TALLINN UNIVERSITY OF TECHNOLOGY
Department of Economics and Finance

Vladislav Martõnov

IMMEDIATE SUPERVISOR GENDER IMPACT ON PERCEIVED DISCRIMINATION AT THE WORKPLACE

Bachelor's thesis
Programme TAAB, specialisation Economic Analysis

Supervisor: Simona Ferraro, PhD

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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 the same paper
has not been previously presented for grading.

The document length is 8044 words from the introduction to the end of conclusion.

Vladislav Martõnov……

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ABSTRACT

In this bachelor's paper, the author has investigated the impact of immediate supervisor gender on perceived discrimination in the workplace. The author used logit and probit models to analyze the data and found that if the immediate supervisor was a woman, perceived discrimination was lower. This suggests that having a female boss may have a positive impact on employee experiences in the workplace.

In addition, the author used OLS to identify variables that affect the well-being index of employees. By doing so, the author was able to gain a better understanding of factors that contribute to employee satisfaction and overall well-being. This information can be useful for organizations looking to improve employee experiences and reduce discrimination in the workplace.

Overall, the findings of this study suggest that immediate supervisor gender can have a significant impact on employee experiences in the workplace. This highlights the importance of diversity and inclusion efforts in organizations, as having a diverse leadership team can positively impact employee experiences and reduce discrimination. Additionally, the identification of variables that affect well-being can help organizations make informed decisions about how to improve employee satisfaction and retention.

INTRODUCTION

Discrimination by gender is one of the topics that is being looked at relatively more in the recent decades, especially when it is relate to working conditions. Recent studies have found out that perceived gender discrimination at the workplace may vary depending on the gender of the immediate supervisor of the workers. It seems that there are not studies that consider the case of Estonia given the share of women as managers. Women continue to be paid less than men and are disproportionately underrepresented in supervisory, managerial, and executive positions despite the notable increase in female involvement in education, the labor market, and political life over the past few decades (ILOSTAT 2023).

Even though women make up over 55% of those in tertiary education and account for about 45% of workers in Europe, according to recent studies by the European Commission, their representation in high-level economic decision-making is still much lower than men, with significant regional variations (between 5% and 37% in 2016; European Commission 2012, 2016).

The purpose of this study is to investigate the influence of immediate supervisor gender on perceived gender discrimination in the workplace. Specifically, the thesis aims to test the following hypotheses:
Hypothesis 1: The presence of a female supervisor is associated with a reduction in perceived gender discrimination among employees.
Hypothesis 2: The presence of a female supervisor is associated with other positive workplace quality metrics, such as job satisfaction and employee retention.

In addition, the author aims to explore which specific workplace metrics are affected by the gender of the immediate supervisor. This research question will give a bit deeper understanding of the impact of gender diversity at the managerial level on various aspects of the work environment. By testing these hypotheses and answering this research question, the thesis seeks to contribute to the literature on gender and leadership in the workplace.

The International Labour Organization (ILO) is a valuable source of information regarding working conditions, providing data on various aspects of the workplace such as country, age, gender, and time. The organization releases this information annually, quarterly, and monthly. Additionally, the Eurofond survey and the European Working Conditions Telephone Survey also offer valuable insights into the everyday reality of men and women in the workplace, covering topics such as employment status, working time duration and organization, work organization, learning and training, physical and psychosocial risk factors, health and safety, work-life balance, worker participation, earnings and financial security, as well as work and health.

To analyze the impact of gender on workplace quality metrics, this thesis plans to utilize the ordinary least squares (OLS) regression analysis, logit and a probit model. The approach is similar to that employed by Lucifora and Vigani (2022) in their research. The use of these different models will allow for the comparison of results with similar studies and improve the accuracy of the analysis.

1. THEORETHICAL ASPECTS OF THE RELATION BETWEEN SUPERVISOR GENDER AND SITUATION AT THE WORKPLACE

Theoretical perspectives serve as the foundation of any research study. They provide a framework for understanding the phenomenon under investigation and help guide the research questions and hypotheses.

Furthermore, a thorough review of the literature related to this research questions is necessary to identify the gaps in the existing literature and establish the need for this study. This literature review will highlight the key concepts, findings, and limitations of previous research related to the research questions. By doing so, author can ensure that this study builds on the existing knowledge in the field and addresses the gaps in the literature.

1.1 Literature review

In this section, the author will outline the theoretical perspectives that underpin this study and describe how they inform the research questions and hypotheses. Similar and related researches are listed in the table 1 below in the chronological order.

In Lucifora's paper (2019), the accent is centered more around female leadership and gender discrimination rather than just gender pay gap, the effect of gender in top management positions on firms' performance or on management styles. The research uses comprehensive cross-country survey data from 15 European nations from 2000 to 2015 to examine the association between the gender of the immediate supervisor and employee complaints of workplace discrimination against women. According to this research, women in management roles are more likely to report instances of workplace discrimination than those in service and low-skilled jobs, who are less likely to do so. It is interesting that this study discovered no association between gender

discrimination and household characteristics, such as the existence of a spouse, a kid under the age of 15, and household size.

The significance of the interaction between workers and their managers is emphasized in the article. It claims that this relationship is essential to the operation of the business and the welfare of the workers they are in charge of. This assertion was underlined by the research by Booth and Leigh (2010), which is cited in the article. According to the study, having a good working connection with one's boss might increase one's dedication to the company as well as their job happiness and productivity. On the other side, a bad connection can lead to low performance, staff turnover, and work discontent. To secure the success of the business and the welfare of its workforce, it is critical for businesses to invest in creating and sustaining healthy relationships between employees and their supervisors. Similar and related researches are listed in the table 1 below in the chronological order.

Table 1. Relevant researches on the topic.

Paper	Year	Main research objective
Lucifora and Vigani	2019	Female leadership and gender discrimination
Flabbi et al.	2019	Female executives effect on gender gaps and firm performance
Blau and Kahn	2017	Gender pay gap
Koyuncu et al.	2017	Gender differences in work experiences
Artz and Taengnoi	2016	Female leadership
Triana et al.	2015	Discrimination at the workplace
Goldin	2014	Gender convergence
Matsa and Miller	2014	Female leadership
Hoogendoorn et al.	2013	Impact of gender on work behavior
Apesteguia et al.	2012	Impact of gender on work behavior
Booth and Leigh	2010	Significance of the interaction between workers and their managers
Bertrand et al.	2010	Gender pay gap
Brescoll and Uhlmann	2008	Woman in the workspace
Niederle and Vesterlund	2007	Gender differences in competition
Eagly and Carli	2007	Woman leadership
Albrecht et al.	2003	Gender pay gap
Fiske et al.	2002	Competence and warmth, status and competition
Ragins and Sundstorm	1989	Gender and power in organizations
Aigner and Cain	1977	Female leadership and gender discrimination
Becker	1957	Gender pay gap

Source: Author

Data from a sizable sample of male and female graduates from top MBA institutions in the United States are analyzed by Bertrand et al. (2010). According to the data, there is a sizable gender difference in the corporate and financial sectors, particularly when it comes to compensation and job advancement. Even after accounting for variables such as work experience, industry and job function, the study demonstrates that male graduates start off with greater beginning pay than female graduates, and the discrepancy expands with time. The report also reveals that women are less likely than males to receive promotions to higher-level positions.

