

Do women evaluate their lower earnings still to be fair? Findings on the contented female worker paradox examining the role of occupational contexts in 27 European countries

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It is still a puzzling question which gender inequalities in the labour market are perceived as fair and which are not – in the eye of the beholder. This study focuses on gender differences in the perceptions of the fairness of one's own wage and the role of the occupational context individuals are embedded in. Based on data collected from 27 European countries as part of the 2018 European Social Survey (Round 9), our study contributes to the growing field of wage fairness perceptions by analysing the role of the occupational context (measured as the share of women and the gender pay gap in the respondent's occupation), and how it moderates gender differences in fairness perceptions. Results indicate that – overall – female workers across Europe perceive their wages more often as unfairly “too low” than their male counterparts within the same country context and occupation, and that this gender gap is more pronounced in occupations with a high proportion of women and higher levels of gender inequality. We interpret these results as an indicator of growing awareness among women regarding the persisting “unfair” gendered wage distributions.

Introduction

Gender inequality in pay exists across Europe and many other countries worldwide (OECD, 2021). Its dimensions, causes, and consequences have been extensively studied since the early 1970s (see Blau and Kahn, 2017 for an overview on recent literature on the gender pay gap). Although the overall pattern since then had suggested a narrowing of gender wage differentials over time (Weichselbaumer and Winter-Ebmer, 2005), this trend seemingly came to an end in the 1990s, leading some scholars from the field to speak of a stalled gender revolution (England, 2010). In 2018, all 27 European countries examined in this study still had (unadjusted) gender pay gaps favouring men that, according to Eurostat (2018), vary between 4 (in Italy) and 22 per cent (in Estonia).

Despite this pronounced wage gap between the sexes, women were and still are consistently found to evaluate their job and pay as more positive than men.

This paradoxical finding was termed the ‘paradox of the contented female worker’ by Crosby (1982). Studies from various country contexts find support for this paradox, addressing different outcome variables such as *job satisfaction* (Clark, 1997; Blanchflower and Oswald, 1999; Medgyesi and Róbert, 2003; Buchanan, 2005; Kaiser, 2007), *pay satisfaction* (Graham and Welbourne, 1999; Brown, 2001; Davison, 2014), *fairness perceptions of other's earnings* (Auspurg, Hinz and Sauer, 2017; Adriaans, Sauer and Wrohlich, 2020; Sauer, 2020), and *fairness perceptions in the evaluation of one's own earnings* (Valet, 2018; Pfeifer and Stephan, 2019). Against the backdrop of prevailing gender inequalities in pay, women's higher level of perceived fairness may contribute to the persistence of current gender inequalities in the labour market.

However, besides a few cross-country studies focusing on the paradox of the contented female worker with regard to *job satisfaction* that report mixed

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evidence (Blanchflower and Oswald, 1999; Sousa-Poza and Sousa-Poza, 2000; Medgyesi and Róbert, 2003; Kaiser, 2007; Mueller and Kim, 2008; Hauret and Williams, 2017) and one recent study examining the paradox in *fairness perceptions of one's own earnings* showing that the intensity of perceived unfairness is higher among women in 15 out of 28 countries (Adriaans and Targa, 2022), previous research on the paradox has mostly been conducted using single-country data, covering only a few countries in Europe in total.

Our contribution to the literature is threefold: First, as some scholars of the field have argued for the paradox to be a universal phenomenon (Mueller and Kim, 2008), we aim at testing this hypothesis using timely survey data on 27 European countries. Second, we contribute to the literature by moving away from broad measures of job satisfaction facing problems of multidimensionality (Judge *et al.*, 2017) and focussing on perceived fairness of own pay instead which is more closely related to equity theory (Adams, 1963) and distributive justice theory (Jasso, 1978). To evaluate the fairness of one's own pay, the frame of reference is crucial. Previous literature has investigated various pay referents that workers could think of while evaluating the fairness of their pay, such as neighbours, friends, family members, partner, colleagues from the same firm, others working in the same region, industry or occupation. Evidence clearly suggests that workers are most likely to compare themselves with others working in the same occupation (Brown, 2001; Bygren, 2004; Schneider and Schupp, 2010; Hauret and Williams, 2019). Hence, we third contribute to the literature by considering the occupational contexts workers are embedded in as possible driver for gender differences in fairness perceptions which—to the best of our knowledge—has not yet been investigated for a pooled set of European countries. Here, we specifically focus on two justice-based explanations for the paradox that have been identified as most promising (Phelan, 1994 and Mueller and Kim, 2008): The 'own-gender referents' and the 'differential socialisation' hypotheses.

We address our contributions to the literature by exploring data from the European Social Survey in 2018/2019 making use of the variance between countries and their specific occupational contexts and thoroughly test: (i) whether there is evidence for the paradox of the contented female worker across our sample of 27 European countries; (ii) whether occupational gender composition shapes the availability of preferred same-gender referents and hence moderates the effect of gender on fairness perceptions; and (iii) whether women in occupations with large gender pay gaps are socialized to perceive the status quo as a norm, such that occupational gender pay inequality

moderates the effect of gender on fairness perceptions. To investigate these research questions, we run two-level hierarchical linear models (HLM) (individuals nested in occupations) with country-fixed effects on individual's fairness perceptions of own pay, analysing information on 13,544 workers from a total of 752 occupations in 27 countries.

Perceived fairness of wages

Fairness perceptions of wages are relevant regarding a number of outcomes (Törnblom, 1992), such as job dissatisfaction (Narisada and Schieman, 2016), work performance (Cohen-Charash and Spector, 2001), and even health (Schunck, Sauer and Valet, 2015). There are various approaches in justice theory (Jasso, 1978, 1980; Hegtvedt and Markovsky, 1995) explaining how an individual's fairness perceptions come about. In general, one distinguishes three principles: equality, need, and equity (Deutsch, 1985). Equality refers to an ideal scenario in which all goods are distributed equally across all individuals. According to the need principle, the distribution of goods follows the idea that all individuals' needs are met. However, in the case of economic exchange situations (e.g., employer–employee relations whereby workers exchange their labour for a wage), research has mainly focussed on the principle of equity (Shamon and Dülmer, 2014). In equity theory (Adams, 1963) it is assumed that people evaluate their outcomes in relation to their own inputs. Wages are therefore perceived as fair if the ratio of own wages to own investments, such as education or working hours, equals the ratio of another person. Imagine person A and person B have invested equally in education, but person A's earnings are less than person B's. In this example, equity theory would predict that person A would feel unfairly low paid due to a lower input–output ratio compared to person B.¹

Paradox of the contented female worker

Starting in the 1990s, scholars of organizational behaviour and sociologists of work have—against intuitive expectations—repeatedly reported higher levels of *job satisfaction* for women compared to men, notwithstanding existing gender inequalities in the labour market and even after considering work-related inputs and outputs as covariates (Clark, 1997; Buchanan, 2005). As previously noted, Crosby (1982) labelled this the 'paradox of the contented female worker'. We will refer to it in the rest of the paper as 'the paradox'.

