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Employees' Reaction to Gender Pay Transparency: an Online Experiment

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Employees' reaction to gender pay transparency: an online experiment

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Abstract

The aim of pay transparency measures is to make pay systems less opaque and to reduce the gender pay gap. To investigate the behavioural implications of pay transparency measures, we ran an incentivized online experiment focused on the effects on employees' performance, provision of extra effort and actions to correct pay disparities.

We found that pay transparency, as devised in our experiment, does not disrupt the provision of effort by employees, but it does interfere with the provision of extra effort, discouraging employees to work beyond the minimum required. We found that although the total number of requests for compensation did not significantly change, pay transparency increased grounded requests and decreased unjustified ones. Our evidence also shows that employees are more sensitive to lower relative wage with respect to own gender, rather than gender pay gap. However, men managers who are confronted with a predominantly male manager composition react positively to reinforce it, while a dominance of female managers composition triggers a negative reaction.

We discuss potential policy implications of these findings and argue that more research should be carried out to better understand the efficiency of transparency measures, with a particular interest on gender reference groups, as well as both horizontal and vertical comparisons.

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1. INTRODUCTION

In the last century the divide between men and women on the job market has narrowed, but gender pay disparities persist (Goldin, 2014). This is also true in the European Union, where the gender pay gap (GPG) in 2019 was still 14.1%, with large differences between countries: from 1.3% in Luxembourg to 21.7% Estonia (Eurostat, 2021)¹.

In the empirical literature, the GPG is explained as a result of both observable and unobservable characteristics. The “explained gap” is driven by gender differences in pay-relevant characteristics, such as education, prior experience, industry, and hours worked, to name but a few. On the other hand, the non-negligible “unexplained gap” is driven by gendered differences that are not related to measurable qualifications and can therefore be linked to gender discrimination². Since it could be the outcome of gender discrimination, the unexplained part of the GPG has seized the interest of both academic and policy debates.

In March 2021, in an attempt to close the “unexplained gap”, the European Commission (EC) presented a directive proposal with the aim to make pay systems more transparent and increase available information on differences in pay levels by gender for individuals performing the same work or work of equal value. The proposal focused on two core elements of equal pay: better access to justice for victims of pay discrimination and measures to ensure pay transparency for workers and employers. The rationale behind this proposal is that women often remain unaware of pay discrimination and pay secrecy makes it nearly impossible to claim for a fairer treatment, since the opacity of remuneration systems makes any comparison very challenging. Pay transparency measures should assist workers to access the information on average pay for women and men, and to compare with the pay of co-workers performing the same work or work of equal value. In order to investigate the behavioural implications of the proposed measures of pay transparency, we ran an incentivized online experiment. The study was conducted in three EU Member States: Germany, Spain and Poland with a representative sample, in terms of age, gender and region, of the employed adult population. The objective was to identify the effects of pay transparency on employees’ performance and requests for compensation (an action to remedy unfair pay).

Pay transparency is widely agreed to have advantages and disadvantages. Better and more widespread pay transparency is thought to close pay gaps because it could encourage employees’ individual actions and reactions towards the employer. This is truer for women who: i) appear to be less prone to proactive salary negotiations and self-promotion; ii) are more likely to signal their willingness to work for a lower wage; iii) are more risk averse under certain circumstances; iv) have lower levels of competitiveness; and v) underperform in negotiations when information is scarce. On the other hand, pay transparency measures could negatively affect firms, not only due to the costs of providing such information, but also due to potential negative effects on productivity (resentful employees), an increased number of litigations and higher worker turnover. This study contributes to several strands of the literature by examining both the positive and negative consequences of pay transparency measures for employees, from a behavioural stance.

¹ Gender pay gap statistics available here; https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Gender_pay_gap_statistics#Gender_pay_gap_levels_vary_significantly_across_EU (Eurostat, 2021)

² It is important to note that, although the presence of an “unexplained gap” is a sign that points at the presence of gender discrimination, this is not a straightforward measure for it, as it also includes some productivity measures that are observed by employers but are not captured by observational data (Azmat and Petrolongo, 2014).

Our policy perspective was focused on two specific transparency measures: the right to information on pay levels and the annual equal pay report. The first type of transparency measure consists of automatically accessing quantitative information, such as individual pay level and average pay levels, broken down by gender, for categories of workers doing the same work or work of equal value. The second policy option has an ampler breadth: alongside information on the pay gap between female and male employees by categories of workers doing the same work or work of equal value, information on the organizational structure, and in particular management gender composition, is provided.

The experiment translated the two policy options into two experimental conditions (treatments), plus a baseline scenario. In the baseline scenario employees had no information about their colleagues' wage (pay secrecy) and position, while in the treatments (pay transparency) they were informed on the average wage in the company, overall and by gender, as well as the number of men and women in the company with a managerial position.

In the experiment, employees worked for their employers, deciding the level of effort they wished to exert in a clerical task, and received a wage in exchange. Employers were real people who participated in a different experiment, where they set the wages and positions for their employees under a budgetary constraint, knowing the gender and a rating of employees' performance in a screening test. This was known by the employees, that in turn had the possibility to reduce their effort at the expenses of the employers and/or to ask for compensation if they considered their employers' choices on wages to be unfair.

Overall, this paper contributes to the understanding of the impact of pay transparency on employees' behaviour in three different ways. First, our experiment, by collecting an individual level-measure of productivity, shows that overall pay transparency does not have any significant effect on employees' average performance. On the other hand, it induces employees to reduce the provision of extra-effort at the expenses of the employer.

Second, our study analyses how transparency affects individuals' requests for compensation, though in an experimental setting, revealing that pay transparency has the potential to improve the efficiency of the compensation system: it increases the percentage of requests for compensation from potentially discriminated workers and, at the same time, significantly decreases the frequency of requests of non-discriminated workers.

Our third contribution opens an important avenue for further research: our analysis compares the reaction to information on pay levels of employees of the same-gender and opposite gender. The evidence collected suggests that employees react more firmly to lower relative wages (by reducing their extra-effort and by asking for compensation) when they compare themselves to colleagues of the same gender.

The remainder of this paper is structured as follows. Section 2 reviews the related literature and formulates the hypotheses. Section 3 describes the experimental design and illustrates the summary statistics, while Section 4 reports and interprets the experimental results. In Section 5 we discuss the policy implications of our findings and section 6 concludes.

2. LITERATURE AND HYPOTHESES

The GPG has significantly narrowed in the past 40 years. This reduction is mainly due to the shrinking of the "explained gap", as a significant gender convergence in wage

enhancing characteristics (e.g., educational attainment and job tenure) took place. As a consequence, the “unexplained gap” portion has increased relative to the “explained gap” (Blau and Kahn, 2006a & 2016b; Goldin, 2014; Redmond and McGuinness, 2018). Several factors have been linked to the persistence of the “unexplained gap”, such as a lesser desire to compete by women, or women’s lower ability to negotiate their salaries and tenures, but also actual direct and indirect discrimination (Kuhn and Shen, 2013; Booth and Leigh, 2010; Neumark, 2018).

The proponents of pay transparency measures identify in the asymmetry of information between employers and employees another potential reason for the persistency of GPG (Gulyas et al, 2020). Lack of awareness and the difficulty to obtain pay information prevent women from acting upon their rights and allow employers to dissimulate discrimination. Pay transparency measures reduce information asymmetry between employers and employees and, as the evidence suggests, their enforcement encourages employers to equalize the offers and provide fair wages. On the other hand, by revealing potential gender pay bias or discrimination, pay transparency may have subsequent potential negative impacts on effort level, labour supply, the level of job satisfaction and peer relations. For these reasons pay transparency has both supporters and detractors. In line with the approach of Grasser et al. (2021), we support the concept that the behavioural effects of pay transparency on employee individual performance and motivation are complex and deserve further attention.

In this paper we focus on the effects of pay transparency on employees. Clearly, they strongly depend on what pay transparency uncovers. One question is how pay transparency affects the effort of workers by making them aware of their relative wage. Following the fair-wage hypothesis by Akerlof and Yellen (1990), it is reasonable to expect that the awareness of unfair wages may lead to a reduction in the effort level of disadvantaged workers. Although some studies find little or no impact (Charness and Kuhn, 2007; Gächter et al., 2012), the majority of experimental research in gift-exchange setting shows that the workers who are aware that they receive lower wages than their peers significantly reduce their effort level (Clark et al., 2010; Gächter and Thöni, 2010; Greiner et al., 2011; Nosenzo, 2013; Charness et al., 2016), supply significantly less time (Breza et al., 2018; Bracha et al., 2015; Gagnon et al., 2020) and quit more often (Card et al., 2012; Dube et al., 2019). However, the effect of observing higher wages than their peers is not consistently straightforward in the literature. For employees who receive a higher wage under wage inequality, Charness et al. (2016) show a positive effect on the effort provision, whereas Clark et al. (2010) finds a negative effect. Cullen and Perez-Truglia (2018a) ran a field experiment with over 2000 subjects from a multibillion-dollar corporation and found that there are large misperceptions about the salaries of peers and managers. When pay transparency is introduced, employees’ behaviour is affected: when they discover that their managers are paid more than what they believed, they tend to work harder; while when they discover that their peers are paid more, they are demotivated. The authors link this finding to two causal mechanisms: career concerns and social preferences. Abeler et al. (2010) tests the equity principle against the equality principle through a laboratory experiment. They find that workers who are paid identical wages exert significantly less effort than the workers who are paid differential wages. They show that under an equal wage scheme, employees who are initially hard-working, reduce their effort level to that of their co-workers. In contrast, in the unequal wage condition high performers continue exerting high effort, whereas low performers increase their effort level. Further studies also indicate that individuals reciprocate the intention of the employer to provide fair wages (Falk et al. 2008, but also again Gächter and Thöni 2010). More recent evidence from a field experiment by Heinz et al. (2020)

shows how unfair treatment of co-workers could negatively affect workers' productivity. In a call centre working in shifts, some workers were laid off before the second shift: this reduced the productivity of unaffected workers by 12%. Extending the implication for pay transparency, we could argue that observing unfair lower pay for co-workers could lead to lower exerted effort also for those unaffected. Therefore, pay transparency may have a positive or negative effect depending on the wage distribution and the prevailing norm in the work environment.

