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ABSTRACT

Why Women Don't Ask: Gender Differences in Fairness Perceptions of Own Wages and Subsequent Wage Growth*

The authors analyze gender differences in fairness perceptions of own wages and subsequent wage growth. The main finding is that women perceive their wage more often as fair if controls for hourly wage rates, individual and job-related characteristics are taken into account. Furthermore, the gender difference is more pronounced for married than for single women. This points to the fact that social norms, gender roles, and gender identity are at least partly responsible for the gap in fairness perceptions. Further analysis shows that individuals, who perceive their wage as unfair, experience larger wage growth in subsequent years. An explanation would be that a wage perceived as unfair triggers negotiations for a better wage or induces individuals to search for better paid work. Thus, differences in wage perceptions can contribute to explain the nowadays still persistent gender wage gap.

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# 1.	Introduction

In this empirical paper, we show that women perceive their wages more often as fair than men, controlling for wages and working time. This result may contribute to answer the question why "women don't ask" for higher wages (Babcock and Laschever, 2003). If women engage less in wage negotiations, this can explain a part of the observed gender differences in wages and wage increases that is not related to productivity differences or direct wage discrimination (Altonji and Blank, 1999; Bertrand, 2011). Research from experimental psychology and experimental economics suggests that women – at least on average more often than men – shy away from negotiations as they do from competition (Niederle and Vesterlund, 2008; Kolb, 2009; Stuhlmacher and Linnabery, 2013; Blau and Kahn, 2017, p. 843). For example, Small et al. (2007) present evidence from experiments with students, in which women accept a lower pay for the participation in the experiment and show a lower tendency to negotiate than men. Mazei et al. (2015) find in a meta-analysis that economic negotiation outcomes in experimental studies are better for men than for women. The size of the gender difference depends however on person-based, situation-based, and task-based influences. In a recent overview, Lackner (2016) discusses that different attitudes towards competition might also have an impact on the gender wage gap.

We go one step back and look at the fairness perception of the own wage as an important potential trigger to start negotiations or other activities that increase the own wage. If women would perceive their wages more often as fair than men, the subjective motivation to start negotiations, i.e., to ask for higher wages, or to start other activities (e.g., employer change) should also be lower for them. Whereas we focus on a subjective binary indicator in perceiving the own wage as fair, related literature has previously analyzed gender differences in job and pay satisfaction. A key finding is that women are not less satisfied with their jobs than men, although women hold on average objectively worse jobs (e.g., lower wages, lower career opportunities, lower job security) (e.g., Sousa-Poza and Sousa-Poza, 2000). For example, Clark (1997) finds that British women are even more satisfied with their job and pay than men, when controlling in the regression analysis for labor income, working hours, and other job and socio-demographic characteristics. He argues that women's lower expectations in the labor market (e.g., based on worse labor market performance of women in the past) might be the reason that equal jobs and pay are perceived as better by women than by men. Major and Konar (1984) report evidence that female management students have lower expectations concerning their

starting and career-peak salaries than male students. They argue that satisfaction and perceived fairness depend partly on the match between expectations and realizations. Hence, lower expectations might induce women to perceive lower wages as acceptable and the same wage even as more fair than men. Caliendo et al. (2017) show that a gender gap in reservation wages exists and that the gender gap in wages vanishes once they control for reservation wages. From their analysis, they conclude that differences in reservation wages are partly due to differences in productivity and partly due to differing expectations. Feicht et al. (2017) conduct ultimatum collective bargaining games in the lab, where a proposer has to divide a pie among herself and two groups of recipients and a committee with representatives from one or both groups takes acceptance decisions. The authors find that female responders are more likely to accept a proposal than men.

Gender differences in expectations and judgments might be reasoned by different comparison standards such as same-sex comparison, upward and downward comparison (e.g., Major and Testa, 1989; Schneck, 2014[1]). Another explanation might be that men are overconfident in self-evaluations and overestimate their performance (Pelham and Hetts, 2001; Niederle and Vesterlund, 2007), i.e., men have an elevated entitlement which might lead to a lower fairness perception of the same wage and increases the probability to start negotiations. The above considerations about gender differences in the fairness perceptions of own wages can be related to equity theory (Adams, 1965), which frames justice in terms of the ratio of perceived outcomes and inputs and which takes into account interpersonal comparisons. Even without objective gender differences in work inputs (e.g., productivity, work attachments), men might expect a higher fair wage (outcome) than women, because (a) men overestimate their performance (input) and (b) men compare themselves with other workers who perform better and receive higher fair wages.