Triana, Jayasinghe, and Pieper (2015) conducted a meta-analysis to investigate the relationship between perceived workplace racial discrimination and its potential correlates. The authors analyzed 134 studies that had been conducted between 1983 and 2013, which included over 155,000 participants from various industries in the United States. The findings revealed that perceived workplace racial discrimination was negatively associated with employee outcomes such as job satisfaction, organizational commitment, and job performance, and positively associated with employee outcomes such as turnover intentions, absenteeism, and psychological distress. The authors also found that perceived workplace racial discrimination was related to demographic variables such as race/ethnicity, age, and gender, with some groups experiencing higher levels of perceived discrimination than others.

Furthermore, the study found that some organizational factors, such as diversity management and leadership support, can help to mitigate the negative effects of perceived workplace racial discrimination. The authors suggest that organizations can take proactive steps to address and prevent workplace discrimination, such as implementing diversity and inclusion training, providing support for employees who experience discrimination, and creating a culture of inclusivity and respect.

The study conducted by Koyuncu, Acar, Burke, and Koyuncu (2017) aimed to explore gender differences in work experiences, work outcomes, and learning outcomes among employees in the manufacturing sector in Turkey. A total of 207 participants completed the survey questionnaire, which included questions about job satisfaction, organizational commitment, perceived stress, perceived work-family conflict, and learning outcomes. The results showed that female employees experienced more work-family conflict, perceived stress, and lower levels of job satisfaction and organizational commitment compared to male employees. Additionally, female employees reported lower levels of learning outcomes compared to male employees. These findings suggest

that gender differences in work experiences and outcomes exist in the manufacturing sector in Turkey. The authors recommend that organizations in the manufacturing sector in Turkey should develop policies and practices that are sensitive to gender differences in order to improve the work experiences and outcomes of female employees. They also suggest that future research should explore the underlying factors that contribute to gender differences in work experiences and outcomes in the manufacturing sector.

The article identifies a number of causes for the gender gap, like as disparities in negotiating techniques, career breaks, and gender preconceptions. According to the report, altering organizational rules and practices is necessary to close the gender gap in the corporate and financial sectors. Some suggested improvements include more open promotion criteria, adaptable work schedules, and mentorship programs.

Blau and Kahn's (2017) article provides a comprehensive review of the literature on the gender wage gap. The authors summarize the extent and trends of the gender wage gap in the United States, highlighting that while the gap has narrowed over time, it persists and varies by demographic groups. They also review various explanations for the gap, including differences in human capital, labor force experience, occupational segregation, and discrimination. Blau and Kahn conclude that while some of the gap can be explained by observable factors, a substantial portion remains unexplained, suggesting the presence of discrimination and other factors not accounted for in existing models. The article provides a valuable resource for those interested in understanding the complexities of the gender wage gap and its implications for individuals and society as a whole.

According to the research by Albrecht et al. (2003) and Becker (1957), if male supervisors and managers exhibit discriminatory behavior towards women, particularly in wage determination and career advancements, a higher number of women in leadership positions is likely to decrease the gender pay gap and create more promotion opportunities for women. Additionally, it has been suggested that when there is imperfect information, female managers may be better at discerning the unobserved productivity of other women, thus reducing statistical discrimination against women. Aigner and Cain (1977) support this argument.

The impact of gender on work behavior has been a subject of considerable research interest, with various studies suggesting that gender-based differences in risk aversion, competitive attitude, and

gender identity can influence the way women behave in predominantly male work environments compared to those in predominantly female jobs. This observation is further supported by Apesteguia et al. (2012) and Hoogendoorn et al. (2013).

The article by Brescoll and Uhlmann (2008) examines the impact of expressing emotions, specifically anger, on the perceived competence and status of women in the workplace. The authors conducted four experiments in which participants were presented with scenarios of male and female leaders expressing anger or sadness, and then asked to evaluate the leader's competence and status. The results indicate that when male leaders expressed anger, they were perceived as more competent and were conferred higher status, whereas when female leaders expressed anger, they were perceived as less competent and conferred lower status. These findings suggest that gender bias in the workplace can impact how emotions are perceived and evaluated, and that women who express anger may face negative consequences in terms of their perceived competence and status. The authors conclude by discussing the implications of these findings for gender equality in the workplace and suggest strategies for addressing gender bias.

A study by Fiske, Cuddy, Glick, and Xu (2002) proposes a model for understanding how individuals form perceptions of others based on their perceived competence and warmth. The authors argue that these perceptions are often mixed and can be influenced by the perceived status and competition between groups. The model suggests that individuals perceive others as competent if they are perceived to have high status and are in a competitive group, and as warm if they are perceived to have low status and are in a non-competitive group. On the other hand, individuals are perceived as less competent if they are perceived to have low status and are in a non-competitive group, and as less warm if they are perceived to have high status and are in a competitive group.

The authors support their model by reviewing a range of empirical evidence, including studies on perceptions of groups such as gender, race, and nationality. They argue that understanding these perceptions is important for understanding and addressing social issues related to inequality and discrimination. Overall, the article provides a theoretical framework for understanding how individuals form perceptions of others based on perceived competence and warmth, and how these perceptions are influenced by factors such as status and competition.

Women working in male-dominated environments may exhibit more risk-averse behavior and lower levels of competitiveness than their male counterparts. This behavior may be due to the need to conform to gender roles and expectations, or the perception of lower acceptance of assertive or competitive behavior from women in male-dominated fields. Consequently, this may lead to women being less likely to engage in risky decisions or to negotiate higher salaries, which can perpetuate the gender pay gap.

Furthermore, gender identity, or the extent to which individuals identify with stereotypical male or female traits, may also affect behavior in the workplace. Women who identify more strongly with male traits may be more likely to exhibit competitive behavior in male-dominated fields, while those who identify more with female traits may be more comfortable in female-dominated fields. The existence of these behavioral differences based on gender identity suggests that interventions to reduce gender disparities in the workplace should take into account the role of individual differences in gender identity and how they interact with work environments.

Through the Labyrinth: The Truth About How Women Become Leaders by Alice Eagly and Linda Carli (2007) is a book that explores the challenges that women face in leadership roles and the ways in which they can overcome these challenges. The authors draw on a wide range of research to provide a comprehensive analysis of the gender gap in leadership positions, highlighting the institutional and societal barriers that women encounter in their quest to achieve positions of power. The book challenges the notion that women are less capable leaders than men and argues that the gender gap in leadership is the result of systemic biases and societal expectations. The authors present a range of strategies that women can use to navigate these challenges, including building strong networks, developing negotiation skills, and seeking out mentors and sponsors.

The authors also examine the ways in which organizations can promote gender diversity in leadership roles. They argue that companies must make a conscious effort to overcome biases and promote women into leadership positions, and provide a range of best practices for achieving this goal. Overall, Through the Labyrinth is a comprehensive and insightful analysis of the challenges that women face in leadership positions, and offers a range of practical strategies for overcoming these challenges.