A further question is whether there are gender differences in reactions to pay transparency. As previously supported by the literature, men tend to be more prone to direct aggression than women are, and this is related to the propensity to retaliate (Wilkowski et al, 2012). A recent study by Dehari et al (2019) showed 23 percent gender gap in the propensity to retaliate, with women being less likely to seek direct retribution. Recent experimental work by Fumagalli and Fumagalli (2022) found that women and men react differently when they are prompted to compare themselves with other people of the same gender. In their experiment (wo)men in the treatment group are prompted to compare themselves only with (wo)men, while (wo)men in the control group are asked the standard subjective wellbeing satisfaction questions, without any prompt on the reference group. The authors underline how women, when prompted to compare themselves solely to other women, report higher satisfaction with income, a domain where women are likely to think they are more disadvantaged than men. On the other hand, men do not modify their self-reported satisfaction when prompted to compare themselves only to other men. We believe this heterogeneity as identified by Fumagalli and Fumagalli (2022) could also be playing a role in our experiment, as pay transparency exogenously highlights the two possible gender reference groups, by splitting the average wage for the same position by gender.

Pay transparency may also influence behaviour at group level and change collective outcomes rather than simply work at individual level, since it may give workers more bargaining power. Cullen and Perez-Truglia (2018a; 2018b) highlighted that employees will use their newly found bargaining power to pressure employers to reduce the GPG. Employees who receive unfair wages may collude to punish their employers. Maas and Yin (2018) investigate this hypothesis with a lab experiment. They find that employees in transparent organizations are more likely to initiate collusion with peers who receive an unfair wage. They also show that managers in transparent wage setting organizations become more likely to be kind towards employees. Baker et al., (2019) investigate the impact of disclosure laws on university faculty salaries in Canada, when these exceed a certain threshold. They presented results separately based on whether faculty were unionized or non-unionized in the year of the disclosure reform, where being unionized meant having a formal grievance procedure available to remedy unfair pay. In unionized universities the reform closed the GPG by almost 3 percentage points compared to non-union universities where the estimated effect is markedly smaller and statistically insignificant. Although the authors could not be certain that this difference was exclusively the result of the grievance mechanisms unions provide, this again calls for further studies on mechanisms to remedy unfair pay at group level.

Most of the experimental studies described in this review do not focus on pay transparency as a policy tool, rather they aim at understanding the exact mechanism through which wage distribution affects behaviour (i.e., peer wage comparison, gift-exchange, equity, or equality norm). In this experiment we leave aside the identification of clear mechanisms as we focus on the overall effects of introducing pay transparency in the experimental job environment. Moreover, we focus on gender pay transparency and its differential effects on men and women, a question that has been overlooked in the experimental literature.

By means of an online experiment, this study contributes towards the understanding of the efficacy and potential side effects of pay transparency measures. The experimental approach chosen for this study allowed to observe behaviour as a direct consequence of the proposed policy measures. The transparency information, tested in this experiment, included information on average wages for equal work within the company and by gender, as well as information on the proportion of managers within the company by gender. The idea was to assess the overall effects of pay transparency on employees' productivity and extra-effort, willingness to ask for compensation, and motivation.

In our design information on the average wage in the company and average wage split by gender, allows employees to assess their wage relative to others. Therefore, we can measure: i) the overall effect of additional information about colleagues' wages or, in other words, the effect of information on relative wages; ii) the effect of observing relative wage with respect to same gender colleagues or opposite gender colleagues; iii) the effect of observing the distribution of managerial positions by gender.

We develop three non-directional research hypotheses, for each of the three experimental outcomes.

H1: There is an effect on average performance of employees under pay transparency compared to pay secrecy. This can be positive or negative depending on the prevailing effect and on wage distribution.

The first outcome variable of the study is employee's productivity and inferred effort. The effect of pay transparency on productivity and inferred effort depends on what pay transparency reveals about employees' relative pay. As we have seen earlier, the majority of experimental studies reveals that workers who are aware of being paid less than their colleagues reduce their effort level (Clark et al., 2010; Gächter and Thöni, 2010; Greiner et al., 2011; Nosenzo, 2013; Charness et al., 2016). The impact of seeing higher wages compared to their colleagues, on the other hand, is not clear (Charness et al., 2016; Clark et al., 2010; Greiner et al., 2011). Moreover, there is very little experimental evidence on potential heterogeneous effects stemming from wage comparisons within or between gender groups.

H2: There is a difference in the extra-effort exerted by employees, under pay transparency compared to pay secrecy.

In our experiment we also set a minimum effort threshold for employees to receive their wage, with the possibility of exerting more effort (going beyond the threshold) but only to the benefit of the employer. We assume that stopping at the threshold (withholding effort) captures employees' attitudes towards their employer and, more in general, measures intrinsic motivation since it is not related to any personal gain. This aspect is crucial to investigate because when effort is withheld, and intrinsic motivation is reduced, both individual and organizational performances may be reduced.

H3: There is a difference in the number of applicants for requests of compensation and the share of grounded requests, under pay transparency compared to pay secrecy.

Finally, we introduced in our design the possibility for employees to make a request for compensation when they believed they were given an unfair wage. The request for compensation was a risky action, which could translate in a monetary loss if unfounded. The request for compensation was introduced to reflect the possibility of employees to appeal when the rule of equal pay for work of equal value was broken. The idea behind this is that pay transparency should empower employees not only to demand fair salaries, but also to claim their rights when these are not respected. From a behavioural perspective, there are two co-determinants that could play a role in the request for compensation given the way we designed our experiment: self-evaluation and risk aversion.

Exley and Kessler (2019) present evidence for the gender gap in self-evaluations. The results of their series of experiments show how women subjectively describe their ability and performance to potential employers less favourably than equally performing men. This partly originates from an underlying gap between men and women in how they subjectively evaluate their performance, where women think they had a lower performance – either in terms of absolute or relative performance – than men. Women are also found to be 12% less likely to report that their performance is above average, compared to men (Biasi and Sarson, 2022). This could mean that women are less likely to request compensation because they evaluate their work unfavourably, thinking that it does not warrant a claim to remedy unfair pay. In addition, women may be more risk-averse than men are (Croson and Gneezy, 2009), although evidence on this cannot be considered conclusive as risk attitudes are context dependent and a latent construct (Filippin and Crosetto, 2016). More risk averse women could refrain from asking for compensation, not because they do not feel they were given an unfair pay, but because they want to secure their wages and avoid the risk of incurring in a monetary loss.

Pay transparency reduces uncertainty around actions to remedy unfair pay, as it increases employees' ability to assess their relative wage and, therefore, their eligibility.³

Requests for compensation in the experiment should be transposed to the real world with caution. In the experiment, as in real life, the outcome of the claim is uncertain, and it has a monetary cost in case of rejection. However, in the experiment it does not imply any emotional or non-monetary cost and it does not have long-term consequences on the employees' reputation in their own work environment. Finally, the right to compensation is given in the experiment to any employee who receives a lower wage than a colleague in the same or lower performance group, irrespectively of gender. This choice was made to not artificially induce employees to focus on the gender dimension, and to avoid a potential demand effect. Put differently, pay transparency measures in the experiment were not gender oriented.

3. EXPERIMENTAL SETUP

In this section we illustrate the methodology, the experimental task, and the corresponding treatments, as well as the sample characteristics and recruitment procedures. The study consisted of an incentivized (performance based) online experiment programmed in Qualtrics. This methodology was preferred to standard experiments in the laboratory to allow for faster data collection, larger sample, reduction of costs, and better risk management considering that data collection was undertaken between December 2020 and January 2021 during the Covid-19 pandemic.

3.1. Experimental design

Subjects with the role of employees worked for their employers⁴, deciding the level of effort they wished to exert, and received a wage in exchange.

³ For a policy discussion see OECD (2021), where the point about reducing the barriers to a successful equal pay claim is discussed, where one of the key impediments is considered to be the unavailability, or complex retrieval, of the comparator.

⁴ Originally, the experiment was designed to investigate the behavioural implications of transparency on pay levels, for both employers and employees. Employees and employers formed a company and influenced each other payoffs within the experimental design. Employers set the wages and career promotions under a budgetary constraint, knowing the gender, and having incomplete information about the potential performance of prospective employees. In this paper we focus only on employees and related insights. In future we plan to cover the results for employers.

Employees first undertook a screening test and then the main task. Both the screening test and the main task consisted in identifying strings in alphabetical order (based on Isen and Reeve, 2006). This task was chosen because of the following key characteristics:

- It is not gender stereotypical.
- Little systematic differences in performance by gender are expected.
- It is a real effort task (for the measurement of productivity and inferred effort); and
- Allows for “categories” of employees (i.e., managerial/clerical) to which different thresholds for completing the task apply.

