased. Of course, people who did not have experience working remotely experienced a shock, which also led to several psychological problems, and even dismissal due to the inability to adapt to new conditions (Bohrer, 2022).

Another thing that people underestimate is the feeling of isolation while working remotely. While working from home, an individual can't ask a colleague a quick question, meet someone at the coffee machine and have a little social chat. Such small activities can significantly damage the human psyche (Delfino, Kolk, 2021). As for complete families with children, in this case, the feeling of anxiety and irritability increases, because children require a lot of attention and they need to be dealt with. After all, it is clear that children interfere with putting all efforts into work and the parent is nervous, at the same time he feels compassion that he cannot pay due attention to both the child and work, hence increased anxiety appears. Therefore, the concentration decreases, and the number of errors in the work increases. Consequently, parents, and usually mothers, spend more time doing household chores, cleaning, and raising children than they can devote this time to work (Zhang, Yao, 2015).

After some time, there is a problem in understanding their colleagues. People who work in the same office, communicate experience difficulties and moments of triumph in the company, and empathize with each other - represent a separate socio-cultural group. Such measures forced us to speak, measuredly, and to the point. It is psychologically difficult for many to show emotions virtually, without being close to the interlocutor. The same as communication in chats created by employers, because professional work etiquette does not allow a free form of communication and may lead to other problems in the future. This situation is depressing and a person begins to avoid general calls and meetings with an online presence. (Colarusso, 2021).

1.2.3. Remote work as a factor in the deterioration of gender equality

The COVID-19 pandemic is not only a global health emergency but is leading to a severe global economic downturn. The global economy is in greater danger than at any time since the 2008 financial crisis (UN Women, 2020). Although more men than women die from COVID-19 in most countries, the pandemic has disproportionately affected women's incomes and economic security, the burden of unpaid caring for loved ones, access to health care, mental health and sexual and reproductive health. Millions of people have lost their jobs, while others have been put on forced leave or laid off temporarily. Many families found themselves in a situation of uncertainty regarding work and income, which led to a sharp reduction in household spending. Some workers had reduced working hours, while others had to work double shifts and significantly increase their workload (OECD Policy Brief, 2020). Self-employed women and their small businesses have also suffered a lot, because the demand for beauty, tourism, and transport has fallen sharply, and there is no possibility of working remotely.

At first glance, working from home has significant advantages. A growing body of research confirms that employees who work remotely (including from home) are more efficient in performing day-to-day tasks than their office counterparts. In 2014, a study was conducted among the employees of the Chinese travel service Ctrip, which compared the performance of employees who regularly work remotely and those who worked exclusively in the office (Bloom, *et al*. 2015). The result is surprising: remote workers made 13.5% more service calls compared to their office counterparts (Bloom, 2014), practically hitting two daily targets. They quit half as often as office workers, and their level of job satisfaction was higher.

However, for a larger number of women, remote work still carries more minuses than pluses, since the field of activity at least does not present such an opportunity. Also, women are more prone to emotional breakdowns, and working in a confined space alone can contribute to this. And according to research, gender-based violence, which was already a global crisis before the pandemic, has intensified since the outbreak of COVID-19. All sorts of lockdowns and travel bans have left many women trapped with their abusers, isolated from social contacts and support networks. Increasing economic instability has further limited the ability of many women to escape abuse. At the same time, the pandemic has exposed women leaders to backlash, resulting in threats, abuse, and harassment both online and offline. Violence against women leaders can prevent them from fulfilling their responsibilities, regardless of their position (UN Women, 2021).

1.3. Previous empirical studies

There are several studies of the gender pay gap based on theories and analyses, using different data and countries, and analyzing different policies. This chapter presents a brief part of the research that the author relied on when writing his work. Lucifora and Vigani (2017) research the gender difference in the managerial position, between 2000 and 2015, which include 15 European countries Sweden, United Kingdom, Denmark, Ireland, France, Poland, Belgium, Luxembourg, Austria, Serbia, Italy, Netherlands and Greece. Their research show that female employees are more likely to experience gender discrimination than male employees if their boss is women, as well as young and highly educated employees are positively correlated with gender discrimination. Thus, an environment with a higher presence of women in leadership positions throughout the professional structure is a conducive environment for mitigating gender bias and discrimination against women in the workplace. The authors conclude that discrimination against women in the work environment may also be related to tight schedules and work-life balance, which women are subjected to more often than men, thus being punished more often (Lucifora, Vigani, 2017).
Cortes, Oliveira and Salomons (2021) explore the technological changes that are shaping modern labour markets. The authors study how men and women are differently exposed to structural changes in employment and wages in different technology-related occupations, and how this has affected the gender wage gap since the mid-1980s. This study involve two countries Portugal (1985–2017) and the United States (1983–2019). The analysis shows that technological change should not be expected to eliminate gender wage gap inequality on its own. The impact of women's skills development on the gender wage gap can be significantly mitigated if women continue to

earn lower wages and achieve lower wage growth both between and within occupations (Cortes, Oliveira, Salomons, 2021).

Caliendo and Wittbrodt (2022) research the impact of the German minimum wage introduction in 2015 on the gender wage gap. The minimum wage was found to have a considerable adverse impact on the regional gender wage gap. When compared to locations that were less affected by the minimum wage, the gap at the 10th percentile of the wage distribution shrunk by 4.6 percentage points (or 32%) between 2014 and 2018. The influence extends up into larger portions of the pay distribution even though it is most pronounced for the lowest paid (Caliendo, Wittbrodt, 2022).
Cukrowska-Torzewska and Lovasz (2020) researched how having children affects the gender wage gap and evaluated how institutional factors influence this relationship for 26 European countries. They show that fathers receive a wage premium regardless of cultural norms and policies, which widens the gender pay gap. The motherhood gap varies by nation. The largest gaps are seen in Eastern European nations, where laws and customs encourage frequent absences from work. Continental Europe, Anglo-Saxon, and Scandinavian nations have moderate to light penalties associated with greater maternal work rates. Southern European nations, whose mothers frequently return to work or permanently leave the labor force, do not show any motherhood penalties (Cukrowska-Torzewska, Lovasz, 2020).

Boler, Javorcik and Ulltveit (2015) research the hypothesis that exporters statistically discriminate against female employees and have a greater gender wage gap (GWG) than non-exporters if commitment is difficult to observe and women are thought to be less devoted workers than men. The authors test it from 1996 to 2010 using matched employer-employee data from the Norwegian industrial sector. Their identification method is based on an external shock, i.e., legislative amendments that lengthened the parental leave period available only to fathers. The perceived commitment gap between the sexes was reduced as a result of these improvements. After the shock, the originally larger gender pay disparity that had been noticed in exporting enterprises (relative to non-exporting firms) was examined. This effect was more evident in college graduates and women who were of childbearing age. Also, the rise in kindergarten enrolment, another external shock, had a comparable effect and helped to close the gender pay gap between exporters and non-exporters (Boler, Javorcik, Ulltveit, 2015).