The discussed gender differences might be induced or at least strengthened by social norms, gender roles, and gender identity. Elster (1989) defines social norms by the feature that they are

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[1] Schneck (2014) analyzes a cross section of the same panel data set that we use, i.e., the Socio-Economic Panel (SOEP). His focus is however on income comparisons of workers, who perceive their own income as unfair, whereas we look at the probability to perceive the own wage as unfair or fair, respectively. The descriptive evidence in his paper suggests already that the monthly labor income is on average larger for those who perceive their income as fair. Moreover, he finds that stated fair income levels are larger than actual income levels and that women report lower levels than men.

unconditional, not outcome-orientated, and not future-orientated. They must be shared by others, are sustained by approval, and are associated with negative feelings if violated. As Sunstein (1996, p. 963) writes: "The social role of 'being a women' is associated with a wide range of social norms and social meanings." In this sense, social norms influence the development of gender roles, which then affect gender identity via believes about stereotypical behavior, attitudes, and preferences in specific groups. As Akerlof and Kranton (2000, 2010) have argued, an individual's identity depends on the assignment – or the sense of belonging – to a specific social category, which is for example determined by gender roles such as "wives are homemakers and mothers" and "husbands are primary breadwinners" in the household. Because individuals generate utility from their identity, threats to the group identity by others and deviations from the own group's stereotypical behavior, attitudes, or preferences reduce utility. Consequently, men and women are likely to behave and to form attitudes and preferences according to the stereotypes associated with their gender roles.

In order to analyze potential gender differences in the fairness perceptions of own wages, we use German survey data and multiple regression analysis. If we include the net hourly wage in the regressions and take a ceteris paribus perspective, i.e., all else equal including the hourly wage, we find that women have a higher probability to perceive their own wage as fair. Moreover, we find a counteracting effect of hourly wages and actual working hours. Workers with higher wages and lower working hours are more likely to perceive their own wage as fair. These counteracting effects are even larger for women than for men, from which we can conclude that women do not care less about wages than men. As women earn on average lower hourly wages and work fewer hours than men, we can attribute part of the non-significant gender differences in unconditional fairness perceptions of own wages to endowment differences.

Social norms can lead to different gender roles and identities for men and women concerning the labor market and household (e.g., Akerlof and Kranton, 2000; Stuhlmacher and Linnabery, 2013; Bertrand et al., 2015; Blau and Kahn, 2017, pp. 846-847), which might influence the fairness perception of the own wage. Akerlof and Kranton (2000) as well as Bertrand et al. (2015) argue, for example, that "men's gender identity is threatened if their wives work in the labor market, and especially if they do well (better than their husband)" (Bertrand, 2011, p. 1572). As social norms and gender identity should be more prevalent for married than for single persons, we have also estimated differences for singles and married men and women. The

findings indicate that the differences are larger for married women, which is in line with the social norm and gender identity explanation.

In a further step, we analyze if the fairness perception of the own wage has an impact on subsequent wage growth, which is on average significantly lower for women than for men. Previous research has reported evidence that the gender wage gap increases during workers' careers due to the gender differences in wage growth (e.g., Pfeifer and Sohr, 2009). We find indeed evidence that the wage growth is larger, if the wage has been previously perceived as unfair, which indicates that the perceived wage fairness is a trigger for starting negotiations or other activities (e.g., employer change) that increase the own wage. The effect of unfair wages on subsequent wage growth is smaller for women than for men, which indicates that men are more likely to seek wage increases than women even if both genders perceive their wages as unfair.

2.   Data set, variables, and estimation approach

The German Socio-Economic Panel (SOEP) is a large representative panel survey of private households and persons in Germany, which provides a stable set of core questions asked every year (e.g., employment, education, income) and yearly topics with additional detailed questions (Wagner et al., 2007).[2] Questions about fairness perceptions of own income are included in the years 2007, 2009, 2011, and 2013. Due to the nature of the topic, we further restrict the estimation sample to employed blue-collar and white-collar workers, who are not civil servants, who are not self-employed, who are not in education, and who are between 18 and 65 years of age. Moreover, observations with missing values in the used variables are dropped from the sample. The number of yearly observations in the total estimation sample is n=26,051 for N=12,213 individuals in an unbalanced panel with an average panel length of T=2.13.

The following question about the perceived fairness of the own wage in the SOEP serves as our dependent variable: "Is the income that you earn at your current job just, from your point of view? (no/yes)". Due to the binary nature of the variable, which takes the value one if the own wage is perceived as fair and zero otherwise, we apply binary probit regressions and present average marginal effects in our result section. As the SOEP is a panel data set, we can apply panel data models. Unfortunately, we cannot estimate fixed effects models, which would

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[2] Socio-Economic Panel (SOEP), data for years 1984-2013, version 30, SOEP, 2014, doi:10.5684/soep.v30.