In the screening test participants had to classify 96 strings in the maximum given time of 5 minutes (see online Appendix A – Figure A.1). The results were used to place employees in either group A (if the participant correctly classified 60 or more strings) or group B (less than 60 strings). Participants knew that they would be placed in either one of the two groups but did not receive feedback on which group they belonged to. They were paid a flat fee of 70 tokens to undertake the task, independently of performance. The 60 strings threshold was determined as the median of performances from a prior pilot. Participants were assigned a role (clerk or manager) and a wage (150 or 225 tokens for clerks, and 400 tokens for managers) by their employer who knew their gender (indicated by an avatar, see online Appendix A – Figure A.2) and performance group (A or B). Employers were facing a budgetary constraint: they could assign the high wage to maximum one third of employees and the managerial position to one sixth of employees. Therefore, there is no perfect correspondence between performing above the median in the screening test and getting a high wage or managerial role.

After the screening test, employees received some information on wages and positions (depending on the treatment) and performed the main task. The main task consisted in correctly classifying a maximum of 234 strings in 10 minutes, and employees had to meet a minimum threshold to be paid (see online Appendix A – Figure A.3). Employees who were assigned the role of clerk had to correctly classify at least 120 strings, while those in the role of managers had to correctly classify at least 170 strings to be paid.⁵

Employees could solve more strings than the minimum threshold. Each additional solved string would increase only the employers’ earnings, not employees. For each additional string correctly classified by clerks, employers would earn 1,5 extra tokens, and 3 extra tokens for each additional string correctly classified by managers. In other words, employees who worked more than the minimum threshold did not have any monetary incentive to exert extra effort.

Before undertaking the main task, employees received information on their role (clerk or manager), and their wage (150, 225, or 400 tokens). Employees in the role of clerks were aware that employers could choose between two wages (“low” or “high”), but they only saw the amount of their own wage, thus they were not able to discern if this was “high” or “low”.

In the baseline (T0) employees only knew their wage and role and the total number of men and women working in the company. In T1 and T2 we introduced two different types of pay transparency measures.

In T1, in addition to what is described for T0, employees knew the average wage in their company, also by gender, in their role and the number of men and women in their role. In the case of clerks, they could then infer if their wage was “high” or “low”. In T2, in addition to what is described for T1, employees also knew the number of men and women in the other role and their wage.

⁵ This task was also tested in a pilot study, and we found the parameters (thresholds and timing) to be reasonable and the task to be gender neutral.

Furthermore, we added a compensation mechanism based on the principle of equal pay for work of equal value. This mechanism was only available to employees with the role of clerks, and only worked within this category. Clerks could ask for compensation if they believed that they unfairly received the “low wage”. An unfair treatment was defined as another clerk in their company belonging to the same or lower performance group (A or B) receiving a “high wage”.

As a consequence, clerks with the “high” wage asking for compensation were always denied it. Clerks with the “low” wage asking for compensation were granted it only if another clerk in their company with the “high” wage belonged to the same or lower performance group (A or B). When this condition was met a compensation of 125 tokens was granted. If an employee was not granted compensation, he had to pay a processing fee equal to their wage. The request for compensation had to be submitted before undertaking the main task. An employee who did not meet the threshold in the main task was not eligible for compensation.

This mechanism for granting compensation implied that in T0 (control) clerks had no information on the probability of being eligible for compensation. In T1 and T2, with pay transparency, clerks should have been able to infer whether their wage was “high” or “low”. Therefore, clerks with “high” wage should have known that they were not eligible for compensation, while clerks with the “low” wage only had incomplete information on their eligibility for compensation, as they could not know with certainty their group or the group of other clerks. We summarized the key elements of the experiment and treatments in Table 1 and Table 2.

Table 1 : Key experimental design elements

| | Clerk | Manager |
|---|---|---------------------|
| <i>Screening test</i> | 96 strings in 5 minutes Group A: 60 or more correct strings Group B: less than 60 strings Flat payment: 70 tokens | |
| <i>Main task</i> | 234 strings in 10 minutes | |
| <i>Threshold (to receive the wage)</i> | 120 correct strings | 170 correct strings |
| <i>Wage</i> | 150 tokens (low); or 225 tokens (high) | 400 tokens |
| <i>Extra-revenues (return to the employer after the threshold is met)</i> | 1,5 tokens | 3 tokens |
| <i>Right to request for compensation</i> | Yes Only granted to “low” wage if one of their colleagues with the “high” wage belonged to the same or lower performance group in the screening test. | No |

Table 2 : Key experimental treatments elements

| Treatment | Information provided |
|------------------------------------|-----------------------------|
| <i>T0 – Control or Pay secrecy</i> | Own wage Own role |

| | |
|------------------------------|--|
| | Number of women and men in the company |
| <i>T1- Pay transparency</i> | T0 + Average wage same role Average wage same role for women Average wage same role for men Number of women same role Number of men same role |
| <i>T2 – Pay transparency</i> | T1 + Average wage other role Average wage other role for women Average wage other role for men Number of women other role Number of men other role |

At the end of the experiment a post-experimental survey was administered to respondents. The post-experimental survey consisted of a set of closed general socio-demographic questions, not sensitive in nature (i.e., gender, age, employment status, hours worked per week, education). Furthermore, a number of behavioural measures, such as risk preferences, fairness, reciprocity, and intrinsic motivation, were included. Lastly, the elicitation of beliefs on own and others performance, as well as others strategic behaviour, was incorporated by means of incentivised introspection. The experimental instructions for employees can be found in the online Appendix A.

3.2. Sample selection and characteristics

The experiment took place online during the months of December 2020 and January 2021. The study was carried out in three EU Member States: Germany, Spain, and Poland. For each country 900 currently employed individuals were recruited via a panel provider (Respondi Ltd) to participate as employees (total sample of 2700 subjects). Participants were invited to participate to the study via email by the panel provider. Respondents were equally distributed across treatments. The sample was representative of the working age population in terms of age, gender, and region. Respondents were screened and only if they met the prescribed requirements they continued with the experiment. Once they completed the experiment, they were asked a set of post-experimental questions. They received the compensation for their participation within three weeks from the completion of the experiment.

The choice of running the experiment in 3 specific EU Member States was driven by the following reasons: to report whether behaviour under pay transparency differed across countries; to achieve a good geographical spread in the EU; and to cover at least one Member State already applying some form of pay transparency initiative, and one that did not. For this purpose, we briefly report below the key facts and figures on the gender pay gap and pay transparency initiatives for each of the chosen countries.

In Germany the gender pay gap in 2019 stood at 19.2 % and dropped almost one percentage point in 2020 (18.3%).⁶ Germany passed the Transparency of Pay Act in 2017, which took effect as of January 2018. The core stipulation of the Act is the individual right to information for all employees of a company employing more than 200 employees, the employer must disclose the statistic median of the average monthly gross remuneration that the opposite gender receives. Furthermore, Germany can rely on Logib-D, a pay calculator and audit system developed by the Federal Ministry of Family Affairs. It consists of a pay calculator to identify the gender pay gap in a company's pay structure, as well as consultancy services to assist in analysing and eliminating the gender pay gap.

In Spain the gender pay gap stood at 9.4 % in 2019 and remained virtually unchanged in 2020. Recently Spain adopted Decree 902/2020 that took effect on 14 Apr 2021, requiring companies to keep a remuneration register covering all employees, including executives and senior managers. The register must be updated annually and must include average and median pay data broken down by gender (including bonuses and extra pay), fringe benefits broken down by gender, and the appropriate professional classification (such as position and roles).

In Poland the gender pay gap in 2019 stood at 6.5 %, dropping further to 4.5% in 2020. Currently pay information rights or measures for employees are not implemented, but the government launched a free application, which can be used by employers to detect and measure the pay gap within their company. It is interesting to note that in Poland in 2020 the proportion of women managers is the second highest of the EU27, standing at 43.3% (after Latvia at 46.9%). The same proportion is equal to 28.8% for Germany and 35% for Spain, compared to the EU27 average of 34.1%⁷.

We did not find major differences in behaviour across countries in our experiment, therefore we pool them in the main analysis and control for country fixed effects. However, detailed country evidence can be found in the online Appendix F.

Before analysing the data, we cleaned the dataset from observations that we considered of bad quality, due for example to random responding as in individuals answering with little pattern or thought (Cronbach, 1950). The objective was to obtain a more reliable set of responses, while avoiding for Type II error. We established that we would not accept the responses of subjects who were too fast (timing below the 25% percentile – approximately 22 minutes⁸) or too slow (timing above the 95% percentile – approximately 70 minutes) in completing the experiment. We also excluded subjects who failed both attention checks, namely incorrectly stating their wage with an error of 5 tokens and misreporting their role (clerk or manager). In total we excluded 854 participants (31.63%), 35% of men and 28% of women, leaving 1846 observations for the analysis. The share of excluded observations is high, but in line with the recent findings on the quality of data collected online, on carelessness responses (Brühlmann et al, 2020, and Nichols and Edlund, 2020).

⁶ Eurostat. (2022). Gender pay gap in unadjusted form. Retrieved from <https://ec.europa.eu/eurostat/databrowser/view/tesem180/default/table?lang=en>. The unadjusted GPG represents the difference between average gross hourly earnings of male paid employees and of female paid employees as a percentage of average gross hourly earnings of male paid employees. The population consists of all paid employees in enterprises with 10 employees or more in NACE Rev. 2 aggregate B to S (excluding O).