Besides the analysis of gender differences in job satisfaction, research on the paradox was conducted from various perspectives and covers the use of differing conceptualizations, samples, and methodological

approaches. There is a clear support for the paradox in *pay satisfaction*, hence for women being more satisfied with their level of pay (Graham and Welbourne, 1999; Brown, 2001; Davison, 2014)—independently of their work-related inputs and outputs.

Another group of studies comes from the perspective of distributive justice, as some scholars have argued that research on the paradox should move beyond the scope of job satisfaction (Buchanan, 2005). Here, some studies focussed on *fairness perceptions of other's earnings* employing factorial survey experiments, thus letting respondents evaluate the fairness of the pay of fictitious employees with varying characteristics. These studies lend support for the paradox using general population samples (Auspurg, Hinz and Sauer, 2017; Adriaans, Sauer and Wrohlich, 2020; Sauer, 2020). Both genders produced gender pay gaps in their fairness evaluations—even when controlling for work-related inputs and outputs of the fictitious employees.

Apart from survey experiments, other studies based on observational data focussed on *fairness perceptions regarding respondent's own earnings*, finding that women—in line with the paradox—do indeed perceive their own pay more often as fair than men, when controlling for various individual and workplace characteristics (Pfeifer and Stephan, 2019). Based on the same data source, the German Socio-Economic Panel (SOEP), this was also supported by Valet (2018), who pointed out that at first glance the paradox seems to exist. However, using a fixed-effects design (i.e., explaining within-person changes in the dependent variables with changes in the independent variables), he furthermore demonstrated that women who change from a non-male-dominated (i.e., a female-dominated or gender-neutral) to a male-dominated occupation stop perceiving their own pay as more fair compared to men.

So far, all of the studies on the paradox discussed were single-country studies from a limited number of countries: the United States, the United Kingdom, Germany, and Australia. We found only a few studies analysing the paradox using data on multiple countries and most of them focussed on *job satisfaction*. Analysing up to 16 countries at the same time based on various data sources that were conducted before 2001, women were consistently found to be significantly more satisfied with their jobs—holding constant work-related inputs and outputs (Blanchflower and Oswald, 1999; Medgyesi and Róbert, 2003; Kaiser, 2007). Simply describing the pattern of gender differences in job satisfaction, Mueller and Kim (2008) report no gender differences for the vast majority of countries under study. However, as women are worse off in most labour market circumstances across their sample, they conclude that the paradox 'exists worldwide and continues to be a phenomenon worthy of study' (Mueller and Kim, 2008: p. 144). Interestingly,

there is contrasting evidence by Sousa-Poza and Sousa-Poza (2000) and Hauret and Williams (2017), who report no significant gender differences in job satisfaction—speaking against the paradox—for almost all countries in their study when work-related inputs and outputs are controlled for.²

This is supported with regard to *fairness perceptions of own earnings* by Adriaans and Targa (2022) who find no evidence that women evaluate their own earnings more favourably than men and even show that in 15 out of 28 countries, women report more intense levels of perceived unfairness.

Summing up, the paradox has mostly been supported by single-country studies that (1) covered the US, the UK, Germany, and Australia, (2) focussed on job satisfaction, pay satisfaction, fairness of own, and fairness of other's earnings (3) included employee and general population samples and (4) controlled for work-related inputs and outputs. However, evidence regarding the universal appearance of the paradox is rather mixed. Here, studies (1) included between 11 and 28 countries (most of them in Europe), (2) mainly focussed on job satisfaction with the exception of one recent study examining fairness perceptions of own wages, (3) included general population samples, and (4) and mostly controlled for work-related inputs and outputs. We are not able to detect clear patterns among these comparative studies to conclude under which conditions the paradox is more likely to be found. The only pattern one might see is that since 2008 no study—independently of study characteristic (1–4)—has claimed to provide universal support for the paradox. However, as multiple single-country studies on pay satisfaction, fairness of own and other's earnings have been supporting the paradox in the last decade and fairness perceptions of own wages strongly determine job satisfaction (Witt and Nye, 1992; Mueller and Kim, 2008), we ask whether the paradox of the contented female worker is still at play regarding fairness perceptions across our sample of 27 European countries, which would be in line with our first hypothesis:

H1: Women perceive their wages to be more fair than men across all countries.

Considering the occupational context: Explanations to the paradox of the contented female worker

Occupational pay referents

To better understand fairness perceptions, the choice of referent person is fundamental, as what is fair or unfair lies always in the eye of the beholder (Mueller and Kim, 2008). Here, Berger *et al.* (1972) differentiate between local and referential comparisons. In the former, individuals compare themselves only with other

concrete individuals, whereas in the latter individuals compare themselves to a generalized other. In fairness of wages comparisons, people tend to refer to images of generalized others with similar reward-relevant characteristics (Schneider and Valet, 2017). Previous literature concerned with the choice of pay referents has investigated a broad range of possible comparisons standards, such as wages of neighbours, friends, family members, partner, colleagues from the same firm, others working in the same region, industry, or occupation. Brown (2001) studied Australian employees finding most agreement for using same-occupation followed by same-firm referents. For Sweden, Bygren (2004) compared the importance of reference wages at multiple levels for employee's satisfaction with pay. Overall, occupation and national level appeared to be most influential, with women being more likely to use occupation standards for comparison. Schneider and Schupp (2010) directly asked respondents about the importance of a variety of possible pay referents. German employees clearly preferred same-occupation referents before colleagues from the same firm. Godechot and Senik (2015) combined survey data with administrative records for French workers to study the impact of different reference wages on pay satisfaction. Both, the average wage within a firm as well as the wage level of similar workers (same occupation, age, region) proved to be relevant. Finally, Hauret and Williams (2019) found workers in Luxembourg being most likely to compare their wages to others of the same occupation followed by others from the same firm. Summing up, workers repeatedly preferred comparing their wages to wages of others from the same occupation—with within firm comparisons being close to equally relevant. As we are not able to include and compare both levels of pay comparisons empirically we focus on the occupational context.

Own-gender referent hypothesis

Based on previous literature reviewing various explanations of the paradox (Mueller and Kim, 2008), we follow the authors conclusion that justice-based explanations offer the greatest potential and use: the 'own-gender referents' and 'differential socialisation' hypotheses.³

The 'own-gender referent' hypothesis relies on the idea that people prefer not only to use same-occupation comparisons but also same-gender comparison (Major and Forcey, 1985; Moore, 1991; Davison, 2014). As women are generally rewarded less and—according to the hypothesis—prefer to compare themselves with other women, they are not able to detect gender inequality and hence do not evaluate their pay as less fair than men's. Keeping these same-occupation and same-gender comparison preferences in mind, one

can extend this idea to the gender composition within individuals' occupations. If women are indeed more likely to compare themselves with other women, then the gender composition of one's own occupation constrains structural comparison opportunities. Hence, the 'own-gender referent' hypothesis should be especially working if the availability of preferred comparison referents is high as in female-dominated occupations (Valet, 2018).