In the work by Ndekugri and Pryor (2018), the authors assess the position of women in leadership positions in corporate America and see how this would affect the gender gap. The authors

considere factors such as lack of education, the combination of their professional life with family care, and sexual harassment. The study finds that men are more likely than women to nominate themselves for promotions, a trend repeated across almost every industry and workplace. And also, unfortunately, the choice of a woman is influenced by the environment in which she grew up, based on this, a woman, as it were, chooses a profession that is suitable for them (Ndekugri, Pryor, 2018). Erosa, Fuster and Restuccia (2002) consider a model of fertility and labor market decisions to examine the effect of fertility on gender differences in labor force turnover, employment, and wages. The results show that fertility generates important gender differences in employee turnover rates, with long-term implications for employment and wages. These differences in labor turnover account for nearly all of the U.S. male-female pay gap that Blau and Kahn (2000) attribute to labor market experience (Blau, Kahn, 2000).

Alexander, De smet, Langstaff and Ravid (2021) research the issue of remote work, interviewed employees, and make predictions about remote work after COVID-19 quarantine time. The result of their research show that employees are most interested in collaboration, connectivity, training, and technology policies. But also post-pandemic workers want firms to pay more attention to flexibility in work schedules and their well-being after the pandemic is over. They fear that in the office there is a high probability of getting sick, but remote work can lead to the loss of friendly relations in the team (Alexander, De smet, Langstaff, Ravid, 2021).

This approach allows for a thorough analysis and understanding of the topic at hand, as well as highlighting any discrepancies or new insights that the author's research may offer. It also adds credibility to the author's findings, as they are building upon previous studies and contributing to the overall understanding of the field. By breaking down each topic into smaller, more digestible pieces, the author can provide a comprehensive overview of the subject matter while also maintaining a level of detail that allows for more in-depth analysis and discussion. Overall, this approach is effective in providing a well-rounded perspective on complex concepts and ideas.

2. DATA AND METHODOLOGY

The purpose of this chapter is to provide an overview of the data and analysis methods used by the author to study the gender wage gap inequality. The chapter draws attention to performance hypotheses and variables used in the empirical models. Descriptive statistics and data visualization are used to characterize samples.

2.1. Data and sources used

In this thesis, secondary quantitative macro data of OECD countries have been used for the analysis. The data mainly comes from the ILOSTAT database, but the OECD database has also been used, as all the data were not available in the desired form in one or the other database at the same time. The main focus of the thesis is the OECD member states. As the data of some member states are incomplete for various reasons, the sample has been narrowed and the following thirteen countries are under consideration: Spain, Slovenia, Portugal, Poland, Netherlands, Italy, Hungary, Germany, France, Finland, Denmark, Belgium, Austria.

The author has chosen the years 2010-2020 as the observation period. The data are annual, i.e. for thirteen countries and there are a total of 143 observations over eleven years. Such an observation period has been chosen in order to see how the gender wage gap has changed in the OECD countries under review, in positions with a predominance of female employees after the economic recession that hit the world economy at the end of the first decade of the 2000s and before the pandemic of the COVID-19 pandemic that started in 2019. In addition, it is possible to obtain the most data for the current period.

Table 1. Descriptive statistics

Variable description (unit)	min	max	mean	standard dev
Wage gap[a] (%)	-4,0	20,20	8,57	5,34
Women on managerial position[c] (%)	21,9	43,30	32,73	4,83
Basic men education[a] (% of male population)	25,8	67,10	45,35	10,37
Intermediate men education[a] (%)	60,7	77,30	70,11	3,30
Advanced men education[a] (%)	73,1	84,60	78,43	3,01
Basic women education[a] (%)	10,5	54,60	28,21	9,25

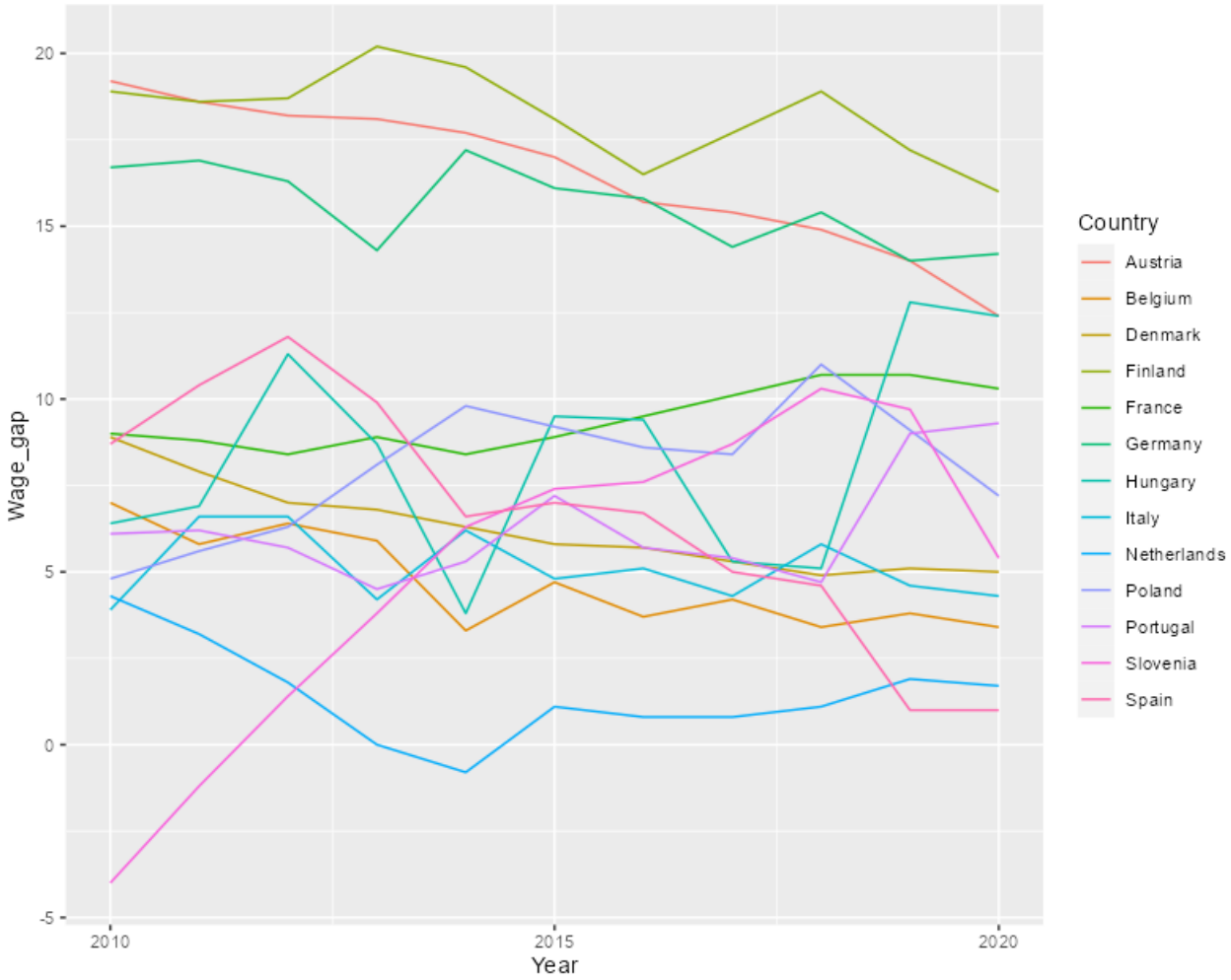
Intermediate women education[a] (%)	44,6	73,90	59,72	6,23
Advanced women education[a] (%)	67,8	84,40	76,72	3,45
Children per woman[a] (Children per woman)	1,2	2,02	1,54	0,20
Women who have not been to remote work[b] (%)	60,2	96,40	83,11	8,39
Women who usually work remotely[b] (%)	1,1	25,50	7,86	4,05
Men who have not been to remote work[b] (%)	59,5	95,60	81,95	9,39
Men who usually work remotely[b] (%)	0,7	24,80	7,57	4,33
Foreign − born men unemployment rate[a] (%)	2,6	37,4	12,4	6,2
Foreign − born women unemployment rate[a] (%)	2,9	34,1	13,6	5,8
Native − born men unemployment rate[a] (%)	2,9	23,5	7,8	4,0
Native − born women unemployment rate[a] (%)	2,3	25,2	8,1	4,6
Foreign − born men participation rate[a] (%)	66,9	90,9	80,3	4,0
Foreign − born women participation rate[a] (%)	48,8	80	65,0	6,5
Native − born men participation rate[a] (%)	68,2	88,2	77,6	4,2
Native − born women participation rate[a] (%)	50,3	82,1	68,7	7,0