In the article by Niederle and Vesterlund (2007), the gender differences is explored in competition and whether women tend to avoid it more than men. The authors conducted laboratory experiments

to test whether men and women differ in their preferences for competitive environments and whether these differences can be attributed to socialization, culture, or biology.

According to the study, women definitely have a tendency to shy away from competition more than males do, but this difference may be diminished or even abolished if the competition is presented in a different way if the prizes for winning are greater. The authors also discover that variations in rivalry between men and women may have biological roots in addition to socialization or culture. To completely comprehend the intricate interplay between gender, society, and biology in influencing preferences for competition, they contend that further study is necessary and issue a warning against taking excessively general implications from their findings. Overall, this paper offers insightful information on the variables affecting gender disparities in competitiveness and emphasizes the need for more study to fully comprehend these disparities and their effects on the workplace and society at large.

The paper by Artz and Taengnoi (2016) explores whether women prefer having female bosses compared to male bosses. The study is based on a survey of over 9,000 workers in the US, and the authors use a probit model to analyze the data. The findings suggest that women do have a preference for female bosses, with women who have female bosses reporting higher job satisfaction and better workplace outcomes compared to those with male bosses. However, the preference for female bosses is not universal, as women with higher levels of education and those in higher-paying jobs are less likely to prefer female bosses.
Overall, the study highlights the importance of considering the gender composition of management positions, as it can have significant implications for worker satisfaction and performance.

The paper by Flabbi et al. (2019) investigates the impact of female executives on gender gaps and firm performance. The study is based on a comprehensive analysis of over 1,800 Italian firms, and the authors use a variety of econometric techniques to analyze the data. The findings suggest that having more female executives is associated with lower gender gaps in terms of wages, employment, and promotions. Furthermore, the study finds that firms with more female executives have higher productivity levels and better financial performance. The authors also find that the positive effects of female leadership on gender gaps and firm performance are stronger in industries with higher levels of gender segregation. Overall, the study highlights the importance of promoting gender diversity in leadership positions, as it can lead to better outcomes for both firms and workers. The findings suggest that policies aimed at increasing the representation of

women in executive positions could be beneficial in reducing gender gaps and improving firm performance.

The paper by Claudia Goldin (2014) reviews the progress of gender convergence in the United States over the past century. The study analyzes a wide range of data sources, including labor market outcomes, education, and family structure. The paper argues that there has been a remarkable convergence in the labor market outcomes of men and women over the past century, with women now making up a significant share of the workforce and achieving higher levels of education than men. Furthermore, the study finds that the gender pay gap has narrowed substantially, particularly among younger workers. However, the paper also notes that there are still significant gender gaps in certain areas, such as the underrepresentation of women in high-paying and male-dominated occupations. The paper suggests that these remaining gender gaps may be due to factors such as social norms, discrimination, and the difficulties women face in balancing work and family responsibilities.

Overall, the paper provides a comprehensive overview of the progress that has been made in achieving gender convergence in the United States, while also highlighting the remaining challenges that need to be addressed in order to achieve full gender equality. The study emphasizes the importance of continued efforts to promote gender diversity and to eliminate the remaining barriers that prevent women from achieving their full potential.

The article "Gender and power in organizations: A longitudinal perspective" by Ragins and Sundstrom, published in 1989 in the Psychological Bulletin, examines the relationship between gender and power in organizations. The authors provide an overview of the existing literature on gender and power, including research on gender differences in power, the effects of power on gender, and gender-based power dynamics in organizations. The authors also discuss the limitations of existing research and provide suggestions for future research, emphasizing the importance of longitudinal studies that examine the effects of gender and power over time. Overall, the article contributes to the understanding of gender and power in organizations and highlights the need for further research in this area.

The paper by Matsa and Miller (2013) investigates whether female leadership styles differ from male leadership styles in the corporate world. The study focuses on the impact of gender quotas for corporate boards in Norway, which were introduced in 2003 and required that at least 40% of

board members be women. The authors use a variety of methods, including survey data and natural experiments, to analyze the impact of the gender quotas on the leadership styles of male and female board members. The study finds that female board members are more likely to prioritize issues related to corporate social responsibility and to be more collaborative in decision-making compared to their male counterparts.

Furthermore, the study finds that the introduction of the gender quotas led to a significant increase in the representation of women on corporate boards, without any negative impact on firm performance. The authors argue that the increase in female representation on corporate boards is likely to have positive spillover effects for women in the workforce more broadly. Overall, the study suggests that there may be a "female style" of corporate leadership that emphasizes collaboration and social responsibility, and that gender diversity on corporate boards can have positive effects on both women and firms. The findings highlight the potential benefits of policies aimed at increasing gender diversity in leadership positions.

Based on the literature, it is not entirely clear whether women who work under female bosses face less discrimination compared to those who work under male bosses. While some studies suggest that having a female boss can lead to lower levels of discrimination and improved outcomes for women, others have found no significant difference. It is worth noting that the relationship between gender and workplace discrimination is complex and may be influenced by a variety of factors beyond the gender of one's boss. Overall, further research is needed to better understand the mechanisms behind workplace discrimination and to identify effective strategies for reducing its prevalence.

1.2 Main trends and ideas

The subsequent chapter will provide an overview of the prevailing trends and ideas in relation to the impact of immediate supervisor gender on perceived discrimination at the workplace, based on the studies discussed earlier. This chapter will draw upon the insights and findings of the studies to synthesize a coherent narrative of the prevailing trends and ideas in the literature. It will offer an analysis of the key issues, themes, and controversies surrounding the role of supervisor gender in shaping perceptions of discrimination at the workplace, and provide insights into the broader implications of this research for organizational policies and practices. The chapter will also

identify gaps in the current research and suggest avenues for future research to advance our understanding of the complex interplay between supervisor gender and perceived discrimination at the workplace.

In today's world, gender discrimination in the workplace is still a major concern despite efforts to promote gender equality (International Labour Organization, 2018). It is believed that one of the factors that can influence this issue is the gender of an individual's immediate supervisor. Studies have shown that the gender of one's supervisor can have an impact on how employees perceive discrimination in the workplace, which makes it an important area of research (Ragins, Sundstrom, 1989; Fiske et al., 2002).

Theories of discrimination in labor markets suggest that individuals may experience gender discrimination, which can lead to disparities in wages and career progression (Blau, Kahn, 2017). For instance, women are often underrepresented in leadership positions, which can be attributed to gender discrimination (Eagly, Carli 2021). Conversely, gender diversity in business teams has been shown to have a positive impact on team performance, leading to greater innovation and creativity (Herring, 2009).

A study by Brescoll and Uhlmann (2008) found that in female-dominated professions, such as nursing and elementary education, gender stereotypes negatively affected women's advancement opportunities. Women in these professions were perceived as communal, nurturing, and not suited for leadership roles, which limited their opportunities for career advancement. The study concluded that gender discrimination in female-dominated professions is a persistent problem that requires attention from both employers and policymakers.

The impact of an individual's immediate supervisor's gender on perceived discrimination in the workplace is a complex issue that requires further exploration. While research has shown that gender diversity can have positive effects, there are still disparities in certain industries and occupations. Therefore, it is important to continue exploring this topic to identify effective ways to promote gender equality in the workplace.