Evidence regarding this hypothesis suggests that occupational gender composition seems to structure comparison opportunities, leading to higher levels of job or pay satisfaction on the part of women (Major and Forcey, 1985; Moore, 1990; Buchanan, 2005; Davison, 2014; Valet, 2018). Specifically, Valet (2018) demonstrated that the paradox in fairness perceptions disappears for women working in male-dominated occupations. As this pattern was proven robust using a fixed-effects design, it cannot be attributed solely to a composition effect. Conflicting evidence exists regarding the direction of association. Buchanan (2005) noted a paradoxical twofold result using data from an employee survey in a female-dominated occupation. He found that women are more satisfied with their job compared to men, but still perceive their wages as less fair. Wharton and Baron (1991) also presented evidence that women in female-tilted occupations were the least satisfied. To contextualize this opposite effect of gender composition at the level of occupation, Buchanan (2005) speculated that men in female-dominated occupations may be more noticeable. Hence, women perceive the unfairness of their rewards more easily. Keeping this conflicting evidence in mind, we still argue following Valet (2018) that occupational gender composition shapes the availability of preferred comparison referents, such that the paradox is particularly detectable in occupations with high concentrations of female workers:

H2: The higher the share of women working in an occupation the fairer do women perceive their wages.

Differential socialization hypothesis

The 'differential socialization' argument emerged from two theoretical directions. On the one hand, it was labelled 'differential entitlement standards' and refers to the idea that women are socialized to expect less than men through early socialization or workplace experiences. Thus, they become used to the level of inequality in their environment (i.e., in their occupation) and start perceiving their lower wages as fair because 'what they get from work is what they perceive they deserve' (Mueller and Kim, 2008: p. 126). On the other hand, this line of thinking can be framed more generally, relying on status value theory (Berger

et al., 1972) and reward expectation theory (Berger *et al.*, 1985; Correll and Ridgeway, 2006). Based on status value theory, gender can be seen as diffuse status characteristics, connecting women with general expectations of lower competence (Correll and Ridgeway, 2006). Those status beliefs are socially shared and—most importantly—accepted and legitimized by both genders. Although gender is a salient status marker in most situations (Ridgeway, 2011), ‘gender status beliefs should be particularly dominant in social contexts in which gender inequalities already exist’ (Auspurg, Hinz and Sauer, 2017: p. 182). The paradox of the contented female worker should therefore occur predominantly in occupations with a large amount of gender wage inequalities, shaping the daily experiences of female employees.

The literature on entitlement differentials between men and women regarding their wages supports this explanation of the paradox (Major, McFarlin and Gagnon, 1984; Moore, 1991; Clark, 1997; Davison, 2014). Furthermore, recent work by Auspurg, Hinz and Sauer (2017) clearly shows that employees who worked in occupations with higher gender pay gaps do justify higher gender pay gaps in their third-party evaluations. Again, all mentioned previous investigations were single-country studies. We could only find one study working on the ‘differential socialisation’ argument across multiple countries. Using 30 countries (based on the International Social Survey Programme (ISSP) from 2005), Mueller and Kim (2008) argued that young women as compared to old women should be less affected by socialization processes and therefore more likely to report lower levels of job satisfaction compared to men in their respective age group. Splitting their sample at the age of 40, they could not find the proposed differences in job satisfaction rates by gender. However, the split sample only vaguely operationalizes the socialization argument. In line with the results of Auspurg, Hinz and Sauer (2017), we expect that women working in occupational contexts with a larger degree of gender inequalities in pay are more likely to perceive their wages as fair compared to women in more gender-equal occupations:

H3: The higher the gender pay gaps in an occupation the fairer do women perceive their wages.

Methodology

Data, sample, and variables

The analyses are performed using round 9 of the European Social Survey (ESS), which was fielded in 2018/19. The ESS is a biannual cross-national survey that has been conducted across Europe since 2001, guaranteeing a high level of data quality. We mainly focus on the module ‘Justice and Fairness in Europe:

Coping with Growing Inequalities and Heterogeneities’, which is available for all of the participating countries in round 9. As we are interested in fairness perceptions of one’s own pay we restrict our sample to currently employed individuals at the age of 18 years up to 67 years with contracted weekly working hours between 10 and 60. After listwise deletion, the analysis sample covers 13,544 respondents working in a total number of 752 occupations in 27 countries⁴ (for a country-specific overview, see [Supplementary Table A1](#)).

People’s fairness perceptions of own wages were measured in the following way. First, respondents had to indicate their (*actual*) gross pay before taxes and compulsory deductions, either in weekly, monthly, or yearly amounts.⁵ As a second step, they were asked for their personal fairness perception (‘Would you say your gross pay is unfairly low, fair, or unfairly high?’), which was implemented using a nine-point scale (–4 ‘extremely unfairly low pay’, 0 ‘fair pay’, 4 ‘extremely unfairly high pay’).⁶ We decided to avoid fairness perceptions of own net pay as those perceptions are likely to reflect fairness perceptions of the national tax regimes.

The main predictors are respondent’s gender and two contextual measures on occupational gender segregation and occupational gender inequality. Both are constructed making use of the European Union Statistics on Income and Living Conditions (EU-SILC) provided by Eurostat (2021). We applied the same sample restrictions as described for the ESS above and created occupational variables based on the 2-digit ISCO-08 classification within all 27 countries.⁷ Here, armed forces and agricultural occupations were excluded, leaving up to 36 occupations per country.⁸ Gender segregation is measured as the share of women in an occupation and for occupational gender inequality we rely on unadjusted gender pay gaps expressed as a percentage:

$$\frac{\text{Mean (gross) hourly pay of men} - \text{Mean (gross) hourly pay of women}}{\text{Mean (gross) hourly pay of men}}$$

Information on hourly gross pay is based on annual gross pay⁹ divided by number of months spent in employment divided by number of working hours per month (for the applied strategy see Engel and Schaffner, 2012). We decided against adjusted gender pay gaps arguing that they would be less visible for respondents and therefore less likely to reflect gender status beliefs. To be socialized with regard to gender inequality requires some level of seniority within the same occupation. Unfortunately, we are not able to observe occupational seniority in the data which reduces precision of our measurement. However, as only three percent of European workers—on average—change their occupation per year (Bachmann, Bechara and Vonnahme, 2020), our measurement should be sufficient for the

Table 1. Correlation of contextual measures at the level of occupations within countries

	(1)	(2)	(3)
(1) Share of women	1.000		
(2) Gender pay gap (unadjusted)	-0.040	1.000	
(3) Mean hourly gross pay (log.)	-0.144***	0.044	1.000
N (occupations)	752		

+ $P < 0.1$ * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$. Source: EU-SILC (Eurostat, 2021), own calculations.

vast majority of our sample. We found a small percentage of respondents (8.4%) working in occupations with negative gender pay gaps indicating lower pay for men compared to women. As this contextual setting is a somewhat different scenario from our theoretical approach, we coded those occupations as a separate dummy variable.¹⁰ Additionally, mean hourly gross pay at the occupation level was included as measure for the occupational reference wage. Unfortunately, inputs of referent persons are not observed in the data and cannot be varied as in survey experiments. Table 1 provides information on the correlation structure of the three contextual measures. The share of women and mean hourly gross pay within respondent's occupational group are negatively correlated meaning that a higher proportion of females in an occupation is associated with lower average pay levels. However, both measures are sufficiently different to be considered in a common model.