Source: a - OECD, b - Eurostat, c - ILOSTAT, based on the corrected data of the bachelor's thesis developed by the author, (Pavlova 2022)

Unemployment is considered among native-born and foreign-born men and women. The results of the descriptive statistics show that unemployment among native-born men is 7.8% and among native-born women 8.1%. The result is approximately the same between foreign-born men 12.4% and foreign-born women 13.6%. This proves that foreign-born men find and get jobs faster than foreign-born women.

Participation rate is the demand between native-born men and women between foreign-born men and women in the labor market is considered. The descriptive statistics shows that, like native-born men (77.6%) and foreign-born men (80.3%), the percentage of women in the labor market exceeds the percentage of participation of women in the labor market, native-born women (68.7%) and foreign-born women (65%). As the main variable in the analysis is a gender wage gap, which is the difference in wages of male and female employees, a similar approach has been applied to other variables (Graph 1). New variables have been calculated, using the percentage difference between male and female variable values.

Graph 1. Gender wage gap by country, in percentage



Source: Developed by the author of the thesis (Pavlova 2022)

In particular, the gender unemployment rate wage gap between both native-born and foreign-born (UEGnative, UEGforeign), gender participation rate wage gap between both native-born and foreign-born (PGnative, PGforeign), gender share of remote work gap (RWG), gender share of never working remote wage gap (NWRG), gender education rate wage gap for basic, intermediate and advanced levels (EDGbasic, EDGintermediate, EDGadvanced).

2.2. Methodology and establishment of models

As a first step to perform the data analysis, the author has organized the data in the MS Excel program and then conducted the final analyzes in the econometrics package Gretl - both programs

are good for studying panel data. The author has established the following hypotheses within the framework of the thesis:

Hypothesis 1. Despite the identical conditions created for the professional activities of women and men, women are more often exposed to factors such as family and household, amount of children per woman, unemployment, participation and educations rates, managerial positions which may not suit the employer and affect the wages in the future.

Hypothesis 2. The transfer of company employees to remote work has exacerbated the situation of women's wage gaps, and discrimination has increased. If male employees are more likely to be sent to remote work than women, then wage gap discrimination is growing, while among those employees who have never gone to remote work, on the contrary, the percentage decreases.

The remote work wage gap is the percentage difference between men and women who work remotely. If the difference is positive, it means that the percentage of men working remotely prevails, which is also confirmed by the descriptive statistics. Two variables are taken, the gender remote workers wage gap (RWG) and not working remote gender wage gap (NWRG). Based on the descriptive statistics, on the one hand, if this difference is positive, then the wage gap decreases, this refers to the variable where employees, both men, and women, usually face remote work anyway. But on the other hand, the second NWRG variable is also considered, which turned out to be negative, since the percentage of women who work offline is higher (office, shop, etc.). The descriptive statistics show that when the Covid-19 pandemic began, a larger percentage of men 75.16% are not sent to remote work compared to women 74.21% (Table 2). It is the average meaning and not adjusted for the population of the countries and can vastly vary for each given country. In the theoretical part, it was mentioned that the pandemic caused a significant number of women to lose their permanent jobs in industries such as beauty, tourism, and social services, which are more creative. This information is reflected as zero in the descriptive statistics and pertains to the unemployment category.

Table 2. The average values

Year	Average female remote (%)	Average male remote (%)	Average female remote never in (%)	Average male remote never (%)

2010	6,75	6,57	86,66	84,92
2011	7,38	7,25	85,91	84,18
2012	7,44	7,32	85,38	83,89
2013	7,27	7,09	84,92	83,42
2014	7,22	7,05	84,85	83,42
2015	7,22	7,11	82,92	81,51
2016	6,93	6,89	82,66	81,32
2017	7,09	6,87	82,59	81,45
2018	7,13	6,87	82,52	81,42
2019	7,26	6,98	81,62	80,81
2020	14,77	13,30	74,21	75,16

Source: Developed by the author of the thesis, (Pavlova 2022)

To identify the relationships between the gender wage gap and other variables, a correlation analysis is initially performed, while after, a regression analysis is adopted. The author uses three methods in econometric analysis: pooled model, fixed effects model and random effects model. The choice of the final model is made according to the results of Hausman, Breusch-Pagan and F-test. In addition, the models are tested with Doornik-Hansen, VIF (Variance Inflation Factor), Wooldridge (Wooldridge, 2012) and White's tests. When interpreting the results of the analysis, the author uses a confidence level of 95%.

The mathematical model is created in the form:

$$WG_t = b + a_1 \cdot WM_t + a_2 \cdot FR_t + a_3 \cdot UEGnative_t + a_4 \cdot UEGforeign_t + a_5 \cdot PGnative_t + a_6 \cdot PGforeign_t + a_7 \cdot \mathrm{RWG_t} + a_8 \cdot \mathrm{NWRG_t} + a_9 \cdot \mathrm{EDGbasic_t} + a_{10} \cdot \mathrm{EDGintermediate_t} + a_{11} \cdot EDGadvanced_t + \varepsilon_t \quad (1)$$

where

WG – gender wage gap (in percentage),

WM – women of managerial position (in percentage),

FR – fertility rate (children per woman),

UEGnative – unemployment gap for native-born (in percentage),

UEGforeign – unemployment gap for foreign-born (in percentage),

PGnative – participation gap for native-born (in percentage),

PGforeign – participation gap for foreign-born (in percentage),

EDGbasic– basic education gap (in percentage),

EDGintermediate – intermediate education gap (in percentage),

EDGadvanced – advanced education gap (in percentage),

RWG – gender remote workers gap (in percentage),

NWRG – not working remote gap (in percentage),

b – intercept,

$a_{1,2,3,4,5,6,7,8,9,10,11}$ – regression coefficients,

ε_t – random component,

t – period (year).

To create an econometric model, the author selects variables based on previous empirical data from the literature. The dependent variable is the wage gap and the independent variables are women of managerial positions, fertility rate, unemployment gender gap (Azmat, Güell, Manning, 2015) for native-born, unemployment gender gap for foreign-born, participation gap for native-born, participation gender gap for foreign-born, basic education gender gap (Minasyan, Zenker, Klasen, Vollmer, 2019), intermediate education gender gap, advanced education gender gap, gender remote workers gender gap (Alexander, De Smet, Langstaff, Ravid, 2021), not working remote unemployment gap. The regression coefficients $a_{1,2,3,4,5,6,7,8,9,10,11}$ and the intercept b are found during the regression analysis. The random component ε is a combination of characteristics affecting the wage gap, which cannot be predicted during this analysis.