2. DATA AND METHODS

This section is a crucial part of any research project as it provides a detailed description of the research design and the procedures used to collect, process and analyze the data. In this study, the author will employ 3 statistical methods, namely ordinary least squares (OLS) regression analysis and probit and logit models, to examine the relationship between several independent variables and a dependent variable. The implementation of the models will be conducted with Wooldridge's (2015) book as an econometric textbook.

The data for this study will be drawn from two main sources, namely the Eurofond survey data and the European Working Conditions Telephone Survey (2021), which is available through the UK DATA service[1]. The Eurofond survey data includes a wealth of information on a range of socio-economic issues, such as employment, income, and social inclusion, while the European Working Conditions Telephone Survey provides detailed information on working conditions and job quality across a range of industries and sectors.

To conduct the analysis, the author will use the OLS regression analysis method to explore the relationship between several independent variables and the dependent variable, while the probit and logit models will be used to examine the relationship between a binary dependent variable and a set of independent variables. Both methods are widely used in quantitative research and are well-suited for analyzing large datasets.

2.1. Data

2.1.1 General description of the sources

The European Working Conditions Survey (EWCS) is a valuable data source that aims to provide a comprehensive overview of working conditions in Europe. Conducted periodically since 1990 by Eurofound, the survey covers a wide range of themes, including employment status, working time, work organization, physical and psychosocial risk factors, health and safety, worker participation, earnings and financial security, and work-life balance.

[1] https://ukdataservice.ac.uk/

The main objective of the survey is to assess and quantify working conditions of both employees and the self-employed across Europe on a harmonized basis, and to contribute to European policy development, particularly on quality of work and employment issues. The survey is generally conducted once every five years, based on a questionnaire administered face-to-face to a random sample of persons in employment representative of the working population in each EU country. Moreover, an integrated dataset is available that combines data from the first five waves of the survey in one file. As a potential data source for a bachelor's thesis, users are recommended to read the latest supplementary supporting documentation on the Eurofound European Working Conditions Survey webpages, which include methodological information, technical reports, and reports on translation, sampling implementation, sampling evaluation and weighting, coding, quality control, quality assurance, and other publications.

2.1.2 Data description

The author will discuss the data used to conduct the analysis in this section of the study. About 60 000 records make up the whole data set utilized in this study. Male and female genders are distributed in the data set almost evenly. The gender of the immediate boss is in a different position; almost two thirds of the entries have a male boss. See the descriptive image underneath (Figure 2.1).

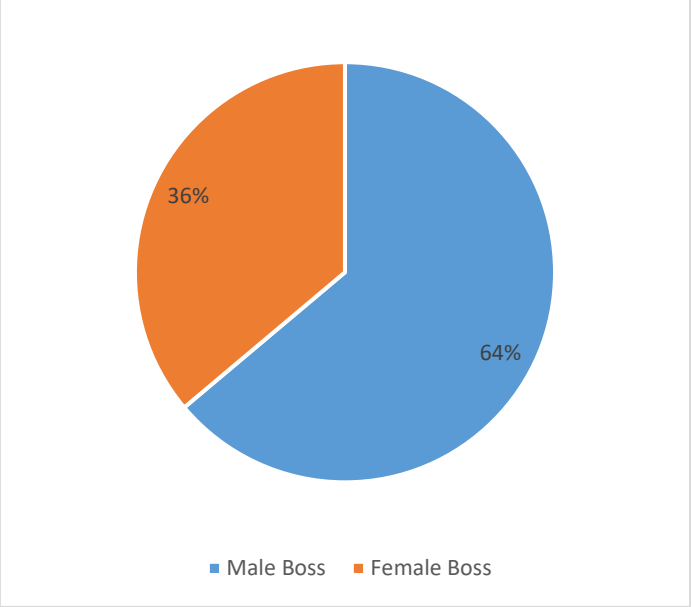

Figure 2.1. Distribution of the boss gender.
Source: EWCS 2021

Perceived discrimination is the primary modeled variable in this data set. Whether a subject has been treated less favorably or unjustly during the previous 12 months due to who they are or because they possess particular qualities is how perceived discrimination is measured. In the data set, about 11.7% of the entries has experienced discrimination in the past 12 months.

In research, it is important to consider various factors that may affect the relationship between the main objective variable and the main argument variable. Using additional data can provide a more comprehensive understanding of the research topic and help to control for confounding variables that may affect the results. Moreover, including additional data can help to increase the generalizability of the findings and enhance the external validity of the study.

The variables used in the research are chosen based on the research question and the available data set. The European Working Conditions Survey 2021 provides a wide range of variables related to working conditions, discrimination, and well-being. However, not all variables are relevant to the research question and some may have missing values or overlap with other variables.

Therefore, the author started by reviewing all the available variables and selecting those that were relevant to the research question. Some of the variables were similar to those used in previous research, such as the study by Lucifora. However, additional variables were also included to better capture the specific research question and to account for potential confounding factors.

After selecting the relevant variables, a data cleaning process was conducted to ensure that the selected variables were complete and without significant missing values. Variables that were found to overlap or have similar meanings were also removed to avoid multicollinearity issues. Finally, the remaining variables were tested in various models, and those that did not show statistical significance were eliminated from the analysis. The final set of variables used in the analysis consisted of about 50 variables related to working conditions, discrimination, and well-being.

All of the used variables and their meaning can be seen in the Appendix 5. The possible ways those variables can affect the perceived discrimination are also described below.

- expected_hours_week: A longer expected working hours may lead to increased stress and fatigue, which can affect an individual's perception of discrimination in the workplace.

- private_sector: The type of sector one works in can affect the level of job security, benefits, and overall work environment. This could lead to differences in perceived discrimination between private and non-private sector employees.
- seniority: Employees who have worked in the company for a longer time may have more power, authority, and control over their work environment. As such, they may be less likely to experience discrimination than newer employees.
- chemicals: Working with dangerous chemicals can be hazardous to one's health, and employees who work in such environments may experience greater levels of discrimination, especially if safety concerns are not adequately addressed.
- infect: Working with infectious materials can put employees at risk of contracting illnesses. Those who work in such environments may experience greater levels of discrimination, especially if safety concerns are not adequately addressed.
- lifting: The physical demands of lifting can be strenuous and lead to physical strain, injury, or discomfort. This could lead to differences in perceived discrimination between those who engage in this type of work and those who do not.
- carrying_loads: Similar to lifting, carrying heavy loads can be strenuous and lead to physical strain, injury, or discomfort, which could affect an individual's perception of discrimination in the workplace.
- dealing_customers: Employees who deal with customers may face greater pressure to maintain a professional demeanor and may be more likely to experience discrimination from customers or clients.
- emot_disturb: Employees who experience emotionally disturbing situations may be more likely to feel stressed, anxious, or demoralized. This could potentially lead to differences in perceived discrimination among employees who have experienced such situations compared to those who have not.
- computer: If the person is working with a computer, they may experience eye strain, headaches, and musculoskeletal disorders, which can affect their perceived discrimination at work.
- commute_time_minutes: A longer commute time can increase stress levels and negatively impact work-life balance, which can lead to higher perceived discrimination.
- commute_days: More frequent commuting can lead to higher levels of fatigue and stress, which can affect perceived discrimination at work.