⁷ Eurostat. (2022). Employed women being in managerial positions by age. Retrieved from <https://ec.europa.eu/eurostat/databrowser/view/tqoe1c2/default/table?lang=en>. Percentage of women in the occupational group of managerial positions as a share of all employed persons in that group. The occupational group of managerial positions is defined as the ISCO major group 1.

⁸ In setting the lower boundary we also considered that the screening test lasted 5 minutes, and that the main task lasted 10 minutes. Therefore 15 minutes were required for simply completing the task, without any ready of instructions or completing the ex-post questionnaire.

In addition, in this paper we decided to merge the two treatments (T1 and T2) since they both introduced transparency in the experimental environment, and report results accordingly.⁹ There are no significant differences in the direction of the effect of the two treatments on the outcome variables and the additional information that employees gather in T2 does not have any incremental effect with respect to T1.¹⁰

Table 3 summarizes the sample size and socio-demographic characteristics distribution by Pay Transparency. As shown in Table 4, data cleaning did not affect the randomization as there are no significant differences in observable characteristics between treatments.

Table 3: Sample size and distribution

| | Secrecy (N=614) | | | | Transparency (N=1232) | | | |
|---------------------------------|-----------------|--------|-----|-----|-----------------------|--------|-----|-----|
| | Mean | SD | Min | Max | Mean | SD | Min | Max |
| Female | .526 | .5 | 0 | 1 | .529 | .499 | 0 | 1 |
| Age | 40.077 | 11.503 | 18 | 68 | 40.748 | 11.802 | 18 | 67 |
| Education | | | | | | | | |
| Primary and Secondary education | .484 | .5 | 0 | 1 | .494 | .5 | 0 | 1 |
| University degree | .459 | .499 | 0 | 1 | .444 | .497 | 0 | 1 |
| Post-graduate | .057 | .232 | 0 | 1 | .062 | .241 | 0 | 1 |
| Screening Score | 50.484 | 18.018 | 1 | 78 | 50.722 | 17.042 | 0 | 76 |
| Risk attitude | 5.868 | 2.234 | 0 | 10 | 5.892 | 2.282 | 0 | 10 |
| Country | N | % | | | N | % | | |
| Germany | 209 | 34.04 | | | 438 | 35.55 | | |
| Poland | 213 | 34.69 | | | 420 | 34.09 | | |
| Spain | 192 | 31.27 | | | 374 | 30.36 | | |

4. EXPERIMENTAL RESULTS

In this section, we discuss the effect of introducing pay transparency on the main outcome variables of the experiment (namely: employees' performance, behaviour at the threshold and requests for compensation). We also consider more in detail the effect of relative wage within and across gender.

Before discussing the results, it is vital however to clarify what information was available regarding the GPG when pay transparency was introduced. Table 4 below shows the information provided to participants on the existing gender pay gap in their company. Under pay transparency 12% of participants saw no GPG, while 34% saw a gap in favour of men and the remaining 47% in favour of women.

⁹ These two treatments were introduced in the design to capture their differential effect on employers' behavior, which is not the focus of this paper. The only difference between the two treatments for clerks was the communication in T2 of the exact wage of managers (in all the conditions clerks knew that their wage was lower) and the explicit information on the number of male and female managers in the company (which could be already inferred in T1). On the other hand, managers in T2 get to know clerks' average wage (in all the conditions managers knew that their wage was higher) and number of women and men covering this role in the company (which could be already inferred in T1).

¹⁰ Regressions where T1 and T2 are analysed separately are reported in the online Appendix B (Table B1-Table B5)

Table 4: Observed gap by participants

| Pay Transparency | Percentage of participants |
|------------------------|----------------------------|
| No gap | 12% |
| Gap in favour of men | 34% |
| Gap in favour of women | 47% |

4.1. The effects of introducing pay transparency

The main outcome variables of the study are employees' performance in the main task, employee's behaviour at the threshold (whether they continued or stopped working after reaching the minimum threshold) and employees' request for compensation. While for the measures of performance both managers and clerks are included in the analysis, the request for compensation only includes clerks, since managers could not make any claims of compensation.

Performance in the main task is measured as the number of correct strings correctly classified by participants within a timeframe of 10 minutes. The maximum number of classifiable strings was 234. As a reminder, clerks had to meet a threshold of 120 strings, and managers of 170 strings, to receive their wages. Clerks solved on average 131 strings (SD 43), and no significant differences were recorded between genders, and genders in each treatment (all t-test not significant). Managers solved on average 156 strings (SD 40), and again, as for clerks, no differences between genders were detected (all t-test not significant). The number of correct strings solved by participants captures performance before and after the threshold, thus incorporating ability, effort, and extra effort (effort beyond what it is necessary to get the payment).

We repeat the analysis using as outcome a binary variable for "passing the threshold" as an alternative measure for performance: this variable is clean from any change in behaviour after the threshold. We expect this measure to be less responsive to pay transparency because any reaction towards the employer is more likely to be expressed in employee's behaviour after the threshold and/or in the request for compensation. Still, pay transparency might alter intrinsic motivation resulting in higher or lower average performance even before the threshold. As shown in the Appendix (Table C1-C3), pay transparency has no effects on the probability of passing the threshold, suggesting that while reaching the threshold monetary motives (getting the wage) prevail over intrinsic motivation.

Finally, extra effort is measured by recording whether employees stop exactly at the threshold. In the experiment, employees earned their wages only if they met the threshold, and no extra earning were possible. All the additional strings beyond the threshold increased only the employer's earnings. Therefore, there were no monetary incentives driving behaviour beyond the threshold. When employees reached their set threshold, a pop-up warning indicated that it was met, so it was clear for employees that they had reached their minimum required effort and that further effort would not imply extra earnings for themselves but only for the employer¹¹. Continuing after threshold could have been a way to reciprocate to the employers, or could be explained by intrinsic motives (i.e., to challenge themselves or proving own ability to the employer).

The last main outcome variable we investigate is the request for compensation. Employees with the role of clerks could ask for compensation if they believed that they unfairly

¹¹ The message read as follows: "Congratulations! You have reached the threshold of 120/170 strings. This means that you will receive your wage. Solving more strings will only increase your employer's earnings by 1.5/3 tokens for each correct string. You will not earn more by continuing with this task". Also, employees knew that employers were real subjects in another experiment whose earnings were affected by their actions.

received the lower wage. A compensation was granted when colleagues who performed better or equal in the screening test received a higher wage than the one of the employees asking for compensation. This action was costly, since if an employee was not granted compensation, they had to pay a processing fee equal to their wage.

Table 5: The effects of Pay Transparency, overall and by gender

| | (1) Task Score | (2) Stop | (3) Compensation Request | (4) Task Score | (5) Stop | (6) Compensation Request |
|---|----------------------|----------------------|--------------------------------|----------------------|----------------------|--------------------------------|
| Pay Transparency | -2.318 (1.772) | 0.298** (0.129) | 0.004 (0.110) | -1.576 (2.730) | 0.264 (0.197) | 0.082 (0.156) |
| Manager | 17.547*** (1.874) | -0.267 (0.179) | | 17.661*** (3.417) | -0.434 (0.340) | |
| Pay Transparency X Manager | | | | -0.150 (4.030) | 0.235 (0.398) | |
| Female | -0.172 (1.653) | 0.285** (0.123) | -0.275*** (0.105) | 0.727 (2.953) | 0.279 (0.217) | -0.169 (0.181) |
| Pay Transparency X Female | | | | -1.347 (3.542) | 0.008 (0.260) | -0.158 (0.220) |
| Screening Score | 1.369*** (0.069) | -0.004 (0.004) | -0.005 (0.003) | 1.369*** (0.069) | -0.005 (0.004) | -0.005* (0.003) |
| Risk attitude | 1.184*** (0.369) | -0.108*** (0.029) | 0.109*** (0.025) | 1.185*** (0.369) | -0.108*** (0.029) | 0.109*** (0.025) |
| # female employees | 1.405 (0.921) | 0.044 (0.067) | -0.010 (0.056) | 1.403 (0.921) | 0.043 (0.068) | -0.010 (0.057) |
| Obs. | 1846 | 1227 | 1846 | 1846 | 1227 | 1846 |
| R ² (Pseudo R ²) | 0.363 | 0.024 | 0.031 | 0.363 | 0.024 | 0.031 |
| Country dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| Age and Education | Yes | Yes | Yes | Yes | Yes | Yes |

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ The first column and fourth columns are OLS regression with robust standard errors (hc3) where the dependent variable is the result in the main task score (number of strings). The second and fifth columns are logit regressions with robust standard errors where the dependent variable is a dummy equal to 1 if the employee stops when reaching the threshold. In these columns the sample only includes participants who manage to reach the threshold. The third and last columns are logit regressions with robust standard errors where the dependent variable is a dummy equal to 1 if the employee asks for compensation. In these columns the sample only includes clerks. The explanatory variables are: *Pay transparency*, which is a dummy corresponding to the treatment, the coefficient indicates the differential effect compared to the control group (pay secrecy). *Manager* is a dummy that identifies employees with the role of managers. *Female* is a dummy equal to 1 when the participant is a woman. *Screening score* is the number of strings correctly classified in the screening test. *Pay transparency X Female* and *Pay transparency X Manager* are interaction terms equal to 1 under Pay transparency and respectively when the employee is female, or the employee is a manager. *Risk attitude* is a self-reported measure taking higher values for more risk prone participants. *# female employees* is the number of female employees in the company, this information is common knowledge also under pay secrecy. *Country dummies* for each of the 3 countries were included, as well the *Age* and *Education*. Errors are in parenthesis.