Besides the level of occupations, the following regression models include a set of individual-level covariates. Based on equity theory, the ratio of individual inputs and outputs determine whether people perceive their wages to be fair. Hence, the inclusion of additional covariates is warranted to determine whether the paradox (a positive gender coefficient) can be found in our data even when individual inputs and outputs are held constant. As main output, hourly gross pay in Euros before taxes and deductions (calculated based on the currency exchange rate of 31 December 2018) should be included as a baseline to which the fairness evaluations refer to. We use the hourly measure of earnings to be consistent with the calculation of occupational gender pay gaps that is based on hourly gross wages as well. Individual inputs that reflect gross pay are also to be considered. For them, we have to rely on proxies: Years of education account for human capital differences and were truncated at 30 to exclude improbably long durations. Age (linear and quadratic term) stands for the potential work experience while contracted working hours are used as proxy for work effort. Finally, we consider occupational prestige ('Standard

Occupational Prestige Scale' (SIOPS)), as according to the devaluation hypothesis, occupational gender segregation is associated with an increased tendency to devalue women's work roles—indicated by lower prestige scores (Cohen and Huffman, 2003). Table 2 contains descriptive statistics of all named variables for the pooled data.

Analytical strategy

Making use of the ESS data on 27 countries, we aim at exploiting the large amount of variance between occupations nested in countries (see Supplementary Figure A2) by pooling all occupation-country observations into one regression framework, which is a common strategy in cross-country research (Bryan and Jenkins, 2016). As we are interested in a more general test of our hypotheses across many European countries, we will not focus on country-specific patterns. Hence, keeping our nested data structure in mind, where individuals are nested in occupations that are nested in countries, leads us to apply two-level HLM (individuals nested in occupations) for the individual fairness perceptions with country-fixed effects.¹¹ Adding country dummies to our models controls for unobserved country-level heterogeneity (ICC of individuals nested in countries = 0.139) and allows us to focus on the effect of occupation-level variables and their cross-level interactions with gender. We use the fairness variable measured on a nine-point scale as quasi-linear dependent variable.¹² The corresponding intraclass correlation in the null model of 0.061 (individuals nested in occupations) supported this methodological approach (see Table 3, m0). Estimating cross-level interactions for hypotheses 2 and 3, we follow the advice of Heisig and Schaeffer (2019) to include a random slope for the lower-level variable of the interaction term, which in our case is gender. For all models, post-stratification weights were specified and analyses were done using Stata (SE 16.1).

To test our hypotheses, we ran stepwise models starting with model 1, which only contains gender as an explanatory variable. In model 2, all individual- and occupational-level covariates were included to test our first hypothesis regarding the existence of the paradox across Europe. Afterwards, in models 3–7, we separately added both contextual predictors and their interaction with respondent's gender, before running a full model to test our second and third hypotheses. Being interested in gender's main effect when interactions are included, we centred the share of women and the gender pay gap of occupations at their country means. For a better interpretation of the interactions, we provide graphical representations of the corresponding marginal effects in Figures 1 and Figure 2. Finally, we present two additional robustness checks regarding

Table 2. Descriptive statistics of dependent and independent variables

	Mean	SD	Min	Max
<i>Dependent variable</i>				
Fairness perception of own gross pay (nine-point rating scale)	-1.00	1.36	-4	4
Men	-0.82	1.30	-4	4
Women	-1.15	1.39	-4	4
<i>Independent variables</i>				
Female (ref.: Male)	0.54	–	0	1
<i>Occupation level (ISCO-08 2-digit)</i>				
Share of women	53.86	24.91	1.86	95.33
Gender pay gap (unadjusted)	14.99	10.69	-21.72	43.87
Mean hourly gross pay (log.)	2.59	0.78	0.55	4.08
<i>Individual level</i>				
Hourly gross pay (log.)	2.46	0.85	0.03	5.96
Age (years)	43.29	11.87	18	67
Education (years)	14.43	3.72	0	30
Working hours/week (contracted)	36.98	6.83	10	60
Occupational prestige (SIOPS)	44.59	14.20	13	78.16
N (individuals)		13,544		
N (occupations)		752		
N (countries)		27		

Source: ESS Round 9 (2018), third release (ESS9e03) and EU-SILC (Eurostat, 2021), own calculations.

country-specific gender differences and omitted variable bias on the occupational level.

Results

Table 3 presents the results of our models to examine gender differences in fairness perceptions as well as potential interferences with the occupational contexts individuals are embedded in. Model 1 starts with a highly significant negative effect of gender, indicating that women are more likely to perceive their own gross pay as unfairly too low compared to men. Adding all control variables in model 2, gender keeps being negatively associated with the fairness perception—although the size of the coefficient is markedly lower compared to model 1. This indicates that women with the same hourly earnings and who are of the same age have the same education, working hours, and occupational prestige do not perceive their earnings as more fair which has to be interpreted as evidence against the existence of the paradox across European countries and leads us to reject hypothesis 1. Turning to models 3–7, where—step-by-step—the two contextual characteristics and their interactions with gender are introduced, the rejection of hypothesis 1 still holds across all models. At least in the ESS, women actually perceive their wages to be less fair than men, even when individual- and occupation-level characteristics are accounted for.

The additional covariates stay more or less constant across all models (see [Supplementary Table A4](#)): higher hourly gross pay and higher occupational prestige unsurprisingly increase the level of fairness perception of own pay. This holds for the average hourly gross pay within the occupation, although not statistically significant in all models. Age is the only statistically significant negative control. In combination with the positive quadratic term, respondents tend to perceive their own pay as less fair with higher age until the age of 52.8 (estimated turning point), when their feeling of fairness starts to increase again. Additional analyses showed that this pattern does not vary significantly by gender (see [Supplementary Figure A3](#)) speaking against the idea that the paradox might still be at play in older age cohorts while younger cohorts could be more conscious regarding gender inequalities in pay. Education years and working hours do not reach statistical significance.