- night: Working at night can lead to sleep disruptions, which can negatively affect physical and mental health and lead to higher levels of perceived discrimination.
- work_life_balance: If the person reports a good work-life balance, they may feel less stressed and more satisfied with their job, which can lead to lower levels of perceived discrimination.
- freetime_work: If the person reports that they have been working a lot in their free time, they may feel burnt out and overwhelmed, which can lead to higher levels of perceived discrimination.
- able_hour_off: If the person can easily take time off from work, they may feel more in control of their work-life balance, which can lead to lower levels of perceived discrimination.
- highspeed: Working in a high-speed environment can lead to increased stress levels and anxiety, which can affect perceived discrimination at work.
- tightdead: Working with tight deadlines can increase stress levels and negatively impact work-life balance, which can lead to higher perceived discrimination.
- learning_new_things: if a person's job requires learning new things, it may increase their job satisfaction and engagement, which may reduce their perception of discrimination.
- autonomy_method: having autonomy over work methods may increase a person's sense of control and satisfaction with their job, which could lead to lower perceived discrimination.
- support_colleagues: if a person feels that they have low support from colleagues, it may lead to a more negative work environment and increase the likelihood of perceiving discrimination.
- work_welldone: if a person does not feel that their work is accomplished, it could lead to a sense of dissatisfaction and negatively impact their perception of discrimination.
- decision_influence: having the ability to influence decisions related to one's work may increase a person's sense of control and reduce the likelihood of perceived discrimination.
- osh_risk: if a person feels that their health is at risk while working, it could increase their stress levels and negatively impact their perception of discrimination.
- presenteeism: if a person has worked while sick in the past 12 months, it could increase their stress levels and negatively impact their perception of discrimination.
- who5_cheerful: if a person was not feeling cheerful in the past 2 weeks, it could indicate a negative mood and potentially increase the likelihood of perceiving discrimination.

- who5_relaxed: if a person was not feeling relaxed in the past 2 weeks, it could indicate a high level of stress and potentially increase the likelihood of perceiving discrimination.
- who5_active: if a person was not being active in the past 2 weeks, it could indicate a lack of energy and potentially increase the likelihood of perceiving discrimination.
- who5_rested: if a person was not feeling rested in the past 2 weeks, it could indicate a lack of sleep or rest and potentially increase the likelihood of perceiving discrimination.
- who5_interesting: if a person was not feeling interested in the past 2 weeks, it could indicate a lack of motivation and potentially increase the likelihood of perceiving discrimination.
- losejob: if a person thinks there is a risk of losing their job, it could increase their stress levels and negatively impact their perception of discrimination.
- recognition: if a person does not feel that they are being recognized for their work, it could lead to a sense of dissatisfaction and potentially increase the likelihood of perceiving discrimination.
- opportunities_job: if a person does not think they have enough opportunities to use their skills and knowledge, it could lead to a sense of dissatisfaction and potentially increase the likelihood of perceiving discrimination.

The correlation between perceived discrimination and those variables can also be seen in the Appendix 1.

2.2. Method

2.2.1 Method selection

Logit and probit models are often used in research when the dependent variable is binary, meaning it takes on one of two possible values. In this study, author is examining the relationship between boss gender and perceived discrimination in the workplace, which is a binary variable. Specifically, respondents to the European Working Conditions Survey 2021 were asked whether they had experienced discrimination at work in the past 12 months, and their answers were recorded as either "yes" or "no". To analyze the relationship between boss gender and perceived discrimination, the author will use both logit and probit models to estimate the probability of experiencing discrimination given the gender of the boss. These models are appropriate for binary

dependent variables and allow us to estimate the effect of one or more independent variables on the probability of the event occurring.

In addition to examining the relationship between boss gender and perceived discrimination in the workplace, author also investigates the factors that may influence employees' wellbeing index. The wellbeing index is a continuous variable that ranges from 0 to 100, with higher values indicating better overall wellbeing. As a result, the author uses the Ordinary Least Squares (OLS) method to analyze the data related to the wellbeing index.

2.2.2 Logit

The Logit Model is a statistical technique used to analyze the relationship between a binary dependent variable and one or more independent variables. The model is used to estimate the probability of an event occurring, which is represented by the binary dependent variable. In the logit model, the dependent variable takes on the values of 0 or 1, depending on whether the event of interest occurred or not. The model estimates the log-odds of the dependent variable taking on a value of 1, given the values of the independent variables. The estimated coefficients in the logit model provide information on the magnitude and direction of the relationship between the independent variables and the log-odds of the event occurring.

The logit model can be expressed this way:

$$P\left(Y = 1 \mid X\right) = \frac{1}{1+e^{-\Lambda}} \quad (1)$$

$$\Lambda = \theta_0 + \theta_1 X_1 + \theta_2 X_2 + \cdots + \theta_k X_k. \quad (2)$$

Where Λ- is the linear equation made with regressors,

θ_0- is constant

θ_k- modeled parameter for the k'th variable

X_k- value of the k'th variable

2.2.3 Probit

The probit model is a statistical technique used to analyze the relationship between a binary dependent variable and one or more independent variables. It is a type of generalized linear model that assumes the dependent variable follows a Bernoulli distribution. The model estimates the

probability of the dependent variable taking on a value of 1, given the values of the independent variables. In the probit model, the estimated coefficients of the independent variables provide information on the magnitude and direction of the relationship between the independent variables and the probability of the event occurring. The coefficients can be interpreted as the change in the probability of the event occurring associated with a one-unit change in the corresponding independent variable, holding all other variables constant.

The probit model can be expressed this way:

$$Y^* = \theta_0 + \theta_1 x_1 + \theta_2 x_2 + \cdots + \theta_k x_k. \quad (3)$$

$$Y = \begin{cases} 1, Y^* > 0 \\ 0, Y^* < 0 \end{cases} \quad (4)$$

Where Y^*- is the linear equation made with regressors,
Y – the prediction of the model
θ_0- is constant
θ_k- modeled parameter for the k'th variable
X_k- value of the k'th variable

Overall, the probit model is a useful tool for analyzing binary data and understanding the factors that influence the probability of an event occurring.

2.2.4 OLS

The Ordinary Least Squares (OLS) model is a statistical technique used to estimate the linear relationship between a dependent variable and one or more independent variables. In the OLS analysis, the goal is to find the best-fitting straight line that represents the relationship between the dependent variable and the independent variable(s). The basic premise of OLS is to minimize the sum of squared differences between the observed values of the dependent variable and the predicted values based on the independent variable(s). The predicted values are obtained by estimating the coefficients of the independent variable(s) using a method called least squares estimation.

The OLS method assumes that the relationship between the dependent variable and the independent variable(s) is linear, and that the errors (or residuals) are normally distributed and have constant variance. The OLS method estimates the coefficients of the independent variable(s) by minimizing the sum of the squared errors.