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control for all time invariant unobserved characteristics and explicitly address unobserved heterogeneity. First, we are interested in the time-invariant gender (biological sex) variable, which has no within variance to exploit in fixed effects models. Second, the incidental parameter problem arises, because of the too short panel length. Thus, we estimate random effects probit models, which account for the between and the within variance. Likelihood ratio (Breusch and Pagan Lagrangian multiplier) tests reject the null hypothesis that the within variance does not significantly contribute to the total variance, i.e., that the random effects have zero variance. Consequently, the random effects models outperform the pooled cross section models. For the computation of the average marginal effects in the random effects models, we assume mean random effects of zero.

We estimate specifications with different sets of explanatory variables, of which gender, the real hourly net wage in Euros (base year 2006, consumer price index), and actual weekly working hours are of special interest. About 48 percent in our sample are women; about 60 percent of the observations perceive their wage as fair; the average hourly net wage is about 9.56 Euros; and actual working hours are on average about 39 hours per week. Moreover, the specifications include real monthly net household income in Euros, dummy variables for being female and having children under age 16 in the household, the number of persons in the household, 5 subjective health status categories, 5 marital status categories, a German citizenship dummy, secondary schooling degrees, apprenticeship degree, university degree, age in years, tenure in years, experience part-time employment in years, experience full-time employment in years, experience unemployment in years, 11 job categories, 7 firm size categories, 62 sectors (NACE), 16 federal states, and the 4 survey years. Descriptive statistics for all variables are displayed in Table A.1 in the Appendix.[3]

In a further step, we analyze if the fairness perception of the own wage has an impact on subsequent wage growth by exploiting the panel nature of the SOEP. For this purpose, we have generated a dependent variable for real wage growth, which is the difference between the log of the real hourly net wage in Euros in year t and the log of the real hourly net wage in Euros in year t-2. The mean real wage growth for these two-year spans is 0.029 log points, i.e., roughly three percent. The wage growth variable is then regressed on dummy variables for perceiving the own wage as fair in year t-2 and for being female as well as on the other control variables

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[3] For brevity, we do not present all regression results in the paper. The complete results can be requested from the corresponding author, who would also provide assistance for replication studies.

previously discussed (measured in year t). Due to the necessity to have information in year t and in year t-2, the estimation sample is reduced to observations in the years 2009, 2011, and 2013 and to individuals who have participated in at least two of these years subsequently (n=13081, N=6688, T=1.96). As the Breusch and Pagan Lagrangian multiplier tests reject the null hypothesis of zero variance for the random effects, we perform random effects GLS regressions. The fixed effects OLS model, which would control for time invariant unobserved characteristics, does unfortunately not allow us to estimate parameters for time invariant variables such as the gender (biological sex). Nevertheless, we have also estimated fixed effects OLS regressions for wage growth as a robustness check for the impact of fair own wage perceptions, because Hausman specification tests reject the hypothesis of no systematic differences in the parameter estimates between the random effects and the fixed effects models.

3. Empirical results

3.1 Descriptive statistics

Table 1 presents the means for the total estimation samples and separately for men and women. About 60 percent of the observations perceive their own wage as fair. The unconditional comparison does not indicate gender differences in the fairness perception of the own wage. The average hourly wage is about 9.56 Euros in the total sample. Whereas men earn on average 10.77 Euros per hour, women earn only 8.24 Euros. The gender difference in unconditional wages is 2.54 Euros, i.e., men earn on average 31 percent higher wages than women.[4] Actual working hours are on average about 39 hours per week in the total sample. Men work on average 44 hours per week and women on average 34 hours per week. Thus, men work on average 10 hours or 28 percent more than women. The working time differences also reflect the gender part time gap, i.e., women are more likely than men to be employed only in part-time. Overall, the data indicate no gender differences in unconditional own fair wage perceptions but significantly lower hourly wages and working hours for women. In the next section, we will look at conditional gender differences in the fairness perception of the own wage.

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[4] Note that we compute the relative gender difference (10.77-8.24)/8.24=30.7 percent, which expresses how much more men earn than women. One could also compute how much less women earn than men by (8.24-10.77)/10.77=-23.5 percent.

3.2   Relationship between wages, working hours, and fairness perceptions

The results of the binary probit regressions for the probability to perceive the own wage as fair are displayed in Table 2. We have estimated four specifications. The first specification includes only the dummy variable for being female and no further explanatory variables, i.e., the unconditional gender gap is estimated. The average marginal effect is close to zero and not significant. In the second specification, we have added the actual weekly working hours per week and our set of control variables. If we do not control for the hourly wage, women are on average 2.1 percentage points less likely to perceive their wages as fair than men.[5] Moreover, one working hour more per week decreases the probability to perceive the own wage as fair by around one percentage points. In the third specification, we have excluded the weekly working hours and have included the hourly wage. We can see that, conditional on the hourly wage, women are on average 8.5 percentage points more likely to perceive their wages as fair than men. The hourly wage itself increases the probability to perceive the own wage as fair by 4.1 percentage points per Euro. The fourth specification includes the hourly wage as well as the working hours. In this complete specification, women are on average 4.5 percentage points more likely to perceive their wages as fair than men. The hourly wage increases the probability to perceive the own wage as fair by 3.5 percentage points per Euro, whereas one working hour more per week decreases the probability by 0.6 percentage points.