Results in **Error! Reference source not found.** Table 5 confirm no effect of pay transparency on performance in the main task (column 1). Moreover, pay transparency does not affect the probability of asking for compensation (column 3). However, pay transparency increases the probability of clerks who meet the threshold to stop right after it (column 2). In other words, pay transparency discourages employees to perform extra work. The probability of stopping under pay transparency is 42% against 35% under pay secrecy, assuming the other covariates at the mean.

Our results are in line with those of Duchini et al. (2020): the authors investigated the effects of pay transparency measures on labour productivity in UK using the Business Structure Database (BSD) and found that pay transparency did not affect job satisfaction, if anything the evidence (not statistically significant) suggests a negative effect. Bennedsen et

al. (2019) reported similar results in their empirical work on the effects of pay transparency measures introduced in Denmark. In line with our findings, the authors observed that firm productivity, on average, dropped by 2.7% in treated firms compared to control firms, and this reduction was statistically significant. On the other hand, our results seem to point in a different direction to that indicated by Gulyas et al. (2020). The authors looked into the effects of pay transparency measures in Austria and found that pay transparency measures did not affect wages. They pointed to 3 possible explanations for this: either pay transparency did not reveal any new information, as this was already privately available; or employees lacked bargaining power to renegotiate wages; or, pay transparency alleviated prior concerns about unfair compensation for both genders. To discern which reason was behind the unchanged wages, they used quit rates as litmus test. They interpreted a 9% reduction in job separation rates across genders as suggestive evidence of pay transparency alleviating concerns for both genders about unfair compensation, leading to higher job satisfaction¹².

Interestingly, female employees are more likely to stop at the threshold¹³ while they are less likely to ask for compensation. These two actions can be interpreted as different ways to react to perceived discrimination, the first being less risky as it does not imply any consequences for the employee, less harmful for the employer who earns less but does not incur in any extra loss, and less eloquent as it does not require assumptions on own performance relative to others. As women have been found to be less prone to retaliation (Wilkowski et al, 2012; Dehari et al, 2019), stricter when it comes to self-evaluation (Exley and Kessler, 2019; Biasi and Sarson, 2022), and in certain contexts more risk averse (Filippin and Crosetto, 2016), this finding seems to be in line with the literature.

Concerning the other covariates, the regression in Table 5 confirms that clerks perform significantly worse than managers. This difference in performance is large and significant, even controlling for the screening score (our proxy for employee's potential ability and effort). The difference is probably due to the higher threshold set for managers. In fact, managers had an extra 50 strings to classify correctly to reach the threshold for payment, compared to clerks. We tend to exclude that being selected as a manager and thus being in a privileged position triggers a sense of reciprocity towards the employer, as there are no differences between managers and clerks on stopping behaviour. We, therefore, conclude that a more ambitious goal increases performance in our experiment. On the other hand, managers are significantly less likely to pass the threshold than clerks (Table C1 in the online Appendix). This too is due to the higher threshold set for managers.

Risk attitudes are positively and significantly correlated with the performance in the main task: we can explain this with subjects tending to guess whether the string was in alphabetical order or not (50-50 probability of a correct guess) rather than checking it, thus completing more strings in the given time. It is important to stress that in our sample there are no significant differences between genders in self-declared risk attitudes, overall and for each role (all t-test not significant). Request for compensation is positively affected by risk attitudes. Risk attitude is negatively correlated with stopping at the threshold, probably because for more risk prone employees who guess the solution the task is less tiring.

Results in columns 4-6 confirm that pay transparency measures have the same effect on men and women overall.

¹² This would be in line with our finding in Poland (Table F2 in the online Appendix) where the coefficient on stopping behaviour is not statistically significant but negative, suggesting a positive reaction to pay transparency overall.

¹³ This finding is not confirmed in Spain where the coefficient is not statistically significant but negative.

4.1.1. Relative wage within and across gender

In Table 6 we distinguish between employees with low relative wage (potentially discriminated) and employees with high relative wage, to test our hypothesis of differential effects of pay transparency based on relative position. Moreover, we assess whether employees in our experiment show heterogeneous reactions when comparing themselves to the same gender or to the opposite gender. Pay transparency measures are more likely to close GPG if having a lower wage with respect to the opposite gender leads to same or stronger reactions than those stemming out from comparisons with same gender.

Table 6 shows five group of participants. “*Smaller than Average Wage X Pay Transparency*” are those who observe that their wage is lower than the average wage in the company and thus it is lower than both the average wage for men and the average wage for women. “*Smaller than Opposite Gender Average Wage X Pay Transparency*” are those who observe that their wage is lower than the wage of employees from the opposite gender but equal or higher than the wage of employees from the same gender. For example, a woman who observes that men average wage is higher than hers, but women average wage is not, would fall in this category. “*Smaller than Same Gender Average Wage X Pay Transparency*” are those who observe that their wage is lower than the wage of employees of the same gender but equal or higher than the wage of employees from the opposite gender. For example, a woman who observes that women average wage is higher than hers, but men average wage is not, would fall in this category. “*Greater than Average Wage X Pay Transparency*” are those whose wage is higher than the average wage in the company, for both genders. “*Same as Average Wage X Pay Transparency*” are those whose wage is exactly equal to the average wage: they belong to a company where there are no high wage clerks. The base group is the pay secrecy treatment, where employees do not know their relative wage.

Table 6: The effects of pay transparency by comparison group

| | (1) Task Score | (2) Stop | (3) Compensation Request |
|---|----------------------|----------------------|-----------------------------|
| Same as Average Wage X Pay Transparency | 1.960 (3.530) | 0.115 (0.241) | -0.099 (0.213) |
| Greater than Average Wage X Pay Transparency | -0.982 (2.179) | 0.307* (0.168) | -1.427*** (0.181) |
| Smaller than Average Wage X Pay Transparency | -5.464* (3.076) | 0.347* (0.203) | 0.909*** (0.173) |
| Smaller than Same Gender Average Wage X Pay Transparency | -3.608 (2.640) | 0.398** (0.188) | 0.896*** (0.158) |
| Smaller than Opposite Gender Average Wage X Pay Transparency | -4.328 (3.607) | 0.159 (0.247) | 0.192 (0.214) |
| Manager | 16.415*** (2.225) | -0.274 (0.198) | |
| Female | 0.112 (1.723) | 0.287** (0.130) | -0.234* (0.120) |
| Screening Score | 1.367*** (0.069) | -0.004 (0.005) | -0.001 (0.003) |
| Risk attitude | 1.216*** (0.369) | -0.109*** (0.029) | 0.102*** (0.026) |
| # female employees | 1.393 (0.921) | 0.046 (0.068) | -0.052 (0.062) |
| Obs. | 1846 | 1227 | 1846 |
| R2(Pseudo R2) | 0.364 | 0.025 | 0.124 |
| Country dummies | Yes | Yes | Yes |

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ The first column is OLS regression with robust standard errors (hc3) where the dependent variable is the result in the main task score (number of strings). The second column is logit regression with robust standard errors where the dependent variable is a dummy equal to 1 if the employee stops when reaching the threshold. In this column the sample only includes participants who manage to reach the threshold. The third column is logit regression with robust standard errors where the dependent variable is a dummy equal to 1 if the employee asks for compensation. In this column the sample only includes clerks. The explanatory variables are: *Smaller than Average Wage X Pay Transparency* identifies those who observe that their wage is lower than the average wage in the company. *Smaller than Average Wage X Pay Transparency* identifies those who observe that their wage is lower than the wage of the employees from the opposite gender. *Smaller than Same Gender Average Wage X Pay Transparency* identifies those who observe that their wage is lower than the wage of the employees with the same gender. *Greater than Average Wage X Pay Transparency* identifies those whose wage is higher than the average wage in the company. *Same as Average Wage X Pay Transparency* identifies those whose wage is exactly equal to the average wage. The base group is the control treatment, where employees do not know their relative wage. *Female* is a dummy equal to 1 when the participant is a woman. *Screening score* is the number of strings correctly classified in the screening test. *Manager* is a dummy that identifies employees with the role of managers. *Screening score* is the number of strings correctly classified in the screening test. *Risk attitude* is a self-reported measure taking higher values for more risk prone participants. *# female employees* is the number of female employees in the company, this information is common knowledge also under pay secrecy. *Country dummies* for each of the 3 countries were included, as well the *Age and Education*. Errors are in parenthesis.

Column 1 of Table 6 shows the effect of relative wage under pay transparency on task performance. Realizing to have a lower wage with respect to both genders has a negative effect on task performance. Relative wage could not be observed by those under pay secrecy, but it could be observed by those under pay transparency.

Column 2 shows the effects of pay transparency on stopping behaviour. Having a higher wage than average, increases the probability to stop at the threshold compared to pay secrecy. Pay transparency allows employees to infer their own wage category (high or low), thus affecting their extra-effort. The effect on high wage employees is somewhat counterintuitive: the answers to the ex-post survey shed some light on the possible reasons behind this behaviour. When asked why they continued working beyond the threshold, 66% of high wage employees in the control treatment answer that they did it to prove their ability to the employer. Under pay transparency the percentage of those who gave the same answer decreases to 43%. Possibly, high wage employees feel less pressure to show their ability when they realize that they have already been recognised by the employer to be worthy of the higher wage. Another possible alternative explanation is employees' preference for wage equality (Clark et al. 2010; Heinz et al. 2020), which decreases high wage employees' willingness to benefit the employer even if they are not negatively affected by employers' choice. Stopping at the threshold becomes the only possible action to convey discontent, since it is not rational for high wage employees to request compensation as it will be denied to them by design. Finally, receiving a high wage is an imperfect signal of high performance in the screening test, incentivizing a comparison effect based on learning, where ranking in the company and relative income both play a role in how employee evaluate their current status (Clerk et al. 2010). Possibly in our experiment the high wage employees realize that they could have been managers, reacting as a status seeking employee.