The share of women in an occupation as the first contextual factor shows a negative association with y which is to a large degree mediated by gender. With higher concentrations of women in their occupation, women tend to perceive their wages to be less fair— independently of average wage level and unadjusted gender pay gap. [Figure 1](#) visualizes the corresponding marginal effects with 95% confidence intervals

Table 3. Results of the two-level HLM of individual fairness perceptions on respondent's gender and occupational context characteristics

Fairness perception of gross pay (nine-point rating scale)	m1	m2	m3	m4	m5	m6	m7
<i>Individual level</i>							
Female (ref.: Male)	-0.251*** (-7.99)	-0.139*** (-4.60)	-0.128*** (-4.33)	-0.124*** (-4.68)	-0.139*** (-4.62)	-0.096** (-3.03)	-0.090*** (-3.52)
<i>Occupational level</i>							
Share of women			-0.002 (-1.63)	-0.001 (-0.54)			-0.001 (-0.40)
Female # Share of women				-0.004** (-3.15)			-0.004*** (-3.46)
Gender pay gap					-0.001 (-0.63)	0.004 (1.25)	0.004 (1.37)
Female # Gender pay gap						-0.010** (-3.02)	-0.011** (-3.23)
Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Country-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Random slope for gender at occupation level	No	No	No	Yes	No	Yes	Yes
ICC (individuals nested in occupations)	0.0605	0.0568	0.0152	0.0139	0.0146	0.0124	0.0138
AIC	45600.8	45491.9	44508.9	44493.6	44512.7	44489.4	44471.2
N (individuals)	13,544	13,544	13,544	13,544	13,544	13,544	13,544
N (occupations)	752	752	752	752	752	752	752
N (countries)	27	27	27	27	27	27	27

Note: Controls = *Occupation level*: Mean hourly gross pay (log.); *Individual level*: Hourly gross pay (log.), age (linear and cubic), education (years), working hours/week (contracted), occupational prestige (SIOPS); Models 5–7 additionally include negative gender pay gaps (dummy) and in models 6 and 7 their interaction term with gender is controlled as well; ICC = Intraclass correlation; AIC = Akaike information criterion; *t*-statistics are displayed in parentheses; + $P < 0.1$ * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$.
Source: ESS Round 9 (2018), third release (ESS9e03) and EU-SILC (Eurostat, 2021), own calculations.

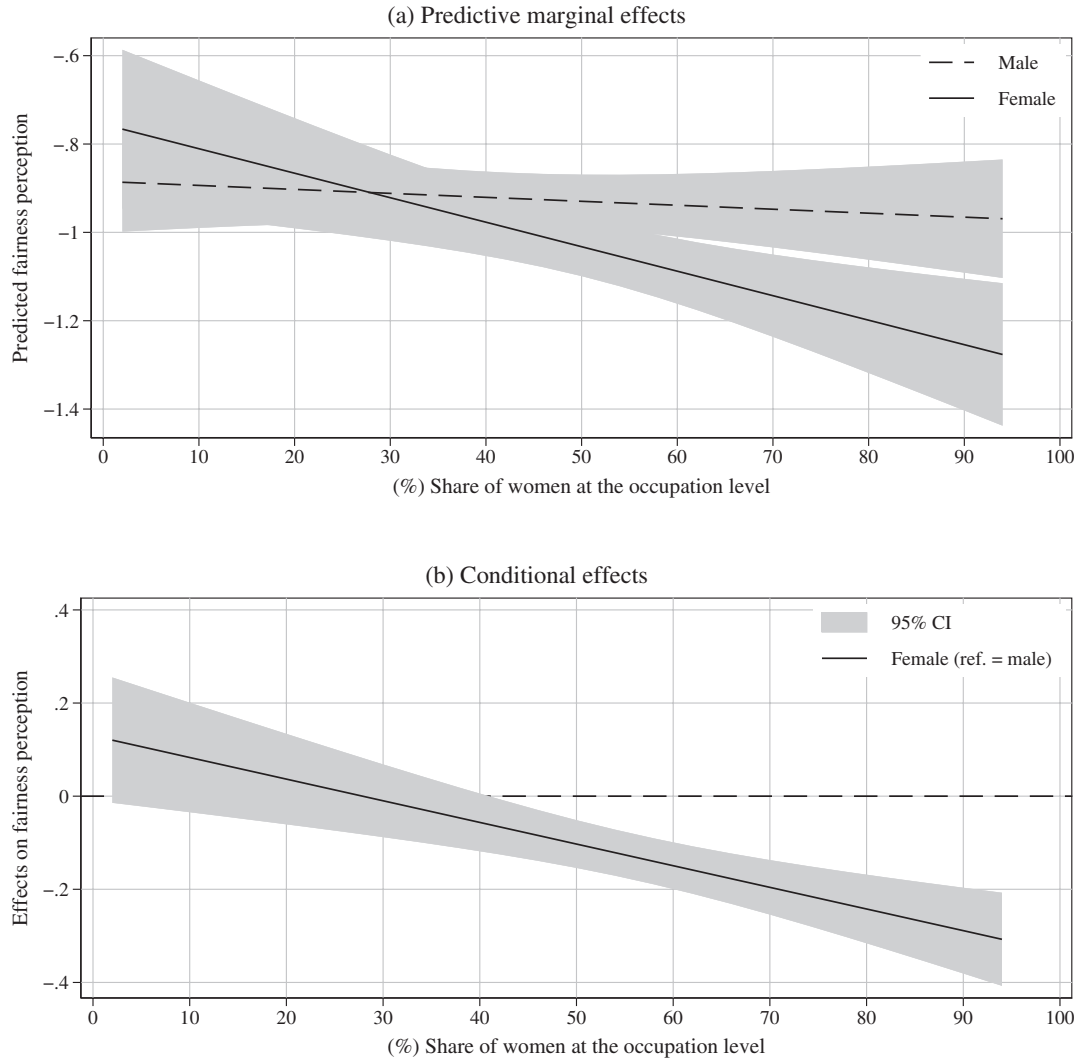


Figure 1. Marginal effects of interaction: Gender and share of women at the occupation level. Note: Presented are (a) predictive marginal effects and (b) conditional effects of fairness perception of wages with 95% confidence intervals. Both graphs are based on model 7 from Table 3 without centring. Source: ESS Round 9 (2018), third release (ESS9e03), and EU-SILC (Eurostat, 2021), own calculations.

for this interaction term. As has been shown before by Valet (2018), men's fairness perceptions remain unaffected by varying shares of female workers in their own occupation (see Figure 1, panel a). This is not the case for women. Not only do their fairness perceptions differ depending on the availability of other women in their occupation, they also do so in a rather unexpected direction. Women in the ESS show higher levels of perceived unfairness of own wages the higher the share of other women in their corresponding occupation. The threshold for their

perceptions to significantly differ from those of men in similar occupations lies at around 40 per cent (see Figure 1, panel b). Based on this finding, hypothesis 2 has to be rejected as our results point in the opposite direction.

As a contextual measure of experienced gender inequality within the occupation, unadjusted gender pay gaps were included. Figure 2 contains a graphical visualization of this interaction term displayed as marginal effects with 95% confidence intervals when adjusting for the share of women and average wage level in the occupation (model 7).