Overall, our results indicate that women have on average a higher probability to perceive their own wage as fair than men in a ceteris paribus interpretation, i.e., all else equal including the hourly wage. Our results further show that hourly wages and working hours are important

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[5] Note that we compute and discuss absolute marginal effects. An alternative quantitative interpretation are relative marginal effects, i.e., dividing the absolute marginal effects by the mean probability to perceive the wage as fair. An absolute difference in the probability of one percentage point results into a relative difference of approximately 1.7 percent (0.01/0.60=0.017). Thus, the absolute gender difference of 2.1 percentage points is a relative gender difference of 0.021/0.60=3.5 percent.

counteracting determinants of the fairness perception of the own wage.[6] Due to endowment differences between men and women, which favor men in terms of higher wages and favor women in terms of lower working hours, their omission leads to upward and downward biases in the estimation of the gender gap in fairness perceptions of the own wage. Therefore, our complete specification four is superior and subsequently used in order to analyze potential gender differences in the effect size of wages and working hours. For this purpose, we have added interaction terms between the female dummy and the hourly wage as well as between the female dummy and the weekly working hours. The average marginal effects for men and for women, which take explicitly the interaction terms into account, are displayed in Table 3.

- *Insert Table 3 about here*

The first specification in Table 3 is only a linear specification, whereas the second specification takes into account squared terms of wages and working hours. Although the results do not differ qualitatively, we focus on the non-linear specification. The probability to perceive the own wage as fair is 4.0 percentage points larger for men and 4.7 percentage points larger for women, if the hourly wage is one Euro larger. One working hour more per week decreases the probability to perceive the own wage as fair by 0.4 percentage points for men and by 0.8 percentage points for women. The gender differences in the average marginal effects are sizeable and statistically significant for hourly wages and for working hours. All in all, the results indicate that women do not care less about the size of wages (on the contrary, rather more than men do), and that higher working hours are more negatively valued by women than men.

3.3 Results for singles and married persons

We can only speculate about the reasons for the estimated gender differences. One reason might be gender identity driven by social norms and gender roles. As such gender roles are likely to be more pronounced for married than for single persons (e.g., Bertrand et al., 2015), we repeat our analysis for these groups. For this purpose, we have restricted the estimation samples to singles and married persons and have added interaction terms between the dummy variable for

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[6] Note that our results do not necessarily imply a causal impact of wages and working times on fairness perceptions. Unobserved heterogeneity might still play a role, if for instance less motivated individuals are prone to be unsatisfied with their life and their pay, and at the same time earn less than more motivated persons.

being married and the dummy variable for being female as well as their interaction terms with wages and working hours.

The descriptive statistics in Table 4 show that about 73 percent are married and 27 percent are singles. When looking at the four different groups (men single, men married, women single, women married), we can see that endowment differences in wages and working hours are largest between married men and married women, whereas differences between single men and single women are rather small.

- *Insert Table 4 about here*

In Table 5, we present the average marginal effects of being female separately for singles and married obtained from the probit specifications used in the previous section. Overall, the gender gaps are again not significant in specification one (unconditional), negative in specification two (not controlled for wages), positive in specification three (not controlled for working hours) and four (complete). The gender gaps are larger for married women than for single women. Whereas the gender gap is only statistically significant for single women in specification three, the gender gap for married women is statistically significant in specifications two, three and four. Our complete specification four indicates that married women are on average 5.0 percentage points more likely to perceive their wages as fair than single men, whereas single women have only a 2.6 percentage points higher probability than single men, which is only significant at p=0.19. The finding that the gender gaps are more pronounced for married than for single women is consistent with the potential explanation of social norms, gender roles, and gender identity.

- *Insert Table 5 about here*

Table 6 displays the average marginal effects of the hourly wage and working hours for single men, married men, single women, and married women obtained from the probit regressions with interaction terms. We focus again on the non-linear specification. It can be seen that the marginal effects of wages are larger for women than for men among singles and among married persons. The gender difference is however small compared to the large differences between singles and married persons, as wages seem of much larger importance for the former than the latter. The negative effect of working hours is larger for women than men and the difference between single and married women is virtually zero. Nevertheless, we can see that the gender difference in the marginal effects of working hours is larger between married men and married

women (-0.0026+0.0072=0.0046) than between single men and single women (-0.0051+0.0073=0.0022), which is again consistent with social norms, gender roles, and gender identity as potential explanation.