Low wage employees under pay transparency are more likely to stop at the threshold. This is in line with a negative change of attitude towards the employer for unfair treatment, as found in most of the literature (Clark et al., 2010; Gächter and Thöni, 2010; Greiner et al., 2011; Nosenzo, 2013; Charness et al., 2016).

As expected, under pay transparency observing a wage higher than average also decreases requests for compensation, while a lower relative wage makes employees ask more often for compensation. Given that the compensation rule established that employees with the "high" wage were always denied compensation, and that employees with the "low" wage were granted compensation if, and only if, one of their colleagues with the "high" wage belonged

to the same or lower group in the screening test, our experiment proves that pay transparency makes the allocation of requests for compensation more efficient¹⁴.

Interestingly, stopping behaviour and requests for compensation are affected by observing a lower wage with respect to the same gender, but not with respect to the opposite gender. Indeed, in column 2 and 3 the coefficient on “*Smaller than Opposite Gender Average Wage X Pay Transparency*” is not significantly different from zero, while the coefficient on “*Smaller than Same Gender Average Wage X Pay Transparency*” is positive and significant.

Being disadvantaged with respect to all or with respect to own gender triggers more requests for compensation and less extra effort, while being disadvantaged with respect to opposite gender does not. This can be explained in different ways. One possible explanation is that participants believe that their gender group performs more similarly to them than the opposite gender group, which somewhat justifies being disadvantaged compared to the other gender but not compared to their own gender. Another possibility is that comparison with own their own gender group generates stronger emotions than comparison with a group which participants do not identify with.

Table 7: Main outcomes over relative wage by gender

| | Female | | | Male | | |
|---|----------------------|----------------------|--------------------------------|----------------------|---------------------|--------------------------------|
| | (1) Task Score | (2) Stop | (3) Compensation Request | (4) Task Score | (5) Stop | (6) Compensation Request |
| Same as Average Wage X Pay Transparency | 2.041 (5.068) | 0.208 (0.327) | -0.469 (0.346) | 1.708 (5.001) | -0.001 (0.371) | 0.139 (0.280) |
| Greater than Average Wage X Pay Transparency | -1.795 (2.970) | 0.281 (0.221) | -1.581*** (0.257) | -0.100 (3.259) | 0.342 (0.256) | -1.287*** (0.254) |
| Smaller than Average Wage X Pay Transparency | -4.857 (3.484) | 0.376 (0.230) | 0.934*** (0.200) | -10.962 (7.462) | 0.305 (0.517) | 0.669 (0.423) |
| Smaller than Same Gender Average Wage X Pay Transparency | -8.076* (4.290) | 0.447 (0.333) | 0.950*** (0.291) | -1.767 (3.384) | 0.396 (0.242) | 0.915*** (0.194) |
| Smaller than Opposite Gender Average Wage X Pay Transparency | -2.394 (5.291) | 0.076 (0.394) | 0.364 (0.339) | -6.068 (4.941) | 0.231 (0.326) | 0.126 (0.275) |
| Manager | 15.057*** (3.019) | -0.425 (0.260) | | 18.504*** (3.399) | -0.061 (0.299) | |
| Screening Score | 1.292*** (0.103) | -0.002 (0.006) | -0.007 (0.005) | 1.442*** (0.092) | -0.009 (0.007) | 0.004 (0.005) |
| Risk attitude | 0.887* (0.506) | -0.133*** (0.038) | 0.081** (0.037) | 1.607*** (0.546) | -0.086** (0.044) | 0.130*** (0.038) |
| # female employees | 0.085 | -0.016 | -0.021 | 2.467* (0.546) | 0.109 (0.044) | -0.112 (0.038) |

¹⁴ In Poland the likelihood to request for compensation significantly decreases for employees with high wage, however it does not significantly increase for employees with low wage (online Appendix, Table F5). Together with the finding in footnote 13, the evidence suggests that Pay Transparency in Poland incudes weaker reactions compared to Germany and Spain.

| | | | | | | |
|-------------------------|---------|---------|---------|---------|---------|---------|
| | (1.307) | (0.093) | (0.091) | (1.291) | (0.101) | (0.086) |
| Obs. | 975 | 649 | 975 | 871 | 578 | 871 |
| (Pseudo) R ² | 0.348 | 0.025 | 0.145 | 0.354 | 0.031 | 0.108 |
| Country dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| Age and Education | Yes | Yes | Yes | Yes | Yes | Yes |

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ The first column and fourth columns are OLS regressions with robust standard errors (hc3) where the dependent variable is the result in the main task score (number of strings). The second and fifth column are logit regressions with robust standard errors where the dependent variable is a dummy equal to 1 if the employee stops when reaching the threshold. In these columns the sample only includes participants who manage to reach the threshold. The third and last columns are logit regressions with robust standard errors where the dependent variable is a dummy equal to 1 if the employee asks for compensation. In these columns the sample only includes clerks. Columns 1 to 3 only include female participants, columns 4 to 6 only include male participants. The explanatory variables are: *Smaller than Average Wage X Pay Transparency* identifies those who observe that their wage is lower than the average wage in the company. *Smaller than Opposite Gender Average Wage X Pay Transparency* identifies those who observe that their wage is lower than the wage of the employees from the opposite gender. *Smaller than Same Gender Average Wage X Pay Transparency* identifies those who observe that their wage is lower than the wage of the employees with the same gender. *Greater than Average Wage X Pay Transparency* identifies those whose wage is higher than the average wage in the company. *Same as Average Wage X Pay Transparency* identifies those whose wage is exactly equal to the average wage. The base group is the control treatment, where employees do not know their relative wage. *Female* is a dummy equal to 1 when the participant is a woman. *Screening score* is the number of strings correctly classified in the screening test. *Manager* is a dummy that identifies employees with the role of managers. *Screening score* is the number of strings correctly classified in the screening test. *Risk attitude* is a self-reported measure taking higher values for more risk prone participants. *# female employees* is the number of female employees in the company, this information is common knowledge also under pay secrecy. *Country dummies* for each of the 3 countries were included, as well the *Age* and *Education*. Errors are in parenthesis.

Table 7 shows the effect of relative wage under transparency for women and men separately. There are no differences in behaviour¹⁵.

Overall, in our study transparency leads to reactions to relative wage. Observing being at a disadvantage increases the likelihood to ask for compensation. The effect is stronger when own wage is lower than the wage of colleagues of the same gender¹⁶. Transparency also has negative effects on effort and extra effort when it reveals lower relative wage with respect to colleagues of the same gender. This suggests that transparency may not be as effective as expected in encouraging women to report lower pay with respect to men. On the contrary, transparency could lead to conflicts within gender groups. Indeed, when asked what the consequences of transparency measures would be if introduced in their companies 30% of participants replied that they might generate conflicts and 11% replied that they might decrease productivity. These results are in contrast with what was found by Kim (2015): using a natural field experiment in US States that have banned pay secrecy, the author found that pay transparency helped women determine if they were underpaid compared to men, and this was instrumental in reducing the gender wage gap, especially among the college educated. This difference is most probably due to the distinct contexts in which the studies have been carried out, since, along other specificities, banning pay secrecy is substantially different than implementing pay transparency measures.

Transparency also introduces information about the number of male and female managers in the company. This information does not have any effect on clerk's behaviour (online Appendix Table D1), but it does influence managers performance (Table 8).

¹⁵ The coefficient on *Smaller than Opposite Gender Average Wage X Pay Transparency* in Column 1 (females) is not statistically significantly different from that in Column 4 (males). Moreover, the coefficient on *Smaller than Average Wage X Pay Transparency* in Column 3 (females) is not statistically significantly different from that in Column 6 (males).

¹⁶In Spain only, and only female employees increase requests for compensation when they observe lower relative wage with respect to opposite gender as well (online Appendix, Table F9).

Table 8: The effects of Pay Transparency on managers, revealing gender gap in managerial position

| | Female | | Male | |
|--|----------------------|---------------------|----------------------|---------------------|
| | Task Score | Stop | Task Score | Stop |
| Pay Transparency | -28.392* (14.874) | 0.108 (1.426) | 20.916* (11.811) | -3.507** (1.454) |
| Share female managers | -25.312 (17.341) | -1.094 (1.687) | 39.758* (22.924) | -7.653** (3.172) |
| Share female managers X Pay Transparency | 37.216* (21.374) | 0.894 (2.143) | -46.583* (25.641) | 8.933** (3.649) |
| Screening Score | 1.842*** (0.273) | -0.004 (0.023) | 1.562*** (0.224) | -0.002 (0.022) |
| Risk attitude | 0.812 (0.837) | -0.265** (0.130) | 1.894 (1.307) | 0.048 (0.141) |
| # female employees | 2.783 (2.202) | -0.499 (0.307) | 4.900* (2.623) | 0.433 (0.278) |
| Obs. | 227 | 100 | 155 | 72 |
| Pseudo R ² | 0.49 | 0.113 | 0.362 | 0.195 |
| Country dummies | Yes | Yes | Yes | Yes |
| Age and Education | Yes | Yes | Yes | Yes |

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ The sample is only made of managers. The first column is OLS regression with robust standard errors (hc3) where the dependent variable is the result in the main task score (number of strings). The second is logit regression with robust standard errors where the dependent variable is a dummy equal to 1 if the employee stops when reaching the threshold. In this column the sample only includes participants who manage to reach the threshold. Columns 1 and 2 only include female participants, columns 3 and 4 only include male participants. The explanatory variables are: *Pay transparency*, which is a dummy corresponding to the treatment, the coefficient indicates the differential effect compared to the control group (pay secrecy). *Share female managers* that is the ratio between female and male managers. *Share female managers X Pay Transparency* that is the interaction between the share of female managers and the treatment dummy. *Screening score* is the number of strings correctly classified in the screening test. *Manager* is a dummy that identifies employees with the role of managers. *Screening score* is the number of strings correctly classified in the screening test. *Risk attitude* is a self-reported measure taking higher values for more risk prone participants. *# female employees* is the number of female employees in the company, this information is common knowledge also under pay secrecy. *Country dummies* for each of the 3 countries were included, as well the *Age* and *Education*. Errors are in parenthesis.