3. EMPIRICAL RESULTS

This chapter discusses the substantiation of the hypotheses studied in the dissertation from the point of view of the author's correlation-regression analysis. In particular, it sets out the study's steps to identify the statistical significance of the factors of probable influence on the labor market, namely, to the likelihood of the impact of elements on the performance of official duties in the telework model. The conclusion of the third chapter is the final analysis and decisions regarding the truth of the hypotheses under study.

3.1. Correlation analysis

"Correlation analysis is a method of statistical analysis of relationships between phenomena. Correlation analysis makes it possible to clarify the existence, strength, direction and statistical significance of the relationship." (Paas 1995, 180) As a result of the correlation analysis, a linear or Pearson correlation coefficient is obtained, the absolute value of which indicates the strength of the relationship between the given characteristics, and the sign of which indicates the direction of the relationship: positive or negative. Conventionally, if the absolute value of the correlation coefficient is $|r| < 0.3$, then there is a weak relationship between the two variables; if the absolute value is in the range $0.3 < |r| < 0.7$, then there is an average relationship; if $|r| > 0.7$, then there is a strong relationship. The correlation coefficient can also differ from zero between completely random variables that are not dependent on each other. To check this, the T-statistic test is used, which indicates whether the linear correlation coefficient obtained from the correlation analysis is statistically significant or not.

The results obtained during the correlation analysis are presented in Table 3. There is a statistically significant positive relationship of medium strength between the variable WG and UEGnative, the correlation coefficient is 0.55 (p-value = $0 < 0.05$). There is a statistically significant positive relationship of medium strength between the variable WG and UEGforeign, the correlation coefficient is 0.36 (p-value = $0 < 0.05$). There is a statistically significant negative relationship of

medium strength between the variable WG and NWRG, the correlation coefficient is -0.38 (p-value = 0 < 0.05). There is a statistically significant weak negative relationship between the variable WG and PGnative, the correlation coefficient is -0.26 (p-value = 0.002 < 0.05). There were no statistically significant relationships between the variable WG and other variables.

A statistically significant strong positive relationship exists between the variables EDGbasic and EDGintermediate, the correlation coefficient is 0.83. A statistically significant positive relationship of medium strength occurred between UEGnative and UEGforeign (correlation coefficient is 0.58), between PGnative and PGforeign (correlation coefficient is 0.52), between PGnative and EDGbasic (correlation coefficient is 0.58), between PGforeign and EDGbasic (correlation coefficient is 0.62), WM and EDGintermediate between (correlation coefficient is 0.42), between PGnative and EDGintermediate (correlation coefficient is 0.57), between foreign and EDGintermediate (correlation coefficient is 0.5), between EDGintermediate and EDGadvanced (correlation coefficient is 0.56), between WM and NWRG (correlation coefficient is 0.58), PGnative and NWRG between (correlation coefficient is 0.31), between EDGbasic and NWRG (correlation coefficient is 0.34), between EDGintermediate and NWRG (correlation coefficient is 0.32), between PGnative and EDGadvanced (correlation coefficient is 0.54). A statistically significant weak positive relationship occurred between FR and UEGnative (correlation coefficient is 0.29), between WM and EDGbasic (correlation coefficient is 0.17), between PGforeign and EDGadvanced (correlation coefficient is 0.2), between EDGbasic and EDGadvanced (correlation coefficient is 0.28), between WM and EDGadvanced (correlation coefficient is 0.19).

A statistically significant medium-strength negative relationship occurred between WM and UEGforeign (correlation coefficient -0.36), between FR and PGnative (correlation coefficient -0.46), between UEGnative and PGnative (correlation coefficient -0.47), between UEGforeign and EDGbasic (correlation coefficient -0.33) , between RWG and NWRG (correlation coefficient is -0.68), between UEGforeign and EDGintermediate (correlation coefficient is -0.33), between FR and NWRG (correlation coefficient is -0.3), between UEGnative and NWRG (correlation coefficient is -0.48), between UEGforeign and NWRG (correlation coefficient is -0.4), between WM and RWG (correlation coefficient is -0.63). A statistically significant weak negative relationship occurred between UEGforeign and PGnative (correlation coefficient is -0.18), between FR and EDGbasic (correlation coefficient is -0.18), between UEGnative and EDGbasic (correlation coefficient is -0.22), between FR and EDGintermediate (correlation coefficient is -

0.19), Between UEGnative and EDGintermediate (correlation coefficient is -0.22), between UEGnative and EDGadvanced (correlation coefficient is -0.18), between UEGforeign and EDGadvanced (correlation coefficient is -0.2).

Table 3. Correlation matrix

	WG	WM	FR	UEGnative	UEGforeign	PGnative
WG	1	0,04	-0,001	0,553*	0,363*	-0,260*
WM	-	1	-0,107	-0,14	-0,36	-0,051
FR	-	-	1	0,291*	0,15	-0,459*
UEGnative	-	-	-	1	0,577*	-0,467*
UEGforeign	-	-	-	-	1	-0,179*
PGnative	-	-	-	-	-	1

	PGforeign	EDGbasic	EDGintermediate	EDGadvanced	RWG	NWRG
WG	-0,074	-0,054	-0,067	-0,114	-0,134	-0,384*
WM	-0,131	0,175*	0,420*	0,189*	-0,631*	0,585*
FR	0,143	-0,184*	-0,186*	-0,071	0,048	-0,304*
UEGnative	-0,09	-0,219*	-0,219*	-0,183*	0,005	-0,478*
UEGforeign	-0,04	-0,330*	-0,325*	-0,200*	0,068	-0,397*
PGnative	0,522*	0,583*	0,574*	0,535*	0,115	0,314*
PGforeign	1	0,618*	0,503*	0,195*	-0,006	0,134
EDGbasic	-	1	0,831*	0,277*	-0,044	0,336*
EDGintermediate	-	-	1	0,564*	-0,101	0,321*
EDGadvanced	-	-	-	1	0,152	0,053
RWG	-	-	-	-	1	-0,678*
NWRG	-	-	-	-	-	1

Source: Author's analysis results in Gretl software (Pavlova 2022)
Notes: Statistical significance is determined as follows:
*statistically significant at 0.05 level.

In general, the analysis give positive results, thereby confirming both hypotheses. Analysis shows that an increase in wage gap is accompanied by an increase in gender unemployment wage gap for native-born people and similarly an increase in gender unemployment gap for foreign-born people. A decrease in variable that represents gender wage gap of never work remotely is accompanied by an increase in gender wage gap. A decrease in gender participation rate gap is accompanied by an increase in wage gap.

3.2. Regression analysis

A regression analysis is performed to investigate the influence of earlier defined factors on the gender wage gap. The dependent variable is the wage gap, and the independent variables are women of managerial positions, fertility rate, unemployment gender gap for native-born, unemployment gender gap for foreign-born, participation gender gap for native-born, participation gender gap for foreign-born, basic education gender gap, intermediate education gender gap, advanced education gender gap, gender remote workers gender gap, not working remote gender gap. In the analysis, statistically insignificant variables are not removed because they control certain aggregate effects in the model. It is easy to overestimate the effect of the remaining variables if they are ignored.