- *Insert Table 6 about here*

3.4 Fairness perceptions and subsequent wage growth

After we have established empirically in the previous sections that women perceive their own wages on average as more fair than men, we analyze if the fairness perception of the own wage rate has an impact on subsequent wage growth. The rationale is that the perception of the own wage as unfair in year t-2 is a trigger to start negotiations or other activities that increase the own wage until year t. Our regression results for the variables of interest are displayed in Table 7. The first specification of the random effects GLS regressions reveals that average wage growth is about 0.03 log points lower for women than for men and that the wage growth is about 0.04 log points lower if the wage has been perceived as fair in year t-2. The second specification includes an additional interaction term between female and fair own wage perception. Even though the interaction term indicates that the fair wage effect is smaller for women, it is not statistically significant at conventional levels. The third specification is a robustness check that deals with a potential reverse causality issue, as one could argue that wage growth affects the fairness perception. This is of course true for the fairness perception in year t – but not for the fairness perception in t-2. If we replace the fairness perception in t-2 by the fairness perception in t, we find indeed a positive correlation which is likely to reflect reverse causality. We have additionally performed fixed effects OLS regressions that deal explicitly with unobserved time invariant individual heterogeneity. As fixed effects models exploit only the within variance, we cannot obtain an estimate for the gender dummy. Nevertheless, it is a valuable robustness check for the fair wage effect. The size of the estimated effects on wage growth is even larger in the fixed effects than in the random effects model.

- *Insert Table 7 about here*

The random effects GLS regression results for specifications one and two are further used to predict average wage growth for different groups in Table 8. Based on specification one, predicted average wage growth for workers, who have perceived their own wage as unfair in t-2, is 0.05 log points compared to only 0.01 log points for workers, who have perceived their

own wage as fair in t-2. Predicted average wage growth for men is 0.04 log points and for women only 0.01 log points. Based on specification two with the additional interaction term, predicted average wage growth for men, who have perceived their own wage as unfair in t-2, is 0.07 log points compared to only 0.03 log points for women, who have perceived their own wage as unfair in t-2, and to 0.03 log points for men, who have perceived their own wage as fair in t-2. Women, who have perceived their own wage as fair in t-2, experience on average no wage increase in the subsequent two-year span.

-   *Insert Table 8 about here*

So far, we have not distinguished between the different sources of wage growth. In addition to wage growth with the same employer, workers might search for better paid work and change the employer within the analyzed two-year spans. Therefore, we have re-estimated the previous random effects GLS regression separately for workers, who have changed their employers and make only about 10 percent of the workers in our sample, and for workers, who have stayed with their employers. Our main results hold for both subsamples, but are even more pronounced in the sample with employer changes.[7]

Overall, our results suggest that the perception of the own wage as unfair is indeed an important trigger for wage growth. But even if women perceive their own wage as unfair, their subsequent wage growth is lower than for men, who perceive their wage as unfair. One potential explanation for this finding might be that men, who feel unfairly treated, are more likely to react than women, who feel unfairly treated. Another explanation might be that women who try to improve their earnings are less successful than men – either due to gender differences in negotiations about higher wages and search behavior for better paid work or due to discrimination. We can however only speculate about the explanations and further research is necessary.

4.   Conclusions

This paper contributes new evidence to the literature on the gender wage gap. A main finding is that women perceive their own wage more often as fair than men do, if we control for hourly wage rates and a comprehensive range of individual and workplace related variables. The

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[7] The results can be requested from the corresponding author.

gender difference is much more pronounced for married than for single women, which points to the role of social norms, gender roles, and gender identity within the household. Further analysis shows that individuals who perceived their wage as unfair do in fact realize a stronger wage growth in subsequent years and that men seem to be more successful than women in increasing their wages.

Previous research from psychology has considered mainly situational moderators such as a same-sex environment and gender differences in personnel traits such as confidence, which can be individually trained, to explain why women don't ask for higher wages (e.g., Babcock and Laschever, 2003). While we cannot directly infer from the results that a sense of unfairness triggers negotiations for a higher wage, we will at least sketch some potential mechanisms. On the individual level, the results imply that men might more often directly ask for higher wages if their employer firm is not covered by a collective contract. If their employer firm is covered by a collective agreement, they might still more often ask for promotions to better-paid wage grades, or individual supplements of their base pay. On a more general level, differences in perceptions might also enter collective wage bargaining. For Germany, expert interviews show that men are still overrepresented in negotiation committees (Gärtner et al., 2015), and evidence from the lab shows that representation of a group in the committee is crucial for receiving a significant share of a pie (Feicht et al., 2017). Thus, male perceptions of what is fair pay might also have an impact on negotiated wages and wage growth for male and female dominated occupations.