Column 1 shows that, under pay transparency, female managers performance is positively correlated with the number of female managers, while it is lower when there are no female managers. The opposite is true for male managers: their performance is negatively correlated with the number of female managers in the company (column 3). When looking at the extra effort under pay transparency, column 4 clearly shows that male managers provide extra effort when they observe that there are fewer female managers in the company. Stopping behaviour for female managers is not affected by the share of female managers (column 3). Men managers in the experiment develop a negative attitude against employers who privilege women. This finding becomes even more interesting when compared to the previous one about relative wage. Male clerks do not react negatively when their wage is lower than female colleagues, as they seem to compare themselves mainly with male colleagues. However, when it comes to managerial positions males strongly react to a disadvantage with respect to women. This result could be linked to recent findings by Kricheli-Katz (2019), who investigated what happens to managers responses when more women enter high status occupations that were previously male dominated. In an experiment conducted on a sample of the U.S. population, the authors found confirmation of what is called the “identity threat theory”. This theory predicts that when a high-status occupation becomes predominantly occupied by women, high-status occupation men feel threatened,

leading them to engage in practices to protect their identity, social and economic privileges, by derogating women. In the experiment by Kricheli-Katz male managers evaluated women as less competent, tended to hire them less frequently, and offered them lower salaries. At the same time less-privileged groups of men were not threatened and did not react. “Identity threat theory” could explain our findings as men managers who are confronted with a predominantly male high-status composition react positively to reinforce it, while a dominance of female high-status composition triggers a negative reaction, possibly derogating the importance of the task at hand, or punishing the employer for their gender composition choices. Although this is to a certain extent a speculation, we believe more research should be carried out on the effects of revealing workforce gender composition via pay transparency policies, and its effects on both horizontal and vertical comparisons (Cullen and Perez-Truglia, 2021).

5. POLICY IMPLICATIONS

Our findings relate to how the choice of pay transparency measures affects employees’ reception and reaction to it.

In the multivariate analysis on the main outcome variables, our results confirm that:

- Pay transparency does not have any significant effect on average productivity, although evidence suggests a decrease in productivity of those employees who observe a wage lower than the company’s average.
- Pay transparency decreases employees’ willingness to provide extra-effort. It increased stopping behaviour of both high wage employees and low wage employees.
- Pay transparency does not affect overall requests for compensation, but it makes their allocation more efficient. Low wage employees are more likely to ask for compensation under transparency, while high wage employees are less likely to do so.

It is important to stress that overall results depend on the relative weight of low wage and high wage employees in the company, which is unbalanced in our sample. Indeed, 60% of employees in this experiment receive a low relative wage. Looking at the reaction of each category not only gives more insight on the mechanism behind transparency, but it allows for making qualitative predictions for companies with different relative weights of low wage workers.

Arguments in favour and against pay transparency are abundant. On the negative side the most frequent critiques are related to decreased productivity and increased contentiousness. With this experiment we attempted to give answers to these two open issues. We found that pay transparency measures, by showing gender pay differences when they exist, do not significantly alter average productivity. In other words, it appears that employees do not significantly change their effort patterns when monetary incentives are at stake. On the other hand, intrinsic motivation is crowded-out by pay transparency. Indeed, extra effort provision significantly decreases independently of own relative position, and this might need to be taken into consideration when evaluating costs and benefits of this type of measure. We provide different potential explanations for this finding, such as satiation, inequality aversion, status seeking, retaliation. This aspect is crucial because when effort is withheld, and intrinsic motivation is reduced, both individual and organizational performances may be negatively affected. In this experiment we do not test spill over effects, but the literature shows that when co-workers observe colleagues’ loss of motivation, it can generate a ripple effect, with reduction in effort by other employees, morale problems and departures from the organization (Bennett and Naumann, 2005).

We found robust evidence of the redistributive effect of pay transparency in terms of actions to remedy unfair pay. Pay transparency in fact reduces the requests for compensation from those employees who are not eligible, while increasing requests from those who have grounds for the request for compensation. This is a win-win result for employers, employees, and the system at large. We do not think that our compensation institution is in any way comparable to a real-world judicial action, because it is detached to any emotional, reputational, non-monetary concern. We do interpret it as a proxy for active reaction and desire to uphold own rights in response to pay transparency. This can be reflected in the real world in any active action, not necessarily entailing judicial claims. Therefore, our study supports the idea that pay transparency measures do not generate an increase in contentiousness overall, while they raise awareness and action of the more disadvantaged workers. In the context of our study, differences in wages could be a consequence of differences in performance in the screening test and budget constraints, thus they could still reflect a fair assignment of wages. However, employees do not hold such a belief as the number of requests for compensation increases and employees reduce extra-effort when their wage is lower than average. This suggests that pay transparency should be associated with other forms of transparency within the company that favour a relationship of trust between employees and employers. In a trustworthy environment pay differences are more likely to be interpreted as a sign of equity and pay transparency may not have detrimental effects.

Finally, the evidence from this work suggests that pay transparency measures may fail in their goal of encouraging women to stand for their rights, if women show larger reactions to own gender differences rather than opposite gender ones. If women believe that other women perform more similarly to them than men, which somewhat justifies being disadvantaged compared to the other gender but not compared to their own gender, then pay transparency measures may not be enough to close the gender pay gap. Pay transparency measures should be complemented by other interventions that aim at strengthening women self-evaluation and self-esteem, and that debias the view according to which men are more productive in certain fields. As found by Exley and Kessler (2019) in a series of experiments, there is a substantial gender difference in self-evaluations: women subjectively describe their ability and performance to potential employers less favourably than equally performing men. This is due to women thinking they have a lower performance—either in terms of absolute or relative performance—than men.

In this study, we do not directly test the effects of pay transparency on willingness to bargain wages. However, there is room for policy interventions, such as pay transparency, to level the playing field. As suggested in Baker et al (2019) for wage bargaining.

The literature on bargaining has for years supported the stylized fact that women are less likely to negotiate their salaries, and that if they enter negotiations, they tend to be less assertive compared to men (for a review, Hernandez-Arenaz and Iriberry, 2019). However, more recent evidence has shown that women ask as often as men do but are less likely to get their request accepted (Artz et al., 2018). Also, women are less likely to have the opportunity to negotiate their wages compared to men, but conditional on the opportunity to do so, they are not less likely to negotiate (Stevens and Whelan, 2019). This could suggest that gender differences in bargaining are driven by nurture, not nature. Further studies should be carried out to assess the effects of pay transparency on women wage bargaining.

Our work clearly has some limitations for the direct application to the policy context. The experiment was designed to proxy for how employees working in a company reacted to the introduction of pay transparency and our findings appear to be well substantiated. However, this was a simplified environment that did not account for peer pressure, peer support, emotions, potential mobbing, and etcetera

6. CONCLUSIONS

Our study looked at employee responses to pay transparency by means of an online experiment in three EU Member States (Germany, Spain, and Poland), involving over 1800 subjects. Even though caution must be taken, our work has led us to conclude that pay transparency, as devised in our experiment, does not disrupt the provision of effort by employees and does not increase the number of requests for compensation, but it does interfere with the provision of extra effort, discouraging employees to work beyond the minimum required.

Interestingly, we found that women were more likely to stop at the threshold (where additional effort only benefitted the employer), but they were less likely to ask for compensation. We interpreted this result as two different ways to react to perceived discrimination: the first being less risky as it does not imply any consequences for the employee, less harmful for the employer who earns less but does not incur in any extra loss, and less eloquent as it does not require assumptions on own performance relative to others.

Most importantly, in our experiment there is a strong indication that pay transparency might simply render more efficient the request for compensation mechanism related to unfair wages: while the total number of requests for compensation did not significantly change, who asked for compensation did. Pay transparency helps employees understand when they should ask their rights to be upheld, and when not. In our study there is no relationship between employees and employers, therefore differences in wages are not interpreted as a fair representation of productivity. In such a context, pay transparency might have reduced the number of requests for compensation overall.

We also believe that future work should concentrate on enhancing the quality of the evidence on the efficiency of transparency measures, with a particular interest on gender reference groups, as well as both horizontal and vertical comparison. The evidence in this study shows that clerk employees are more strongly affected by differences within their gender group rather than by a gender gap. Therefore, if women compare themselves prevalently to other women, and not to men, pay transparency measures should take this into account and modify the way pay transparency information is presented. On the other hand, "Identity threat theory" could explain our findings on managers, where the opposite gender status becomes relevant. When male managers are confronted with a predominantly male high-status composition they react positively to reinforce it, while a predominantly female high-status composition triggers a negative reaction from men, possibly derogating the importance of the task at hand, or punishing the employer for their gender composition choices. Although this to a certain extent a speculation, we believe more research should be carried out on the effects of revealing workforce gender composition via pay transparency policies.