Model 1 is a pooled ordinary least squares (OLS) model (Appendix 2). Model 1 is statistically significant (p-value = 0.00 < 0.05), the explanatory power of the model is 63%. There are seven statistically significant variables in model (1): women on managerial position, fertility rate, unemployment gender gap for foreign-born (significance level 10%), basic education gender gap, intermediate education gender gap, remote workers gender gap, non-remote workers gender gap. The Wooldridge test result indicates that there is autocorrelation problem (p-value = 0.00 < 0.05). The Doornik-Hansen test indicates that the residual terms are normally distributed (p-value = 0.07 > 0.05). The White's test result indicates a heteroskedasticity problem (p-value = 0.03 < 0.05). The VIF test indicates no multicollinearity problem as all indicators are less than 10. An attempt is made to improve the model using adjusted (HAC) standard errors as it accounts for the presence of autocorrelation and heteroscedasticity.

Table 4. Pooled OLS model

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	0.954	4.619	0.207	0.8398	
WM	0.438	0.139	3.155	0.0083	***
FR	−9.016	2.682	−3.362	0.0057	***
UEGnative	0.061	0.063	0.978	0.347	
UEGforeign	0.042	0.025	1.637	0.128	
Pgnative	−0.047	0.133	−0.352	0.731	
Pgforeign	0.038	0.106	0.362	0.724	
EDGbasic	0.141	0.049	2.849	0.015	**
EDGintermediate	−0.322	0.18	−1.730	0.109	
EDGadvanced	0.236	0.193	1.220	0.246	
RWG	−0.175	0.039	−4.427	0.0008	***
NWRG	−1.658	0.276	−5.999	<0.0001	***

Source: Developed by the author of the thesis, (Pavlova 2022)

Model 2 is a pooled OLS model with robust standard errors (Table 4, Appendix 3). Model 2 is statistically significant (p-value = 0.00 < 0.05), the explanatory power of the model is 63%. There are five statistically significant variables in model (2): women on managerial position, fertility rate, basic education gender gap, remote workers gender gap, non-remote workers gender gap. The Wooldridge test result indicates that there is autocorrelation problem (p-value = 0.00 < 0.05). The Doornik-Hansen test indicates that the residual terms are normally distributed (p-value = 0.07 > 0.05). The White's test result indicates a heteroskedasticity problem (p-value = 0.00 < 0.05). The VIF test indicates no multicollinearity problem as all indicators are less than 10.

Model 3 is a fixed-effects model (Appendix 4). Model 3 is statistically significant (p-value = 0.00 < 0.05), the explanatory power of the model is 14%. The significance of the regressors is tested with the Wald test (Joint test on named regressors), as a result it was found that none of the regressors are statistically significant (p-value = 0.10 > 0.05). Thus, the author decided not to use fixed-effects model in analysis interpretation. Model 4 is a random-effects model (Appendix 5). The descriptive power of model 4 is 21%. According to the Breusch-Pagan test (p-value = 0.00 < 0.05), the random-effects model is better than the pooled model. The significance of the regressors is tested with the Wald test (Joint test on named regressors), as a result it was found that none of the regressors are statistically significant (p-value = 0.08 > 0.05). The Hausman test shows that the GLS estimates are not consistent (p-value = 0.01 < 0.05), so this model should not be used.

Based on the results of the conducted tests, the author chooses the pooled OLS model with robust standard errors (2) as the final model. The final model is represented by the formula:

$$WG_t = 0.95 + 0.44 \cdot WM_t - 9.02 \cdot FR_t + 0.06 \cdot UEGnative_t + 0.04 \cdot UEGforeign_t$$
$$-0.05 \cdot PGnative_t + 0.04 \cdot PGforeign_t - 0.17 \cdot RWG_t - 1.66 \cdot NWRG_t +$$
$$+0.14 \cdot EDGbasic_t - 0.32 \cdot EDGintermediate_t + 0.23 \cdot EDGadvanced_t + \varepsilon_t \quad (2)$$

where

WG – wage gap (in percentage),

WM – women of managerial position (in percentage),

FR – fertility rate (children per woman),

UEGnative – unemployment gender gap for native-born (in percentage),

UEGforeign – unemployment gender gap for foreign-born (in percentage),

PGnative – participation gender gap for native-born (in percentage),

PGforeign – participation gender gap for foreign-born (in percentage),

EDGbasic– basic education gender gap (in percentage),

EDGintermediate – intermediate education gender gap (in percentage),

EDGadvanced – advanced education gender gap (in percentage),

RWG – gender remote workers gap (in percentage),

NWRG – not working remote gender gap (in percentage),

ε_t – random component,

t – period (year).

The parameter estimates of the final model (2) shows that if the women of managerial position increases by one percent, WG increases by 0.44 percent. If FR increases by one child per woman, WG decreases by 9.02 percent. If EDGbasic increases by one percent, WG increases by 0.14 percent. If RWG increases by one percent, WG decreases by 0.17 percent. If NWRG increases by one percent, WG decreases by 1.65 percent.

3.3. Empirical interpretation of results

Regarding the hypothesis 1 (managerial positions), the percentage of women in leadership positions is considered. The analysis shows that if the percentage of women increases for a position with a leadership position, then the percentage of the wage gap also increases. Therefore, it is

possible to conclude that higher the demand for a managerial position by a woman, does not affect the growth of wages at all, but on the contrary, the wage gap becomes higher, which just reduces wages. According to the data from the model, it is clearly seen that the maximum percentage of women in leadership positions was 20%, and the minimum -4%. Also can be assumed about the discrimination of women themselves towards other women.

Fertility rate: From the theoretical part, it can be concluded that the number of children can exacerbate the wage gap between women and men, and the more children a woman has the lower salary. But as the model shows, the more children per woman, then the wage gap decreases by 9%, but if the fertility rate, on the contrary, increases by at least one child, then the wage gap decreases. Of course, it should be borne in mind that the average data are taken by the country, as well as the rate applied is 1-2 children per woman. The minimum is 1.2 children per woman and the maximum is 2.02 children per woman. Judging by the analysis, it appears that the gender wage gap narrows if the number of children per woman increases.

Education rate: basic, intermediate, and advanced education among men and women are considered. The analysis shows that it is the basic education of men that affects the wage gap between women and men. There were no statistically significant relationships between the variable advanced and intermediate education, only basic education showes it. If the percentage of men with basic education increases, then the wage gap between women and men also increases.

Regarding the hypothesis 2 (The transfer of company employees to remote work has exacerbated the situation of women's wage gaps, and discrimination in gender wage gap has increased), as gender remote workers gap (RWG) is the percentage difference between male and female workers who are working remotely, if the difference is positive, meaning that more male workers are working from home than female workers, then the gender wage gap is decreasing; and vice versa if RWG is negative meaning that more female workers than males are working remotely, then gender wage gap is increasing. Though a similar effect in terms of direction is in not working remote gender gap (NWRG) impact on the wage gap, but it is larger (-0.17% compared to -1.66%). Thus, RWG and NWRG don’t cancel each other out. NWRG is the percentage difference between male and female workers who are not working remotely, if the difference is positive, meaning that more male workers are never working from home than female workers then the gender wage gap is decreasing; and vice versa if NWRG is negative meaning that more female workers than males

are never working remotely, then gender wage gap is increasing. In most cases NWRG would be negative, meaning the wage gap would increase (Appendix 6).