As women perceive, ceteris paribus, the same wage as more fair than men, it is also important to address reasons for these gender differences in fairness perceptions. Potential explanations such as differences in expectations are likely to be driven by social norms, gender roles, and gender identity. To change norms and identities in a society is of course a not so easy task and a long-term challenge, which has for example been undertaken in the past by the inclusion of boys and girls in the same schools, women rights movement (e.g., voter rights), labor market inclusion, anti-discrimination laws and public discussion about equal pay, "girls' day" for engineering and science, parental leaves for fathers, and even female participation in sports. A strengthening of confidence in the evaluation of the own performance and work value might – by altering their negotiation behavior – contribute in improving the position of women in the labor market.

Removing information asymmetries about gender specific earnings differences on similar positions within companies might also help. Previous work from psychology has shown that women felt they deserved less pay than did men if comparison information and performance feedback were absent (Bylsma and Major, 1992). This gender differences vanished, however, when women and men were exposed to the same comparison information or the same performance feedback. In Germany, a wage transparency law came into force on January 6, 2018. Now larger firms have to provide – if requested by an employee – information on the average gross earnings of individuals on comparable positions within the company. This might encourage women to negotiate for wage increases if the average woman earns less than the average man in her group.

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Tables and figures to be included in the text

Table 1.

Descriptive statistics for complete estimation sample

	(1) Total	(2) Men	(3) Women	(4) Diff
Fair own wage (dummy)	0.6004	0.6037	0.5968	0.0069
Female (dummy)	0.4769	0	1	
Hourly net wage in Euros	9.5637	10.7741	8.2358	2.5383
	(5.1198)	(5.8184)	(3.8027)	[1.3082]
Actual weekly working hours per week	39.4186	44.0583	34.3288	9.7295
	(10.7632)	(8.1587)	(10.9723)	[1.2834]
Number observations	26051	13628	12423	
Number individuals	12213	6228	5985	

Notes: Means and differences in means between men and women. Standard deviations in parentheses. Relative gender differences (men/women) in brackets. Absolute gender differences (men-women) in wages and working hours significant in t-test at $p<0.001$.
Data: SOEP (years 2007, 2009, 2011, 2013).

Table 2.

Average marginal effects from probits for the probability to perceive the own wage as fair

	(1)	(2)	(3)	(4)
Female (dummy)	-0.0021	-0.0211	0.0847	0.0454
	(0.0126)	(0.0128)	(0.0124)	(0.0126)
	[0.8690]	[0.0990]	[<0.0001]	[0.0003]
Hourly net wage in Euros			0.0405	0.0353
			(0.0014)	(0.0015)
			[<0.0001]	[<0.0001]
Actual weekly working hours per week		-0.0096		-0.0062
		(0.0005)		(0.0005)
		[<0.0001]		[<0.0001]
Control variables	No	Yes	Yes	Yes
Number observations	26051	26051	26051	26051
Number individuals	12213	12213	12213	12213
Average T	2.13	2.13	2.13	2.13
Log likelihood	-15681.98	-14635.32	-14424.11	-14352.76
LR-test rho=0	3691.56	2435.76	2252.42	2172.05

Notes: Average marginal effects from random effects binary probit regressions (with assumption of mean random effect of zero). Standard errors in parentheses. p-values in brackets.
Data: SOEP (years 2007, 2009, 2011, 2013).

Table 3.

Average marginal effects from probits for the probability to perceive the own wage as fair with interaction terms of female with wage and working hours

	(1) linear	(2) non-linear
Hourly net wage in Euros - Men	0.0338	0.0404
	(0.0016)	(0.0017)
Hourly net wage in Euros - Women	0.0390	0.0474
	(0.0022)	(0.0024)
Actual weekly working hours per week - Men	-0.0038	-0.0033
	(0.0007)	(0.0007)
Actual weekly working hours per week - Women	-0.0080	-0.0076
	(0.0007)	(0.0007)

Notes: Average marginal effects from random effects binary probit regressions (with assumption of mean random effect of zero) with all control variables (specification (4) in Table 2) and additional interaction terms (linear specification: female*wage, female*hours; non-linear specification: female*wage, female*wage², female*hours, female*hours²). Standard errors in parentheses. All marginal effects are significant at $p<0.001$.
Data: SOEP (years 2007, 2009, 2011, 2013).

Table 4.