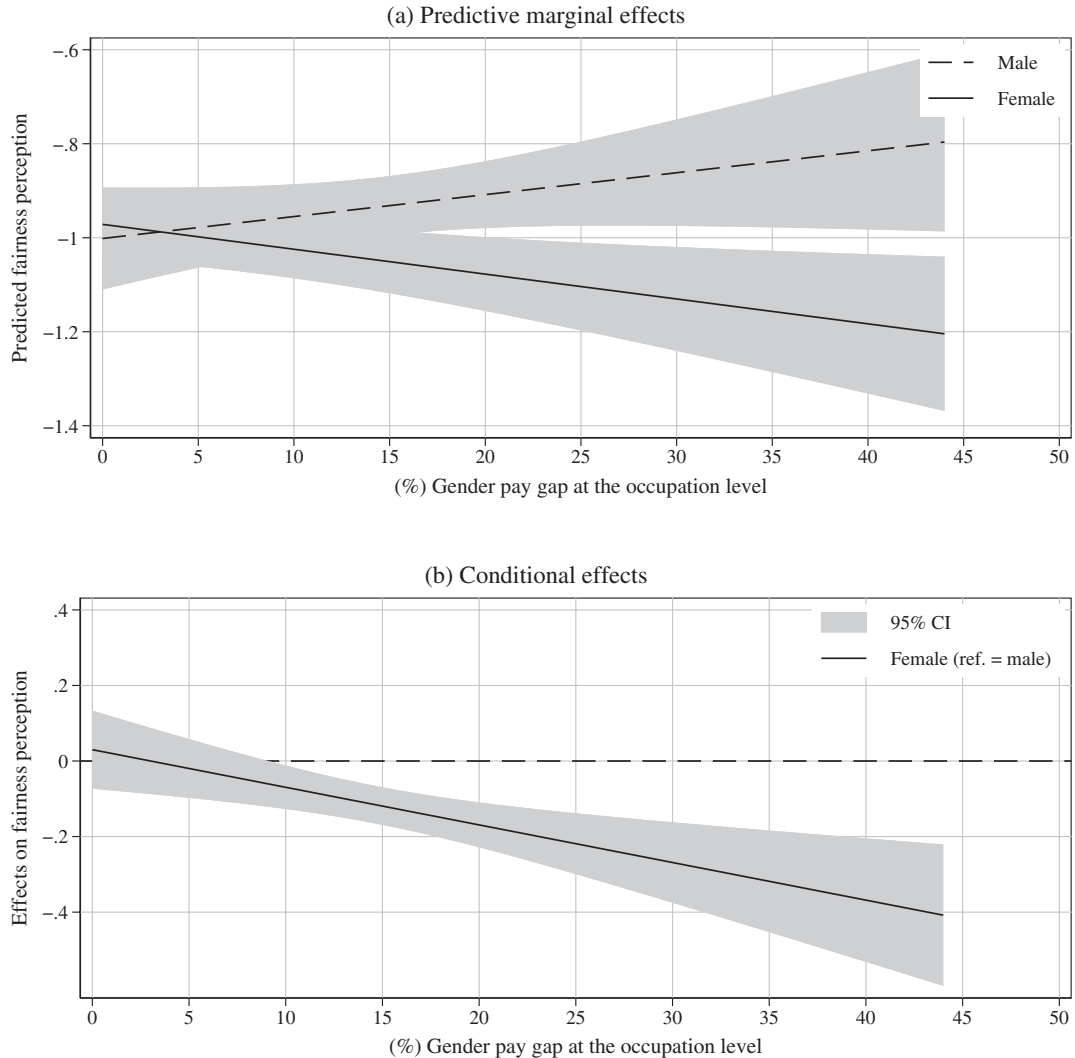


Figure 2. Marginal effects of interaction: Gender and gender pay gap at the occupational-level. Note: Presented are (a) predictive marginal effects and (b) conditional effects of fairness perception of wages with 95% confidence intervals. Both graphs are based on model 7 from Table 3 without centring. Source: ESS Round 9 (2018), third release (ESS9e03), and EU-SILC (Eurostat, 2021), own calculations.

Against our expectations (H3), higher gender pay gaps are associated with lower levels of perceived fairness of own wages for women. This pattern clearly varies from men's fairness perceptions which increase—although on average still being unfairly too low—with higher gender pay gaps. The gender difference is statistically significant starting from gender pay gaps of around 10 per cent. Our third hypothesis was based on the socialization argument, that is, that women are more habituated to daily experienced gender inequalities and therefore should perceive their pay as more fair in gender-unequal occupations. This has to be rejected using the ESS as evidence tends to support the opposite direction.

Robustness

Country-specific gender differences

One might argue that our analytical strategy of using pooled data of 27 countries to investigate the universal appearance of the paradox of the contented female worker (H1) hides country-specific variation. Hence, our finding that women in the pooled ESS perceive their wages to be less fair than men could as well be driven by single countries with extreme gender differences. To address this, we estimated gender differences in fairness perceptions separately for every country in our sample using OLS with occupation-fixed effects to