The OLS model can be expressed this way:

$$Y = \theta_0 + \theta_1 x_1 + \theta_2 x_2 + \cdots + \theta_k x_k + e \quad (5)$$

Where Y- is the predicted value for discrimination,

θ_0- is constant

θ_k- modeled parameter for the k'th variable

X_k- value of the k'th variable

e – is an error term

3. EMPIRICAL EVIDENCE

The chapter presents the results of the data analysis and empirical testing conducted to answer the research questions and hypotheses outlined in the previous chapters. In this chapter, the author provide a detailed analysis of the data collected. The author discusses the statistical techniques employed in the data analysis. The chapter presents the findings of the study in a clear and concise manner, highlighting the key results and their significance. The author examines the relationships between perceived discrimination and immediate supervisor gender as well as others variables from the data. The author also discusses the limitations of the study and offer suggestions for future research.

The empirical evidence presented in this chapter contributes to the existing body of knowledge in the field and sheds new light on the research questions and hypotheses. The findings have important implications for practice and policy, and we discuss these implications in detail. Overall, the empirical evidence chapter provides a comprehensive and rigorous analysis of the data collected and contributes to our understanding of the research problem.

3.1. Perceived discrimination

In this chapter, the author present the results of the analysis on the relationship between boss's gender and perceived discrimination in the workplace. The author used both probit and logit models to examine the impact of boss's gender on the likelihood of experiencing discrimination.

Through the analysis, the author aims to shed light on the extent to which boss's gender affects the perceived discrimination experienced by employees. The probit and logit models allows to estimate the probability of experiencing discrimination based on the gender of the boss, and to compare the results of both models to determine which one provides a better fit to the data.

3.1.1 Probit analysis

The values of all parameters for the probit model can be seen in the table 3 below.

Table 3. Probit Model

Variable	Coefficient value	p-value
const	-1.099	2.00E-17
boss_gender	0.090	6.71E-06
seniority	0.003	0.0312
chemicals	-0.056	0.0151
infect	-0.078	0.0012
carrying_loads	-0.098	2.19E-06
emot_disturb	-0.372	1.04E-48
commute_days	-0.012	0.0024
work_life_balance	-0.051	0.0179
freetime_work	0.172	3.03E-05
able_hour_off	-0.100	4.14E-06
highspeed	-0.087	0.0317
learning_new_things	0.199	9.97E-05
autonomy_method	0.121	2.14E-05
support_colleagues	0.230	0.0004
work_welldone	0.420	1.28E-08
decision_influence	0.312	1.62E-19
osh_risk	0.396	2.93E-85
presenteeism	0.348	3.41E-72
who5_active	0.173	4.29E-08
who5_rested	0.130	0.0001
who5_interesting	0.148	9.39E-07
losejob	0.386	7.09E-27
recognition	-0.364	1.20E-48
opportunities_job	-0.093	4.42E-06
time_care_relatives_total_minut	0.000	0.0213
gender	-0.130	4.63E-11
age	0.002	0.0584

wellbeing_index	0.009	1.84E-51

Source: Author

The parameter value for the gender of the boss in this model is equal to 0.090 with standard error 0.02 which makes it statistically significant at 0.01 p-value level. This suggests that if the boss is female then these is less risk of experiencing discrimination at the workplace. The R-squared for this model is 0.16 with number of observations equal to 37.989. The model predicted 88.5% of the training data set although the model is more inclined to predict absence of discrimination. Model sensitivity rate is 8.1% and model specificity is 99.4%.

Test for the normality of residuals was also performed for this model. The p-value for the test was lower than 0.01 which means that the null hypothesis that the error is normally distributed was not supported. The result of the test suggest to use different analysis like logit model in order to increase model performance. More details about the model can be seen in the Appendix 3.

3.1.2 Logit analysis

The values of all parameters for the probit model can be seen in the table 4 below.

Table 4. Logit Model

Variable	Coefficient value	odds	p-value
const	-1.893	0.151	7.67E-16
boss_gender	0.184	1.202	1.03E-06
seniority	0.005	1.005	0.0199
chemicals	-0.113	0.893	0.0086
infect	-0.140	0.870	0.0015
carrying_loads	-0.186	0.831	2.00E-06
emot_disturb	-0.753	0.471	1.20E-47
commute_days	-0.020	0.980	0.0058
work_life_balance	-0.102	0.903	0.0132
freetime_work	0.313	1.368	1.73E-05
able_hour_off	-0.202	0.817	1.59E-06
highspeed	-0.160	0.852	0.0437
learning_new_things	0.375	1.455	4.37E-05

autonomy_method	0.226	1.254	1.23E-05
support_colleagues	0.402	1.495	0.0005
work_welldone	0.704	2.023	3.02E-08
decision_influence	0.539	1.713	1.09E-18
osh_risk	0.729	2.074	6.49E-85
presenteeism	0.639	1.895	5.53E-72
who5_active	0.328	1.388	4.71E-08
who5_rested	0.249	1.282	0.0001
who5_interesting	0.267	1.306	3.09E-06
losejob	0.691	1.996	1.09E-27
recognition	-0.732	0.481	9.47E-49
opportunities_job	-0.176	0.839	3.55E-06
time_care_relatives_total_minut	-0.001	0.999	0.0218
gender	-0.245	0.783	5.09E-11
age	0.004	1.004	0.048
wellbeing_index	0.016	1.016	1.09E-50

Source: Author

The parameter value for the gender of the boss in this model is equal to 0.090 with standard error 0.02 which makes it statistically significant at 0.01 p-value level. By this model if all of the other values would fixed then the odds for the person to experience discrimination in the last 12 months are 20.2% lower if the boss is female.

The R-squared for this model is 0.16 with number of entries equal to 37.989. The model predicted 88.5% of the training data set although the model is more inclined to predict absence of discrimination. Model sensitivity rate is 9.5% and model specificity is 99.2%.

3.1. Wellbeing

In this chapter, author present the results of the analysis on the relationship between boss's gender and worker wellbeing index in the workplace. Author used simple OLS model to examine the impact of boss's gender on worker wellbeing, taking into account other relevant factors such as gender, total work hours and total housework hour etc.

Through the analysis, the author aims to shed light on the extent to which boss's gender affects the wellbeing of the employees. The OLS model allows to estimate the wellbeing index based on the gender of the boss. By studying the results of the analysis, the author can gain insights into the factors that contribute to wellbeing in the workplace, and identify potential strategies for increasing wellbeing.

The values of all parameters for OLS model can be seen in the Appendix 4. All of the regressors in this model are significant at p-value lower than 0.01 which means that the model suggests that wellbeing index can be affect by each of the regressors in a magnitude of its parameter value. The R-squared for this model is 0.477 with number of entries equal to 37955. Models insignificance probability is lower than 0.01 which makes the model statistically significant.

In order to be more confident in the model adequacy some test were performed on the model. The White's test for heteroskedasticity suggest that the model may suffer from the presents of the heteroskedasticity. The p-value for this test was lower than 0.01. Another test that was performed on this model was for normality of the residuals. It is p-value was also lower than 0.01 which means that residuals are not normally distributed.

CONCLUSIONS

In conclusion, the present study investigated the impact of immediate supervisor gender on perceived discrimination in the workplace, as well as the factors that affect employee well-being. The results obtained from both the logit and probit models suggested that having a female immediate supervisor reduced the likelihood of experiencing discrimination in the workplace. This finding is consistent with previous research that has shown that women tend to be more supportive and egalitarian in their leadership styles, which may contribute to a more inclusive and respectful work environment.