Means for men and women by relationship (single vs. married)

	(1) Total	(2) Men single	(3) Men married	(4) Women single	(5) Women married
Fair own wage (dummy)	0.6048	0.5733	0.6208	0.5544	0.6191
Female (dummy)	0.4596	0	0	1	1
Married (dummy)	0.7259	0	1	0	1
Hourly net wage in Euros	9.6358	8.6117	11.6901	7.9477	8.2884
Actual weekly working hours per week	39.4657	43.0029	44.4347	39.5599	31.9375
Number observations	23216	3370	9175	2994	7677
Number individuals	10967	1845	4133	1656	3690

Notes: Sample includes only singles and married (not separated) persons, i.e., other marital status (separated, divorced, widowed) are excluded.
Data: SOEP (years 2007, 2009, 2011, 2013).

Table 5.

Average marginal effects from probit with interaction terms of female with married

	(1)	(2)	(3)	(4)
Female (dummy) - Single	-0.0106	-0.0076	0.0453	0.0263
	(0.0246)	(0.0206)	(0.0202)	(0.0200)
	[0.6677]	[0.7134]	[0.0248]	[0.1893]
Female (dummy) - Married	<0.0001	-0.0408	0.0985	0.0498
	(0.0150)	(0.0159)	(0.0148)	(0.0156)
	[0.9983]	[0.0103]	[<0.0001]	[0.0014]
Hourly net wage in Euros	No	No	Yes	Yes
Actual weekly working hours per week	No	Yes	No	Yes
Control variables	No	Yes	Yes	Yes
Number observations	23216	23216	23216	23216
Number individuals	10967	10967	10967	10967

Notes: Sample includes only singles and married (not separated) persons. Average marginal effects for female dummy interacted with married (vs. single) from random effects binary probit regressions (with assumption of mean random effect of zero). Standard errors in parentheses. p-values in brackets. Data: SOEP (years 2007, 2009, 2011, 2013).

Table 6.

Average marginal effects from probit with interaction terms of female and married with wage and working hours

	(1) linear	(2) non-linear
Hourly net wage in Euros - Men single	0.0316	0.0574
	(0.0034)	(0.0039)
Hourly net wage in Euros - Men married	0.0344	0.0409
	(0.0018)	(0.0019)
Hourly net wage in Euros - Women single	0.0515	0.0617
	(0.0047)	(0.0051)
Hourly net wage in Euros - Women married	0.0350	0.0458
	(0.0025)	(0.0027)
Actual weekly working hours per week - Men single	-0.0053	-0.0051
	(0.0014)	(0.0014)
Actual weekly working hours per week - Men married	-0.0030	-0.0026
	(0.0009)	(0.0009)
Actual weekly working hours per week - Women single	-0.0081	-0.0073
	(0.0014)	(0.0015)
Actual weekly working hours per week - Women married	-0.0076	-0.0072
	(0.0008)	(0.0008)

Notes: Sample includes only singles and married (not separated) persons. Average marginal effects from random effects binary probit regressions (with assumption of mean random effect of zero) with all control variables (specification (4) in Table 5) and additional interaction terms (linear specification: married*female*wage, married*female*hours, and all related single interaction terms; non-linear specification: married*female*wage, married*female*wage², married*female*hours, married*female*hours², and all related single interaction terms). Standard errors in parentheses. All marginal effects are significant at $p<0.001$.
Data: SOEP (years 2007, 2009, 2011, 2013).

Table 7.

Fair own wage perceptions and subsequent wage growth

	Random effects GLS			Fixed effect OLS		
	(1)	(2)	(3)	(1)	(2)	(3)
Fair own wage in t-2 (dummy)	-0.0401	-0.0440		-0.0514	-0.0583	
Mean=0.6009	(0.0045)	(0.0060)		(0.0083)	(0.0112)	
	[<0.0001]	[<0.0001]		[<0.0001]	[<0.0001]	
Female (dummy)	-0.0305	-0.0354	-0.0293			
Mean=0.4611	(0.0059)	(0.0078)	(0.0059)			
	[<0.0001]	[<0.0001]	[<0.0001]			
Fair own wage in t-2 * Female		0.0084			0.0151	
		(0.0087)			(0.0165)	
		[0.3301]			[0.3608]	
Fair own wage in t (dummy)			0.0131			0.0274
Mean=0.6276			(0.0046)			(0.0088)
			[0.0046]			[0.0018]
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Number observations	13081	13081	13081	13081	13081	13081
Number individuals	6688	6688	6688	6688	6688	6688
Average T	1.96	1.96	1.96	1.96	1.96	1.96
R^2 within	0.1369	0.1369	0.1328	0.1959	0.1960	0.1922
R^2 overall	0.0670	0.0671	0.0620	0.0177	0.0175	0.0188
RE: Breusch-Pagan LM-Test	408.57	408.86	410.77			
FE: F-Test				1.04	1.04	1.04
FE vs. RE: Hausman-Test				922.42	923.45	945.31
Mean (overall SD) wage growth	0.0291	0.0291	0.0291	0.0291	0.0291	0.0291
	(0.2375)	(0.2375)	(0.2375)	(0.2375)	(0.2375)	(0.2375)

Notes: The dependent variable wage growth is defined as (log wage in t) - (log wage in t-2). Coefficients from random effects GLS and fixed effects OLS regressions. Standard errors in parentheses. p-values in brackets.
Data: SOEP (years 2007, 2009, 2011, 2013).