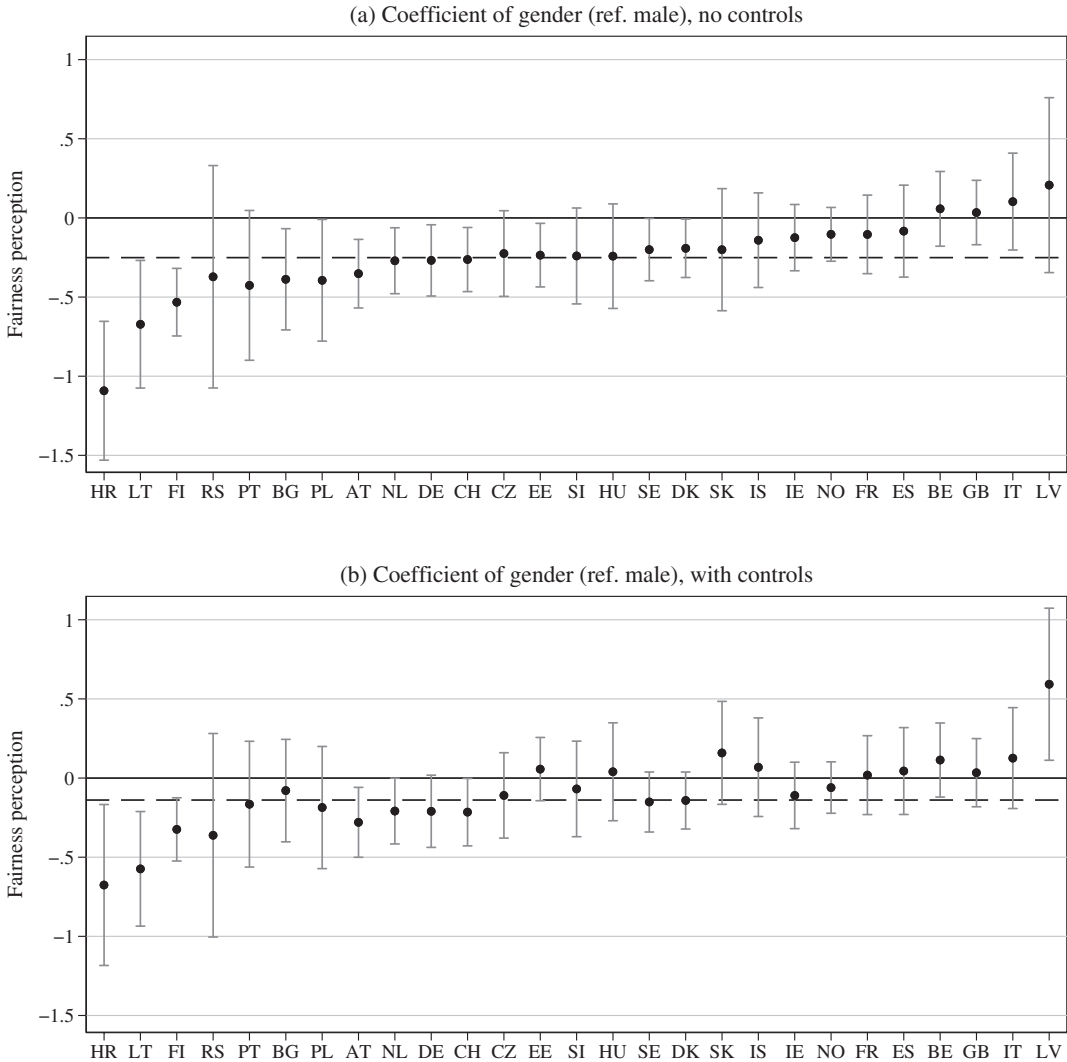


Figure 3. Results of country-specific OLS of individual fairness perceptions. Note: Presented are gender coefficients with 95% confidence intervals based on country-specific OLS with country and occupation-fixed effects using (a) no controls and (b) controls: Hourly gross pay (log.), age (linear and cubic), education (years), working hours/week (contracted), and occupational prestige (SIOPS); The dashed line refers to gender coefficients from the pooled analysis (see Table 3, (a) m1 and (b) m2). Source: ESS Round 9 (2018) and third release (ESS9e03), own calculations.

control for unobserved heterogeneity at the level of occupations within each country. Figure 3 contains the results of the country-specific models using (i) only gender as explanatory variable and (ii) controlling for the same individual-level controls used in the pooled analysis. Fairness perceptions of women compared to men unsurprisingly vary between countries. Raw coefficients of gender (panel a) are negative for a vast majority of countries ($N = 23$) indicating lower levels of perceived wage fairness among women. This pattern holds—but weakens—when we control for individual

inputs and outputs being in line with the reduced gender coefficient in Table 3 between model 1 and model 2 (see dashed line). Regarding extreme cases, we identify Croatia and Latvia on the lower and upper end of the country distribution. Excluding both countries from the pooled analysis does not change our main finding that—on average—we do not find any evidence for a universal appearance of the paradox (results available on request). On the contrary, we find a majority of countries ($N = 17$) in our sample tending to the opposite direction.

Table 4. Comparison of two-level HLM and fixed effects model

Fairness perception of gross pay (nine-point rating scale)	m7 (see Table 3)		Fixed effects model	
	<i>b</i>	<i>t</i>	<i>b</i>	<i>t</i>
<i>Individual level</i>				
Female (ref.: Male)	-0.090***	(-3.52)	-0.091***	(-3.38)
<i>Occupational level</i>				
Share of women	-0.001	(-0.40)	-	-
Female # Share of women	-0.004***	(-3.46)	-0.004***	(-3.40)
Gender pay gap	-0.004	(1.37)	-	-
Female # Gender pay gap	-0.011**	(-3.23)	-0.010**	(-3.12)
Controls	Yes		Yes	
Occupation-fixed effects	No		Yes	
Country-fixed effects	Yes		Yes	
Random slope for gender at occupation level	Yes		No	
N (individuals)	13,544		13,544	
N (occupations)	752		752	
N (countries)	27		27	

Note: Controls = *Occupation level*: Mean hourly gross pay (log.); *Individual level*: Hourly gross pay (log.), age (linear and cubic), education (years), working hours/week (contracted), occupational prestige (SIOPS); Models additionally include negative gender pay gaps (dummy) and their interaction term with gender; + $P < 0.1$ * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$.

Source: ESS Round 9 (2018), third release (ESS9e03), and EU-SILC (Eurostat, 2021), own calculations.

Omitted variable bias

When working with nested data where the number of level-2 units—in our case occupations—is rather small, models are limited with regard to the number of explanatory level-2 variables one can reasonably include. Hence, it is hardly possible to control for all relevant variables on the upper level which can lead to significant level-2 effects that are—in fact—generated by unobserved factors (Snijders, 2005). To address this potential omitted variable bias we follow the approach by Moehring (2012) to rely on fixed effects models instead. Adding occupation-fixed effects to our 2-level HLMs controls for all unobserved heterogeneity on the occupational level. Of course, this prevents us from estimating main effects of level-2 variables, but not from adding cross-level interactions as those vary between as well as within occupations (Moehring, 2012). Table 4 contains a comparison between our full model from Table 3 and the described fixed effects model. The estimates of our cross-level interactions do not vary between both approaches which leads us to conclude that our findings regarding the mediating role of occupational contexts are not driven by omitted variable bias.

Discussion and Conclusion

Our analysis based on ESS Round 9 data from 2018/19 aimed to put an often-stated but empirically contested paradox to an extensive investigation, namely that women being paid less than men on the labour market

are nevertheless more content with their working situation. If the paradox as a general phenomenon exists, we should be able to detect it using pooled data from 27 different countries. In addition to this comprehensive test of the paradox, we intended to learn whether and why fairness perceptions of pay differ by gendered occupational contexts. We analysed two factors: the *proportion of females* and the *individual experience with gender pay inequalities* at the occupational level.

When we focussed on the reported subjective feelings with regard to the *amount* of unfairness, both women and men rated their actual pay overwhelmingly as too low. However, we found that is markedly more pronounced for women compared to men. In other words, women are definitely less content with their pay than men. This result is not in line with the usual framing of the paradox.

One has to have in mind that the most previous studies that covered more than one country focussed on *job satisfaction* as the dependent variable while we investigated *fairness perceptions of pay*. One could argue that job satisfaction and fairness evaluation of actual pay might be loosely correlated. Thus, job satisfaction could be potentially high while financial rewards are evaluated to be unfairly too low. However, this would be highly unlikely since fair rewards determine to a high degree job satisfaction as many studies indicate (Witt and Nye, 1992; Mueller and Kim, 2008). Unfortunately, it is not possible—given the ESS

data—to directly bring job satisfaction into our study. Interestingly, our results support the recent work by (Adriaans and Targa, 2022) that finds—based on the same ESS data—no evidence that women evaluate their own earnings more favourably and reports even more intense levels of perceived unfairness among women in 15 out of the 28 analysed countries. Hence, focusing on *fairness perceptions of one's own earnings* and using broad, comprehensive and timely data from 27 countries challenges studies that used data from several single countries and focussed on *fairness perception of wages* as well (Auspurg, Hinz and Sauer, 2017; Valet, 2018; Pfeifer and Stephan, 2019; Adriaans, Sauer and Wrohlich, 2020; Sauer, 2020). The robustness of main findings was checked in country-specific models (see Figure 3). These specifications did not deviate from the substantive result that there is no universal evidence for the paradox to still hold.