In addition, the OLS regression model revealed several variables that significantly impacted employee well-being, including age, education level, tenure, job type, and perceived discrimination. Specifically, younger employees reported higher levels of well-being, while those with higher levels of education and tenure reported lower levels of well-being. Furthermore, employees who held non-managerial positions reported lower levels of well-being than those in managerial positions, and those who perceived higher levels of discrimination reported significantly lower levels of well-being.

Overall, these findings have important implications for workplace diversity and inclusion efforts. By promoting gender diversity in leadership positions, organizations may be able to create a more inclusive and supportive work environment that benefits all employees. Additionally, the identification of factors that impact employee well-being highlights the importance of addressing discrimination and providing support for employees who may be struggling in their roles. Further research in this area is needed to better understand the complex interplay between supervisor gender, discrimination, and employee well-being, and to develop effective interventions to promote a more equitable workplace for all employees.

SUMMARY

IMMEDIATE SUPERVISOR GENDER IMPACT ON PERCEIVED DISCRIMINATION AT THE WORKPLACE

Vladislav Martõnov

This paper examines the impact of immediate supervisor gender on perceived discrimination at the workplace. The author utilizes logit and probit models to analyze the data obtained from a survey conducted in Estonia in 2014. The survey collected responses from 1,016 employees from various industries and regions in Estonia.

The study found that if the immediate supervisor was a woman, then the perceived discrimination at the workplace was lower. The author also used OLS (Ordinary Least Squares) regression analysis to determine the factors that affect the well-being index of employees. The variables found to have a significant impact on well-being include job satisfaction, age, education, income, gender, and occupation.

The study contributes to the literature on workplace discrimination and highlights the importance of considering the gender of immediate supervisors in reducing perceived discrimination at the workplace. The findings of the study can be useful for employers, policymakers, and researchers interested in promoting workplace diversity and inclusion. However, the study has some limitations, such as a limited sample size and a focus on only one country, which may affect the generalizability of the findings to other contexts.

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Appendicies

Appendix 1. Correlation matrix

Variable	Correlation with discrimination
discrimination	1
boss_gender	-0,00369
expected_hours_week	-0,012
private_sector	-0,03326
seniority	0,010277
chemicals	-0,09472
infect	-0,10743
lifting	-0,07998
carrying_loads	-0,09782
dealing_customers	-0,03901
emot_disturb	-0,13769
computer	0,020804
commute_time_minutes	-0,02584
commute_days	-0,03157
night	-0,05663
work_life_balance	-0,0964
freetime_work	0,060659
able_hour_off	-0,11004
highspeed	-0,03393
tightdead	-0,01517
learning_new_things	0,054158
autonomy_method	0,071143
support_colleagues	0,058966
work_welldone	0,097699
decision_influence	0,119886
osh_risk	0,226422
presenteeism	0,185015
who5_cheerful	-0,04695
who5_relaxed	-0,05228
who5_active	-0,02995
who5_rested	-0,04165
who5_interesting	-0,02936
losejob	0,095285
recognition	-0,15196
opportunities_job	-0,10241
time_care_children_total_minutes	-0,01394
time_housework_total_minutes	-0,02288
time_care_relatives_total_minutes	-0,02506
hh_size	-0,00999
gender	-0,04493
age	0,020777
wellbeing_index	0,187081

Appendix 2. Logit model

Model 1: Logit, using observations 1-37989
Dependent variable: discriminated against
Standard errors based on Hessian

	Coefficient	*Std. Error*	*z*	*Slope**
const	−1.89270	0,234844	−8,059	
boss_gender	0.183775	0,0376187	4,885	0,0133198
seniority	0.00516056	0,00221734	2,327	0,000381631
chemicals	−0.113178	0,0430862	−2,627	−0,00850931
infect	−0.139771	0,0441319	−3,167	−0,0106537
carrying_loads	−0.185548	0,0390378	−4,753	−0,0138834
emot_disturb	−0.752567	0,0518989	−14,50	−0,0492369
commute_days	−0.0197124	0,00714586	−2,759	−0,00145776
work_life_balance	−0.102180	0,0412115	−2,479	−0,00746745
freetime_work	0.313066	0,0728547	4,297	0,0261459
able_hour_off	−0.201546	0,0419875	−4,800	−0,0145710
highspeed	−0.159727	0,0792035	−2,017	−0,0111578
learning_new_things	0.374828	0,0917094	4,087	0,0321621
autonomy_method	0.226159	0,0517298	4,372	0,0180304
support_colleagues	0.401864	0,114532	3,509	0,0350108
work_welldone	0.704473	0,127152	5,540	0,0695344
decision_influence	0.538505	0,0610149	8,826	0,0486508
osh_risk	0.729333	0,0373503	19,53	0,0618850
presenteeism	0.639315	0,0356321	17,94	0,0533883
who5_active	0.328149	0,0600792	5,462	0,0266714
who5_rested	0.248630	0,0648834	3,832	0,0198301
who5_interesting	0.267218	0,0572875	4,665	0,0213361
losejob	0.691325	0,0633940	10,91	0,0664451
recognition	−0.731525	0,0498520	−14,67	−0,0496683
opportunities_job	−0.176120	0,0379865	−4,636	−0,0130619
time_care_relatives_total_minut	−0.000672680	0,000293292	−2,294	−4,97457e-05
gender	−0.244590	0,0372374	−6,568	−0,0180775
age	0.00372678	0,00188503	1,977	0,000275601
wellbeing_index	0.0155358	0,00103753	14,97	0,00114890

Mean dependent var	0,880834	S.D. dependent var	0,323988
McFadden R-squared	0,160437	Adjusted R-squared	0,158347
Log-likelihood	−11649,66	Akaike criterion	23357,32
Schwarz criterion	23605,13	Hannan-Quinn	23435,95

*Evaluated at the mean
Number of cases 'correctly predicted' = 33614 (88,5%)
f(beta'x) at mean of independent vars = 0,324
Likelihood ratio test: Chi-square(28) = 4452,41 [0,0000]

Appendix 3. Probit model

Model 2: Probit, using observations 1-37989
Dependent variable: discrimination
Standard errors based on Hessian

	Coefficient	*Std. Error*	*z*	*Slope**
const	−1.09882	0,129367	−8,494	
boss_gender	0.0903565	0,0200666	4,503	0,0138167
seniority	0.00254177	0,00118007	2,154	0,000395153
chemicals	−0.0563572	0,0232012	−2,429	−0,00887909
infect	−0.0780025	0,0240676	−3,241	−0,0124624
carrying_loads	−0.0984933	0,0207989	−4,736	−0,0154635
emot_disturb	−0.372191	0,0253747	−14,67	−0,0520412
commute_days	−0.0116342	0,00383944	−3,030	−0,00180870
work_life_balance	−0.0506800	0,0214049	−2,368	−0,00780268
freetime_work	0.172451	0,0413410	4,171	0,0298343
able_hour_off	−0.0995747	0,0216258	−4,604	−0,0151928
highspeed	−0.0871447	0,0405611	−2,148	−0,0128679
learning_new_things	0.198807	0,0510894	3,891	0,0350331
autonomy_method	0.121324	0,0285467	4,250	0,0201251
support_colleagues	0.230131	0,0653012	3,524	0,0414999
work_welldone	0.419679	0,0737686	5,689	0,0849656
decision_influence	0.312193	0,0345483	9,036	0,0581959
osh_risk	0.395614	0,0202181	19,57	0,0689868
presenteeism	0.347931	0,0193629	17,97	0,0599357
who5_active	0.172651	0,0315135	5,479	0,0290575
who5_rested	0.130100	0,0336482	3,866	0,0215522
who5_interesting	0.148130	0,0302053	4,904	0,0246526
losejob	0.386070	0,0359689	10,73	0,0752762
recognition	−0.364404	0,0248609	−14,66	−0,0525314
opportunities_job	−0.0932176	0,0203073	−4,590	−0,0145238
time_care_relatives_total_minut	−0.00037531 5	0,000162998	−2,303	−5,83479e-05
gender	−0.130475	0,0198215	−6,582	−0,0202623
age	0.00189360	0,00100066	1,892	0,000294386
wellbeing_index	0.00852215	0,000564691	15,09	0,00132489