4. CONCLUSION

The gender wage gap is the difference between the average wages of women and men. This wage gap is partly explained by different levels of remuneration in traditionally female and male professions, partly by the level of education, positions held, etc. But there is also an inexplicable part of the difference in the wages of women and men, with other things being equal, the characteristics of workers, which traditionally determines the level of gender discrimination.

The purposes of this thesis were to assess the influence of factors that potentially have an impact on the gender wage gap and to find out which factor plays the most essential role in shaping the wage gap in some OECD countries. Moreover, the thesis tries to quantify the wage gap between men and women before and during the COVID-19 outbreak, to identify the most successful gender-responsive HR practices based on comparative analysis. Data for 13 OECD countries (Spain, Slovenia, Portugal, Poland, Netherlands, Italy, Hungary, Germany, France, Finland, Denmark, Belgium, and Austria) for the period 2010-2020 are under consideration. To get an

answer to the research questions, the author first studied the scientific literature on the topic and then conducted a correlation and regression analysis. Previous empirical literature confirms some of the gender wage gap factors that the author explored in her work: family and household, amount of children per woman, unemployment (Fadoš, et al. 2019), participation and education rates, and managerial positions (International Labor Office 2020). But the author assumed most of these indicators independently, which was later confirmed by the analysis.

The analysis uses average data on the wage gap and the independent variables are women of managerial positions, fertility rate, unemployment gender wage gap for native-born and foreign-born, participation gender wage gap for native-born and foreign-born, basic education gender wage gap, intermediate education gender wage gap, advanced education gender wage gap, gender remote workers wage gap, not working remote gender wage gap between 2010 and 2020. The data comes from the Eurostat, ILOSTAT, World Bank, and OECD databases, also science articles. Both correlation and regression analysis were prepared in the Gretl program, the least squares method was used to construct the regression model.

Correlation analysis showed that there is a statistically significant positive relationship of medium strength between the variable wage gap and unemployment gender wage gap for native-born, the correlation coefficient is 0.55. There is a statistically significant positive relationship of medium strength between the variable wage gap and unemployment gender wage gap for foreign-born, the correlation coefficient is 0.36. And the statistically significant negative relationship of medium strength between the variable wage gap and not working remote gender wage gap, the correlation coefficient is -0.38. There is a statistically significant weak negative relationship between the variable wage gap and participation gender wage gap for native-born, the correlation coefficient is -0.26. And unfortunately, there were no statistically significant relationships between the variable wage gap and other variables.

In the regression analysis, the same indicators were taken as in the correlation analysis. The regression analysis showed that if the variable of women in managerial positions increases by one percent, the wage gap increases by 0.44 percent. If the fertility rate increases by one child per woman, the wage gap decreases by 9.02 percent. If the basic education gender wage gap increases by one percent, the wage gap increases by 0.14 percent. If the gender remote workers wage gap increases by one percent, the wage gap decreases by 0.17 percent. If not working remote gender

wage gap increases by one percent, and the wage gap decreases by 1.65 percent. In the author's opinion, the obtained results are logical and agree with the hypotheses put forward by the author.

The author found answers to all the research questions raised at the beginning of the thesis and confirmed the raised hypothesis. The obtained results were by the previous theory. The topic should be further investigated, and the model can be improved by adding other characteristics to the consumption equation (for example specific professions), which would probably give a better insight into the gender pay gap. And the author also revealed that the topic of remote work should be considered much broader, as it is a separate large and interesting topic that could not be fully explored within the framework of the work.

KOKKUVÕTE

SOOLISE PALGALÕHE PÕHJUSED OECD RIIKIDE NÄITEL

Vladlena Pavlova

Sooline palgalõhe on naiste ja meeste keskmise palga erinevus. See palgalõhe on osaliselt seletatav erineva töötasu tasemega traditsiooniliselt nais- ja meesaladel, osaliselt haridustasemega, ametikohtadel jne. Kuid naiste ja meeste palkade erinevuses on ka seletamatu osa. Kui asjad on võrdsed, siis töötajate omadused, mis traditsiooniliselt määrab soolise diskrimineerimise taseme.

Käesoleva lõputöö eesmärgiks on hinnata soolist palgalõhet potentsiaalselt tekitavate tegurite mõju ning välja selgitada, milline tegur mängib OECD riikides palgalõhe kujunemisel kõige olulisemat rolli. Samuti kvantifitseerida meeste ja naiste palgaerinevus enne COVID-19 puhangut ja selle ajal ning teha võrdleva analüüsi põhjal kindlaks kõige edukamad soopõhised personalitegevused. Vaatluse all on 13 OECD riigi (Hispaania, Sloveenia, Portugal, Poola, Holland, Itaalia, Ungari, Saksamaa, Prantsusmaa, Soome, Taani, Belgia ja Austria) andmed perioodi 2010–2020 kohta. Uurimisküsimustele vastuse saamiseks uuris autor esmalt teemakohast teaduskirjandust ning seejärel viis läbi korrelatsiooni- ja regressioonanalüüsi. Varasem empiiriline kirjandus kinnitab mõningaid soolise palgalõhe faktoreid, mida autor oma töös uuris: perekond ja leibkond, laste arv naise kohta, tööpuudus (Fadoš et al. 2019), osalus- ja haridusmäär ning juhtivad ametikohad (International Labour). Office 2020). Kuid autor eeldas enamikku neist näitajatest iseseisvalt, mida hiljem analüüs kinnitas.

Analüüsis on kasutatud keskmisi andmeid palgalõhe kohta ning sõltumatuteks muutujateks on juhtivatel kohtadel olevad naised, sündimuskordaja, töötuse sooline palgalõhe kodumaal ja välismaal sündinud, osalussooline palgalõhe kodumaal ja välismaal sündinud, põhiharidus sooline palgalõhe, keskhariduse sooline palgalõhe, kõrghariduse sooline palgalõhe, sooline kaugtöötajate palgalõhe, mittetöötavate sooline palgalõhe aastatel 2010–2020. Andmed pärinevad ka Eurostati, ILOSTATi, Maailmapanga ja OECD andmebaasidest teadusartikleid. Nii korrelatsiooni- kui

regressioonianalüüs koostati Gretli programmis, regressioonimudeli koostamisel kasutati vähimruutude meetodit.

Korrelatsioonianalüüs näitas, et kodumaal sündinud muutuva palgalõhe ja töötuse soolise palgalõhe vahel on statistiliselt oluline keskmise tugevusega positiivne seos, korrelatsioonikordaja on 0,55. Välismaal sündinud muutuva palgalõhe ja töötuse soolise palgalõhe vahel on statistiliselt oluline keskmise tugevusega positiivne seos, korrelatsioonikordaja on 0,36. Ja keskmise tugevusega statistiliselt oluline negatiivne seos muutuva palgalõhe ja mittetöötava soolise kaugpalgalõhe vahel on korrelatsioonikordaja -0,38. Muutuva palgalõhe ja osalussoolise palgalõhe vahel on statistiliselt oluline nõrk negatiivne seos põlissündinud elanike puhul, korrelatsioonikordaja on -0,26. Ja kahjuks ei olnud muutuva palgalõhe ja muude muutujate vahel statistiliselt olulisi seoseid.