What might explain differences in findings from previous studies is that we directly focus on the evaluation of *own actual* reward in the exchange situation with the respondent's employer. Many studies from previous research (Auspurg, Hinz and Sauer, 2017; Adriaans, Sauer and Wrohlich, 2020; Sauer, 2020) used (hypothetical) third-party evaluations that seem to be better suited for interpersonal comparisons—specifically if they have been implemented in survey experiments (vignettes). Such experiments allow comparisons of dimensions to estimate their relative relevance for fairness evaluations (e.g., Auspurg, Hinz and Sauer, 2017). In our analysis with ESS data, however, it is somewhat ambiguous which frame of reference respondents actually apply. They explicitly evaluate their own pay based on their inputs resp. their subjective effort, while we assume with good reasons that these evaluations really use the same gender 'referents'—in the same occupation. In particular, we know from other studies, however, that both is very likely (Major and Forcey, 1985; Bygren, 2004; Davison, 2014; Hauret and Williams, 2019).

Surprisingly, the fairness evaluations varied with the proportion of females in the occupation *only* for women. Beginning at the share of 40 per cent females in an occupation, women evaluated their pay as too low to a higher degree with a further growing proportion of women in the occupation, which was in contrast to the assumption that more women working in an occupation fosters the paradox. In addition, the hypothesis of a socialized experience of inequality failed as well. With higher occupational gender pay gaps women perceive their wages as more unfairly too low while for men the opposite is the case. The robustness of the mediating role of occupational contexts was checked as well using a fixed effects specification focussing only on the cross-level interactions (see Table 4).

Overall, all research hypotheses had to be clearly rejected and results pointed to the opposite direction. We interpret our results—based on the ESS 2018 data—as an indicator that women have a pronounced and widespread consciousness of being paid 'unfairly' too low. Many years after gender wage (in)equality came on the political agenda, women being paid less than men now clearly express their feeling of being treated unfairly—independently from their age but specifically in female-dominated and gender unequal occupations. Coming back to the theoretical considerations our results question both formulated mechanisms: Women's missing awareness for gender inequality due to same-gender comparisons and socialization with gender status beliefs. Maybe societal change has fostered the awareness of women for gender inequality changing the socialization mechanism into a solidarity mechanism. Hence, if women still compare themselves preferably with other women they are now more likely to solidarize in occupational contexts with higher shares of women and higher levels of gender inequality explaining the detected opposite patterns. As the research design of the ESS survey did not specify the frame of reference (whom to compare with), the crucial aspect that has to be addressed in future studies is exactly the actual point of reference for the fairness evaluation: is it same gender 'referents', opposite gender 'referents', employees in the occupational group, at the firm level, etc. Interestingly, previous theoretical explanations mainly focussed on female perspectives explaining gender gaps. As gaps are always relational, future research should more explicitly consider male perspectives as well, for example, males adapt their labour market behaviour in line with cultural changes (Juhn and Potter, 2006).¹³

Nevertheless, gendered perceptions detected in this study probably mirror long-lasting and yet ongoing political campaigns to fight wage inequality (European Commission, 2021). While men in general still adhere to status beliefs favouring them, the paradox of the contented female worker is definitely challenged by our results.

Notes

1. Over-reward can also be a source of perceived unfairness. However, empirically only a minority of workers do perceive themselves as unfairly overpaid.
2. It has to be noted that Hauret and Williams (2017) were not able to control for individual wages, as the ESS 2010 did not provide information in this respect.
3. The 'differential job inputs' hypothesis states that women perceive justice because they believe that their lower outputs (e.g., earnings) are a consequence of their lower inputs (e.g., education). As this is often controlled for in statistical analysis, researchers do not claim support for

this (Mueller and Kim, 2008). Both selected explanations can be subsumed under the ‘multiple standards framework’ by Jasso (1978) and Jasso (1980). We will, however, discuss both explanations separately, as this better suits our empirical approach.

4. Cyprus was excluded due to missing information on working hours (ESS) and for Montenegro no contextual data (EU-SILC) was available.
5. We harmonized the responses and combined them with information on contracted hourly working hours to calculate hourly gross pay. We trimmed the distribution within each country at the lowest and highest percentile to avoid biased estimates due to outliers. Thereafter, the share of missing values lies at 23 per cent.
6. Although over-reward can be conceptually different from under-reward, we decided to keep over-reward in the analyses to not further reduce our sample size by 5.1 per cent. Further analyses show no substantial difference compared to our main findings, when over-reward is excluded (results available on request).
7. For two countries (DE, SI) in our sample EU-SILC contains only ISCO major groups (1-digit). We, therefore, rely on the EU-SILC Clone for Germany that is based on the German Socio-Economic Panel (SOEP, v37) for occupational context variables aggregated to ISCO 2-digit. In the case of Slovenia, we rely on major groups in order to avoid losing a whole country. However, our results do not change substantially when excluding Slovenia (analyses available on request).
8. For an occupation to be considered in the analysis, we require it to have at least 10 individual observations per gender for the aggregation based on EU-SILC. This threshold forces us to drop 23 per cent of all occupations on ISCO 2-digit remaining with a total number of 752 occupations.
9. Except of the United Kingdom and Ireland the income reference period is always the preceding calendar year leading us to use EU-SILC from 2019. For United Kingdom and Ireland, we rely on data from 2018 as in those countries the reference period is the calendar year of the interview. In addition, we had to use 2018 data for Iceland as EU-SILC (Eurostat, 2021) was not available for Iceland.
10. Previous bivariate analyses suggest a curvilinear association between gender pay gaps at the occupational level and individual fairness perceptions of own wages with a turning point at occupations with no prevailing gender pay gaps (see [Supplementary Figure A1](#)). However, as only few occupations with negative gender pay gaps exist in the data, we proceed using a dummy variable approach.
11. As our data structure is not purely hierarchical, we additionally ran models with country-occupations cross-classified within countries and occupations and individuals strictly nested in country-years (following model F from Schmidt-Catran and Fairbrother, 2016). However, as those models do not allow for post-stratification weights and results are similar to our models when weights are excluded (see [Supplementary Table A2](#), we remain with two-level HLM, including country-fixed effects.
12. Due to the measurement of our dependent variable we also ran two-level ordered logit models (see [Supplementary Table A3](#)). As results remain robust, we use two-level HLM for ease of interpretation.

13. We thank one of the anonymous reviewers for pointing to the bias in existing literature towards explaining female disadvantages and corresponding attitudes.

Supplementary Data

Supplementary data are available at *ESR* online.

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Data Availability Statement

The European Social Survey (ESS) Round 9 – 2018 (doi: 10.21338/NSD-ESS9-2018) is available for download at: <https://www.europeansocialsurvey.org/>. For use of EU-SILC (Eurostat, 2021) microdata there is an application process after which the data access is granted free of charge for researchers. The following disclaimer is suggested by Eurostat: This paper is based on data from Eurostat, EU Statistics on Income and Living Conditions. The responsibility for all conclusions drawn from the data lies entirely with the authors.

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