Table 8.

Predicted wage growth for men and women by fairness perceptions

	Predicted wage growth based on RE-GLS	
	(1)	(2)
Unfair own wage in t-2	0.0531	
	(0.0035)	
	[<0.0001]	
Fair own wage in t-2	0.0130	
	(0.0028)	
	[<0.0001]	
Men	0.0430	
	(0.0035)	
	[<0.0001]	
Women	0.0126	
	(0.0038)	
	[0.0010]	
Unfair own wage in t-2 - Men		0.0694
		(0.0050)
		[<0.0001]
Unfair own wage in t-2 - Women		0.0340
		(0.0054)
		[<0.0001]
Fair own wage in t-2 - Men		0.0254
		(0.0042)
		[<0.0001]
Fair own wage in t-2 - Women		-0.0015
		(0.0047)
		[0.7477]

Notes: Predicted wage growth based on specifications (1) and (2) in Table 7 from random effects GLS regressions. Standard errors in parentheses. p-values in brackets.
Data: SOEP (years 2007, 2009, 2011, 2013).

Appendix

Table A.1.

Descriptive statistics for all variables in complete estimation sample

	Mean	Std. Dev.	Min.	Max.
Fair own wage perception (dummy): *"Is the income that you earn at your current job just, from your point of view? (no/yes)"*	0.6004	0.4898	0	1
Female (dummy)	0.4769	0.4995	0	1
Hourly net wage in Euros (real Euros 2006)	9.5637	5.1198	1.0293	155.3302
Actual weekly working hours per week	39.4186	10.7632	0.5	80.0
Marital status (5 categories)				
Married	0.6473	0.4778	0	1
Married but separated	0.0159	0.1251	0	1
Single	0.2444	0.4298	0	1
Divorced	0.0779	0.2680	0	1
Widowed	0.0145	0.1194	0	1
Monthly net household income (real Euros 2006 in thousands)	3.0012	1.7140	0.266	62.002
Children under 16 years in household	0.3453	0.4755	0	1
Number of persons living in household	2.7918	1.1952	1	14
German citizenship	0.9437	0.2305	0	1
Age (years)	43.9084	10.5056	18	65
Tenure (years)	11.8054	10.0120	0	51
Experience full-time employment (years)	17.0137	11.5200	0	49
Experience part-time employment (years)	3.2309	5.8738	0	41
Experience unemployment (years)	0.6005	1.5026	0	27
Subjective health status (5 categories)				
Very good	0.0919	0.2888	0	1
Good	0.4713	0.4992	0	1
Satisfactory	0.3242	0.4681	0	1
Poor	0.0996	0.2994	0	1
Bad	0.0131	0.1137	0	1
Secondary schooling degree (3 categories)				
Low ("Hauptschule")	0.2391	0.4265	0	1
Middle ("Realschule")	0.3917	0.4881	0	1
High ("Abitur" etc.)	0.2999	0.4582	0	1
Apprenticeship degree	0.7646	0.4242	0	1
University degree	0.2398	0.4270	0	1
Job (11 categories)				
Untrained worker	0.0287	0.1670	0	1
Semi-trained worker	0.0970	0.2960	0	1
Trained worker	0.1381	0.3450	0	1
Foreman, team leader	0.0243	0.1540	0	1
Master craftsman	0.0099	0.0988	0	1
Foreman	0.0069	0.0831	0	1
Untrained employee with simple tasks	0.0430	0.2029	0	1
Trained employee with simple tasks	0.1009	0.3012	0	1
Qualified professional	0.3207	0.4668	0	1
Highly qualified professional	0.2051	0.4038	0	1
Managerial	0.0253	0.1570	0	1
Firm size (7 categories)				
<5	0.0595	0.2365	0	1
5-9	0.0825	0.2751	0	1
10-19	0.0780	0.2682	0	1
20-99	0.1961	0.3970	0	1
100-199	0.1008	0.3010	0	1
200-1999	0.2371	0.4253	0	1
≥ 2000	0.2461	0.4307	0	1
Year (4 categories)				
2007	0.2571	0.4371	0	1
2009	0.2423	0.4285	0	1
2011	0.2577	0.4374	0	1
2013	0.2429	0.4288	0	1

Notes: Unbalanced panel (n=26051, N=12213, T=2.13).
Data: SOEP (years 2007, 2009, 2011, 2013).