Regressioonanalüüsis võeti samad näitajad, mis korrelatsioonianalüüsis. Regressioonanalüüs näitas, et kui juhtivatel kohtadel olevate naiste muutuja suureneb ühe protsendi võrra, suureneb palgalõhe 0,44 protsenti. Kui sündimuskordaja tõuseb ühe lapse võrra naise kohta, väheneb palgalõhe 9,02 protsenti. Kui põhihariduse sooline palgalõhe suureneb ühe protsendi võrra, suureneb palgalõhe 0,14 protsenti. Kui sooline kaugtöötajate palgalõhe suureneb ühe protsendi võrra, väheneb palgalõhe 0,17 protsenti. Kui ei tööta, suureneb sooline palgalõhe ühe protsendi võrra ja palgalõhe väheneb 1,65 protsenti. Autori hinnangul on saadud tulemused loogilised ja ühtivad autori püstitatud hüpoteesidega.

Autor leidis vastused kõikidele lõputöö alguses tõstatatud uurimisküsimustele ja kinnitas püstitatud hüpoteesi. Saadud tulemused olid eelneva teooria järgi. Teemat tuleks edasi uurida ja mudelit saab täiustada, lisades tarbimisvõrrandisse muid tunnuseid (näiteks konkreetsed elukutsed), mis tõenäoliselt annaks parema ülevaate soolisest palgalõhest. Ja autor paljastas ka, et kaugtöö temaatikat tuleks käsitleda palju laiemalt, kuna tegemist on eraldiseisva mahuka ja huvitava teemaga, mida töö raames ei jõutud lõpuni käsitleda.

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APPENDICES

Appendix 1. Correlation matrix

	WG	WM	FR	UEGnative	UEGforeign	PGnative
WG	1	0,04	-0,001	0,553*	0,363*	-0,260*
WM	-	1	-0,107	-0,14	-0,36	-0,051
FR	-	-	1	0,291*	0,15	-0,459*
UEGnative	-	-	-	1	0,577*	-0,467*
UEGforeign	-	-	-	-	1	-0,179*
PGnative	-	-	-	-	-	1

	PGforeign	EDGbasic	EDGintermediate	EDGadvanced	RWG	NWRG
WG	-0,074	-0,054	-0,067	-0,114	-0,134	-0,384*
WM	-0,131	0,175*	0,420*	0,189*	-0,631*	0,585*
FR	0,143	-0,184*	-0,186*	-0,071	0,048	-0,304*
UEGnative	-0,09	-0,219*	-0,219*	-0,183*	0,005	-0,478*
UEGforeign	-0,04	-0,330*	-0,325*	-0,200*	0,068	-0,397*
PGnative	0,522*	0,583*	0,574*	0,535*	0,115	0,314*
PGforeign	1	0,618*	0,503*	0,195*	-0,006	0,134
EDGbasic	-	1	0,831*	0,277*	-0,044	0,336*
EDGintermediate	-	-	1	0,564*	-0,101	0,321*
EDGadvanced	-	-	-	1	0,152	0,053
RWG	-	-	-	-	1	-0,678*
NWRG	-	-	-	-	-	1

Source: Author's analysis results in Gretl software (Pavlova 2022)

Notes: Statistical significance is determined as follows:

*statistically significant at 0.05 level.

Appendix 2. Pooled OLS model

Model 1: Pooled OLS, using 137 observations
Included 13 cross-sectional units
Time-series length: minimum 6, maximum 11
Dependent variable: WG

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	0,953977	5,51430	0,1730	0,8629	
WM	0,437855	0,126792	3,453	0,0008	***
FR	−9,01595	2,16586	−4,163	<0,0001	***
UEGnative	0,0614108	0,0392923	1,563	0,1206	
UEGforeign	0,0415729	0,0221742	1,875	0,0631	*
PGnative	−0,0466958	0,0818657	−0,5704	0,5694	
PGforeign	0,0383895	0,0540668	0,7100	0,4790	
EDGbasic	0,140802	0,0313415	4,493	<0,0001	***
EDGintermediate	−0,322422	0,0960322	−3,357	0,0010	***
EDGadvanced	0,235548	0,143418	1,642	0,1030	
RWG	−0,174900	0,0276575	−6,324	<0,0001	***
NWRG	−1,65834	0,181008	−9,162	<0,0001	***

Mean dependent var	8,629197	S.D. dependent var	5,448140
Sum squared resid	1485,694	S.E. of regression	3,447543
R-squared	0,631961	Adjusted R-squared	0,599573
F(11, 125)	19,51253	P-value(F)	2,73e-22
Log-likelihood	−357,6750	Akaike criterion	739,3501
Schwarz criterion	774,3898	Hannan-Quinn	753,5894
rho	0,674066	Durbin-Watson	0,541118

White's test for heteroskedasticity –
Null hypothesis: heteroskedasticity not present
Test statistic: LM = 102.667
with p-value = P(Chi-square(77) > 102.667) = 0.0269702

Wooldridge test for autocorrelation in panel data –
Null hypothesis: No first-order autocorrelation (rho = 0)
Test statistic: t(12) = 10.0628
with p-value = P(|t| > 10.0628) = 3.34691e-07

Test for normality of residual –
Null hypothesis: error is normally distributed
Test statistic: Chi-square(2) = 7.48484
with p-value = 0.0736967

Variance Inflation Factors
Minimum possible value = 1.0
Values > 10.0 may indicate a collinearity problem

WM	3.992
FR	2.096
UEGnative	2.617
UEGforeign	2.139
Pgnative	5.530
Pgforeign	2.908
EDGbasic	6.566
EDGintermediate	8.544
EDGadvanced	2.970
RWG	3.522
NWRG	4.439

Appendix 3. Pooled OLS model (robust standard errors)

Model 2: Pooled OLS, using 137 observations
Included 13 cross-sectional units
Time-series length: minimum 6, maximum 11
Dependent variable: WG
Robust (HAC) standard errors

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	0.953977	4.61902	0.2065	0.8398	
WM	0.437855	0.138790	3.155	0.0083	***
FR	−9.01595	2.68184	−3.362	0.0057	***
UEGnative	0.0614108	0.0627651	0.9784	0.3472	
UEGforeign	0.0415729	0.0253964	1.637	0.1276	
Pgnative	−0.0466958	0.132794	−0.3516	0.7312	
Pgforeign	0.0383895	0.106182	0.3615	0.7240	
EDGbasic	0.140802	0.0494262	2.849	0.0147	**
EDGintermediate	−0.322422	0.186356	−1.730	0.1092	
EDGadvanced	0.235548	0.193128	1.220	0.2460	
RWG	−0.174900	0.0395088	−4.427	0.0008	***
NWRG	−1.65834	0.276424	−5.999	<0.0001	***

Mean dependent var	8.629197	S.D. dependent var	5.448140
Sum squared resid	1485.694	S.E. of regression	3.447543
R-squared	0.631961	Adjusted R-squared	0.599573
F(11, 12)	106.2412	P-value(F)	3.35e-10
Log-likelihood	−357.6750	Akaike criterion	739.3501
Schwarz criterion	774.3898	Hannan-Quinn	753.5894
rho	0.674066	Durbin-Watson	0.541118

White's test for heteroskedasticity –
Null hypothesis: heteroskedasticity not present
Test statistic: LM = 44.3666
with p-value = P(Chi-square(22) > 44.3666) = 0.00319052

Wooldridge test for autocorrelation in panel data –
Null hypothesis: No first-order autocorrelation (rho = 0)
Test statistic: t(12) = 10.0628
with p-value = P(|t| > 10.0628) = 3.34691e-07