Mean dependent var	0,880834	S.D. dependent var	0,323988
McFadden R-squared	0,159732	Adjusted R-squared	0,157642
Log-likelihood	−11659,45	Akaike criterion	23376,90
Schwarz criterion	23624,70	Hannan-Quinn	23455,53

*Evaluated at the mean
Number of cases 'correctly predicted' = 33617 (88,5%)
f(beta'x) at mean of independent vars = 0,324
Likelihood ratio test: Chi-square(28) = 4432,84 [0,0000]
Test for normality of residual -

Null hypothesis: error is normally distributed
Test statistic: Chi-square(2) = 21,519
with p-value = 2,1243e-05

Appendix 4. OLS model

Model 3: OLS, using observations 1-37989
Dependent variable: wellbeing_index

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	63,0373	1,18487	53,20	<0,0001	***
discrimination	4,29363	0,243885	17,61	<0,0001	***
boss_gender	−0,536410	0,165578	−3,240	0,0012	***
private_sector	0,769409	0,163129	4,717	<0,0001	***
infect	0,585336	0,198206	2,953	0,0031	***
lifting	1,14924	0,230282	4,991	<0,0001	***
dealing_customers	1,49598	0,199853	7,485	<0,0001	***
emot_disturb	−1,61349	0,181157	−8,907	<0,0001	***
commute_time_minutes	−0,00943709	0,00294445	−3,205	0,0014	***
commute_days	0,161566	0,0430536	3,753	0,0002	***
night	−0,470117	0,163814	−2,870	0,0041	***
work_life_balance	−2,69235	0,166093	−16,21	<0,0001	***
freetime_work	2,31670	0,389807	5,943	<0,0001	***
able_hour_off	−0,734900	0,165911	−4,429	<0,0001	***
learning_new_things	2,05228	0,462371	4,439	<0,0001	***
autonomy_method	1,94597	0,252795	7,698	<0,0001	***
support_colleagues	5,05690	0,626955	8,066	<0,0001	***
work_welldone	9,09699	0,795305	11,44	<0,0001	***
decision_influence	4,14569	0,336592	12,32	<0,0001	***
osh_risk	4,70881	0,181050	26,01	<0,0001	***
presenteeism	4,24600	0,172776	24,58	<0,0001	***
who5_cheerful	−7,47428	0,243677	−30,67	<0,0001	***
who5_relaxed	−7,71711	0,271122	−28,46	<0,0001	***
who5_active	−7,65561	0,256485	−29,85	<0,0001	***
who5_rested	−9,55896	0,260033	−36,76	<0,0001	***
who5_interesting	−8,49536	0,238586	−35,61	<0,0001	***
losejob	3,12778	0,347996	8,988	<0,0001	***
recognition	−2,40369	0,183210	−13,12	<0,0001	***
opportunities_job	−2,36291	0,169350	−13,95	<0,0001	***
time_housework_total_minutes	−0,00503730	0,00122504	−4,112	<0,0001	***
time_care_relatives_total_minut	−0,00480494	0,00153717	−3,126	0,0018	***
hh_size	0,241373	0,0539466	4,474	<0,0001	***

gender	−1,53801	0,164890	−9,327	<0,0001	***
age	0,0675550	0,00666378	10,14	<0,0001	***

Mean dependent var	64,47161	S.D. dependent var	20,01409
Sum squared resid	7964969	S.E. of regression	14,48630
R-squared	0,476561	Adjusted R-squared	0,476106
F(33, 37955)	1047,148	P-value(F)	0,000000
Log-likelihood	−155439,4	Akaike criterion	310946,8
Schwarz criterion	311237,3	Hannan-Quinn	311038,9

Appendix 5. Description of the used variables

Variable	Explanation
discrimination	Is 0 if a person has experienced same form of discrimination within last 12 months and 1 if not
boss_gender	0 for male and 1 for female
expected_hours_week	Expected amount of working hours from 0 up to 80
private_sector	0 if the person is working in a private sector, 1 if not.
seniority	Number of years the person has worked in the company
chemicals	0 if person encounters dangerous chemicals in the working process
infect	0 if the work assumes direct contact with infectious materials
lifting	0 if the person is lifting other people while working
carrying_loads	0 if the person carrying heavy loads while working
dealing_customers	0 if the person is dealing with companies' customers often
emot_disturb	1 if the person was in a emotionally disturbing situations
computer	0 if the person is working with a computer
commute_time_minutes	Amount of time in minutes for traveling from home to work and back
commute_days	Number of days a person has to travel to work.
night	0 if the person works at night
work_life_balance	0 if the person rated positively his work-life balance
freetime_work	1 if the person has worked a lot in his time lately
able_hour_off	0 if the person can easily take up to 2 hours from work
highspeed	0 if the person works in a high-speed environment
tightdead	1 if the persons work assumes working with tight deadlines
learning_new_things	1 if the persons work assumes learning new things
autonomy_method	1 if the person is able to choose his working methods
support_colleagues	0 if the person has low support from the colleagues
work_welldone	0 if the person does not feel accomplishment of his done work often

decision_influence	1 if the person is able to influence decisions that are related to his work
osh_risk	0 if the person thinks his health is not at risk while working
presenteeism	0 if the person has worked while being sick in the past 12 months
who5_cheerful	0 if the person was feeling cheerful in past 2 weeks
who5_relaxed	0 if the person was feeling relaxed in past 2 weeks
who5_active	0 if the person was being active in past 2 weeks
who5_rested	0 if the person was feeling rested in past 2 weeks
who5_interesting	0 if the person was feeling interested in past 2 weeks
losejob	0 if the person thinks there is a risk of him losing his job
recognition	0 if the person thinks he is being recognized
opportunities_job	0 if the person thinks he has enough opportunity to use his skills and knowledge
time_care_children_total_minutes	Weekly time spent on the care for children by the person in minutes
time_housework_total_minutes	Weekly time spent on the housework by the person in minutes
time_care_relatives_total_minutes	Weekly time spent on care for relatives by the person in minutes
hh_size	The size of the persons household
gender	0 if male, 1 if female
age	The age of the person
wellbeing_index	The wellbeing index from 0 to 100

Source: Author

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