Finally, as Blundell (2021) found in a hypothetical choice experiment, there are significant gender differences in the response to pay gap information. Women are less likely to choose to work at employers with high pay gaps, and they draw different conclusions from pay gap reports compared to men. For example, men are more likely to interpret differences in pay levels as being due to occupations, while women are more prone to attribute them to differences in seniority or family-related differences, such as care burden. This means that further avenues of investigation, and policy considerations, should also contemplate how each gender interprets, and not only reacts to, the information provided by pay transparency mechanisms

REFERENCES

- Abeler, J., S. Altmann, S. Kube, and M. Wibral (2010). "Gift exchange and workers' fairness concerns: when equality is unfair". *Journal of the European Economic Association* 8(6), 1299–1324.
- Akerlof, G. A. and J. L. Yellen (1990). "The fair wage-effort hypothesis and unemployment". *The Quarterly Journal of Economics* 105(2), 255–28.
- Artz, Benjamin, Amanda H. Goodall, and Andrew J. Oswald (2018) "Do Women Ask?" *Industrial Relations: A Journal of Economy and Society* 57(4): 611–36.
- Baker, M., Halberstam, Y., Kroft, K., Mas, A. and Messacar, D. (2019). "Pay Transparency and the Gender Gap," NBER Working Paper No. 25834, National Bureau of Economic Research.
- Bennedsen, M., Simintzi, E., Tsoutsoura, M. and Wolfenzon, D. (2020) "Do Firms Respond to Gender Pay Gap Transparency?" 2020. NBER Working Paper No 25435 , National Bureau of Economic Research.
- Biasi, B and Sarson, H. (2022) "Flexible Wages, Bargaining, and the Gender Gap", *The Quarterly Journal of Economics*, 137(1), 215–266
- Blau, F.D. and Kahn, L.M. (2006). "The U.S. gender pay gap in the 1990s: Slowing convergence". *Ind. Lab. Relat. Rev.* 60 (1), 45-66.
- Blau, F.D., and Kahn, L.M., (2016). "The gender wage gap: Extent, trends, and explanations". IZA DP No. 9656.
- Blundell Jack, "Wage Responses to Gender Pay Gap Reporting Requirements", CEP Discussion Paper No. 1750
- Booth, A. and A. Leigh (2010) "Do employers discriminate by gender? A field experiment in female dominated occupations". *Economics Letters* 107(2), 236–238.
- Bracha, A., U. Gneezy, and G. Loewenstein (2015). "Relative pay and labor supply". *Journal of labor economics* 33(2), 297–315.
- Breza, E., S. Kaur, and Y. Shamdassani (2018) "The morale effects of pay inequality". *The Quarterly Journal of Economics* 133(2), 611–663.
- Brühlmann, F., Petralito, S., Aeschbach, L.F., Opwis, K. (2020). "The quality of data collected online: An investigation of careless responding in a crowdsourced sample", *Methods in Psychology*, 2.
- Card, D., A. Mas, E. Moretti, and E. Saez (2012) "Inequality at work: The effect of peer salaries on job satisfaction". *American Economic Review* 102(6), 2981–3003.
- Charness, G. and P. Kuhn: 2007, 'Does pay inequality affect worker effort? Experimental evidence'. *Journal of labor economics* 25(4), 693–723.
- Charness, G., Cobo-Reyes, R. Lacomba, J. Lagos, F. and Perez, J.M. (2016). "Social comparisons in wage delegation: experimental evidence", *Experimental Economics* 19 (2), 433-459
- Charness, G., R. Cobo-Reyes, S. Meraglia, and Á. Sánchez (2020) "Anticipated Discrimination, Choices, and Performance: Experimental Evidence" *European Economic Review* p. 103473.
- Clark, A. E., D. Masclot, and M. C. Villeval (2010) "Effort and comparison income: Experimental and survey evidence". *ILR Review* 63(3), 407–426.
- Cronbach, L. J. (1950). "Further evidence on response sets and test design". *Educational and Psychological Measurement*, 10, 3–31.
- Croson, R. and Gneezy, U. (2009). "Gender Differences in Preferences." *Journal of Economic Literature* 47(2):448–474.
- Cullen, Z. and Perez-Truglia, R., (2018a). "How Much Does Your Boss Make? The Effects of Salary Comparisons". NBER Working Paper No. 24841.
- Cullen, Z. and Perez-Truglia, R., (2018b). "The Salary Taboo: Privacy Norms and the Diffusion of Information". NBER Working Paper No. 25145.
- Dehdari, S.H. and Heikensten, E. and Isaksson, S. (2019). "What Goes Around (Sometimes) Comes Around: Gender Differences in Retaliation" Available at SSRN: <https://ssrn.com/abstract=3378279> or <http://dx.doi.org/10.2139/ssrn.3378279>
- Dube, A., L. Giuliano, and J. Leonard: 2019, "Fairness and frictions: The impact of unequal raises on quit behavior". *American Economic Review* 109(2), 620–63.
- Duchini, E., Simion, S. and Turrell, A. (2020). "Pay Transparency and Cracks in the Glass Ceiling". Working Paper.
- Exley, C. L. and Kessler, J. B. (2019). "The gender gap in self-promotion". Technical report, National Bureau of Economic Research.
- Falk, A., Fehr, E. and Fischbacher U. (2008). "Testing theories of fairness - Intentions matter". *Games and Economic Behavior* 62(1), 287–303.
- Filippin, A. and Crosetto, P. (2016) "A Reconsideration of Gender Differences in Risk Attitudes" *Management Science*, 62 (11) (2016), 3138-3160
- Fumagalli, E. and Fumagalli, L. (2022). "Subjective well-being and the gender composition of the reference group: Evidence from a survey experiment" *Journal of Economic Behavior & Organization*, 194, 196-219.

- Gächter, S., Nosenzo, D. and Sefton, M. (2012). "The impact of social comparisons on reciprocity". *The Scandinavian Journal of Economics* 114(4), 1346–1367.
- Gächter, S. and Thöni, C. (2010). "Social comparison and performance: Experimental evidence on the fair wage–effort hypothesis". *Journal of Economic Behavior & Organization* 76(3), 531–543.
- Gagnon, N., Bosmans, K. and Riedl, A. (2020). "The Effect of Unfair Chances and Gender Discrimination on Labor Supply". Available at SSRN 3519540.
- Goldin, C. (2014). "A Grand Gender Convergence: Its Last Chapter." *American Economic Review*, 104 (4): 1091-1119.
- Grasser, R., Newman, A.H. and Xiong, G. (2021), "Does pay transparency help or hurt? Evidence on employee motivation". Available at SSRN: <https://ssrn.com/abstract=3802785> or <http://dx.doi.org/10.2139/ssrn.3802785>
- Greiner, B., A. Ockenfels, and P. Werner (2011). "Wage transparency and performance: A real-effort experiment". *Economics Letters* 111(3), 236–238.
- Gulyas, A., Seitz, S. and Sinha, S. (2020) "Does Pay Transparency Affect the Gender Wage Gap? Evidence from Austria," CRC TR 224 Discussion Paper Series No. 194, University of Bonn and University of Mannheim, Germany 2020.
- Heinz, M., S. Jeworrek, V. Mertins, H. Schumacher, and M. Sutter (2020). "Measuring the Indirect Effects of Adverse Employer Behavior on Worker Productivity—A Field Experiment". *The Economic Journal*.
- Hernández-Arenaz, I. and Iriberry, N. (2019) "A Review of Gender Differences in Negotiation". *Oxford Research Encyclopedia of Economics and Finance*, 1–22. Oxford University Press.
- Isen, A.M., Reeve, J. (2005). "The Influence of Positive Affect on Intrinsic and Extrinsic Motivation: Facilitating Enjoyment of Play, Responsible Work Behavior, and Self-Control". *Motiv Emot* 29, 295–323
- Kuhn, P. and K. Shen (2013). "Gender discrimination in job ads: Evidence from china". *The Quarterly Journal of Economics* 128(1), 287–336.
- Maas, V. S. and H. Yin (2018). "Finding Partners in Crime? How Internal Transparency Affects Employee Collusion". Available at SSRN 3008574.
- Neumark, D. (2018). "Experimental research on labor market discrimination". *Journal of Economic Literature* 56(3), 799–866.
- Nichols, A.L. and Edlund, J.E. (2020). "Why don't we care more about carelessness? Understanding the causes and consequences of careless participants", *International Journal of Social Research Methodology*, 23:6, 625-638
- Nosenzo, D. (2013). "Pay secrecy and effort provision". *Economic inquiry* 51(3), 1779–1794.
- OECD (2021) "Pay Transparency Tools to Close the Gender Wage Gap", OECD Publishing, Paris, <https://doi.org/10.1787/eba5b91d-en>.
- Redmond, P., McGuinness, S. (2018). "The gender wage gap in Europe: Job preferences, gender convergence and distributional effects" *Oxford Bulletin of Economics and Statistics*, 81 (3) (2019), pp. 564-587.
- Stevens, K., & Whelan, S. (2019). "Negotiating the gender wage gap". *Industrial Relations: A Journal of Economy and Society*, 58(2), 141–188.
- Wilkowski BM, Hartung CM, Crowe SE, Chai CA (2012). "Men don't just get mad; they get even: Revenge but not anger mediates gender differences in physical aggression". *Journal of Research in Personality*, 46(5), 546–555