Test for normality of residual –
Null hypothesis: error is normally distributed
Test statistic: Chi-square(2) = 7.48484
with p-value = 0.0736967

Appendix 4. Fixed-effects model

Model 3: Fixed-effects, using 137 observations
Included 13 cross-sectional units
Time-series length: minimum 6, maximum 11
Dependent variable: WG

	Coefficient	*Std. Error*	*t-ratio*	*p-value*
const	3.43896	5.74873	0.5982	0.5509
WM	−0.0731394	0.123771	−0.5909	0.5557
FR	2.27289	2.74379	0.8284	0.4092
UEGnative	−0.0286776	0.0320421	−0.8950	0.3727
UEGforeign	0.0145533	0.0183190	0.7944	0.4286
Pgnative	−0.0381087	0.110694	−0.3443	0.7313
Pgforeign	−0.00711364	0.0515938	−0.1379	0.8906
EDGbasic	0.0544540	0.0346673	1.571	0.1190
EDGintermediate	0.0386829	0.147501	0.2623	0.7936
EDGadvanced	0.181565	0.198747	0.9135	0.3629
RWG	0.0329886	0.0311850	1.058	0.2924
NWRG	−0.238628	0.222117	−1.074	0.2850

Mean dependent var	8.629197	S.D. dependent var	5.448140
Sum squared resid	540.9015	S.E. of regression	2.187862
LSDV R-squared	0.866007	Within R-squared	0.137640
LSDV F(23, 113)	31.75332	P-value(F)	6.22e-39
Log-likelihood	−288.4626	Akaike criterion	624.9253
Schwarz criterion	695.0048	Hannan-Quinn	653.4039
rho	0.534473	Durbin-Watson	0.713355

Joint test on named regressors –
Test statistic: F(11, 113) = 1.63962
with p-value = P(F(11, 113) > 1.63962) = 0.0969822

Test for differing group intercepts –
Null hypothesis: The groups have a common intercept
Test statistic: F(12, 113) = 16.4481
with p-value = P(F(12, 113) > 16.4481) = 1.09376e-19

Appendix 5. Random-effects model

Model 4: Random-effects (GLS), using 137 observations
Included 13 cross-sectional units
Time-series length: minimum 6, maximum 11
Dependent variable: WG

	Coefficient	*Std. Error*	*z*	*p-value*	
const	2.75099	5.52605	0.4978	0.6186	
WM	0.0500873	0.116848	0.4287	0.6682	
FR	1.15923	2.51772	0.4604	0.6452	
UEGnative	−0.0229555	0.0317282	−0.7235	0.4694	
UEGforeign	0.0246114	0.0185134	1.329	0.1837	
Pgnative	−0.135780	0.0879474	−1.544	0.1226	
Pgforeign	−0.00952392	0.0497246	−0.1915	0.8481	
EDGbasic	0.0635697	0.0326762	1.945	0.0517	*
EDGintermediate	−0.0450465	0.118805	−0.3792	0.7046	
EDGadvanced	0.210684	0.181448	1.161	0.2456	
RWG	−0.00897575	0.0290886	−0.3086	0.7577	
NWRG	−0.523502	0.203190	−2.576	0.0100	***

Mean dependent var	8.629197	S.D. dependent var	5.448140
Sum squared resid	3218.405	S.E. of regression	5.053998
Log-likelihood	−410.6258	Akaike criterion	845.2516
Schwarz criterion	880.2914	Hannan-Quinn	859.4909
rho	0.534473	Durbin-Watson	0.713355

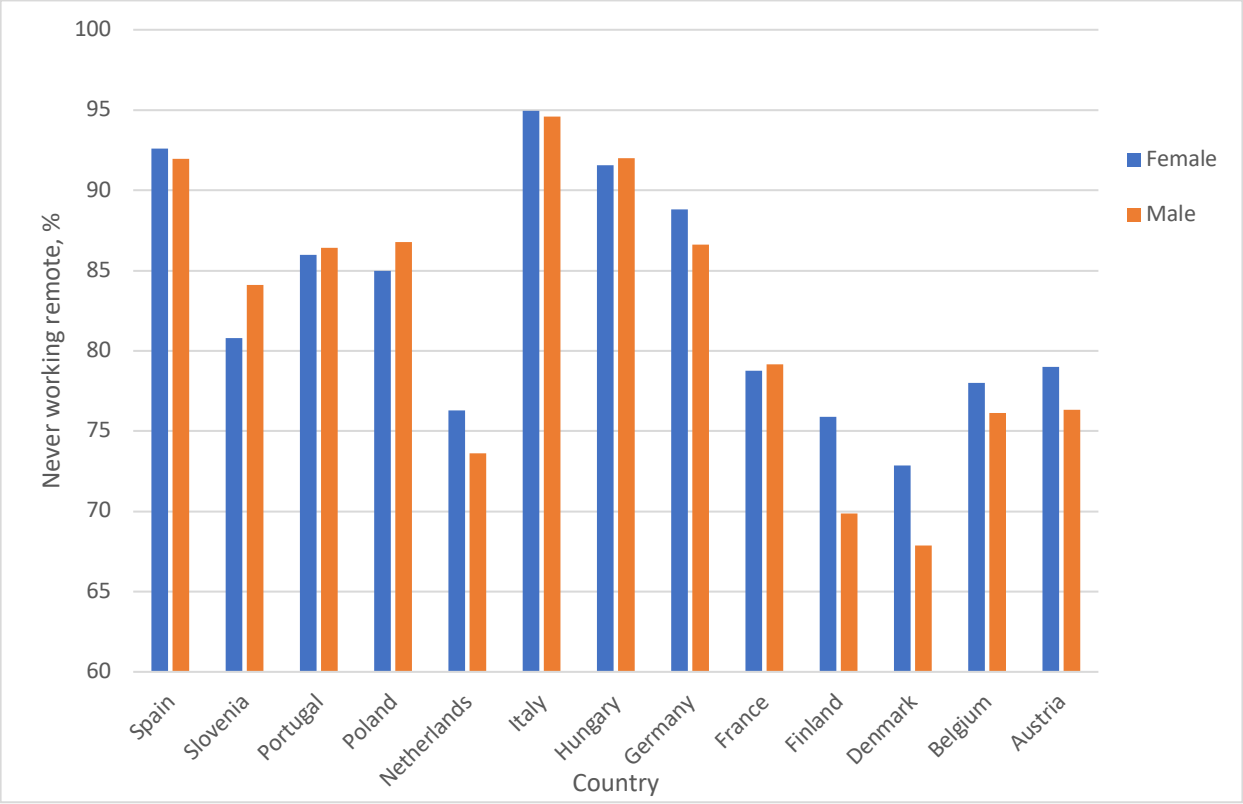
'Between' variance = 12.28
'Within' variance = 4.78674
mean theta = 0.809566

Joint test on named regressors –
Asymptotic test statistic: Chi-square(11) = 18.1596
with p-value = 0.0779504

Breusch-Pagan test –
Null hypothesis: Variance of the unit-specific error = 0
Asymptotic test statistic: Chi-square(1) = 30.6384
with p-value = 3.10879e-08

Hausman test –
Null hypothesis: GLS estimates are consistent
Asymptotic test statistic: Chi-square(11) = 26.0786
with p-value = 0.00631733

Appendix 6. Never working remote average share of male and female workers



Source: Developed by the author of the thesis (Pavlova 2022)

Appendix 7. Non-exclusive licence

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