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and gender differences
in justice evaluations**

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SFB 882 Working Paper Series, No. 45
DFG Research Center (SFB) 882 From Heterogeneities to Inequalities
Research Project A6
Bielefeld, January 2015

SFB 882 Working Paper Series
General Editors: Martin Diewald, Thomas Faist and Stefan Liebig
ISSN 2193-9624

This publication has been funded by the German Research Foundation (DFG).

SFB 882 Working Papers are refereed scholarly papers. Submissions are reviewed by peers in a two-stage SFB 882 internal and external refereeing process before a final decision on publication is made.

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DFG Research Center (SFB) “From Heterogeneities to Inequalities”

Whether fat or thin, male or female, young or old – people are different. Alongside their physical features, they also differ in terms of nationality and ethnicity; in their cultural preferences, lifestyles, attitudes, orientations, and philosophies; in their competencies, qualifications, and traits; and in their professions. But how do such heterogeneities lead to social inequalities? What are the social mechanisms that underlie this process? These are the questions pursued by the DFG Research Center (Sonderforschungsbereich (SFB)) “From Heterogeneities to Inequalities” at Bielefeld University, which was approved by the German Research Foundation (DFG) as “SFB 882” on May 25, 2011.

In the social sciences, research on inequality is dispersed across different research fields such as education, the labor market, equality, migration, health, or gender. One goal of the SFB is to integrate these fields, searching for common mechanisms in the emergence of inequality that can be compiled into a typology. More than fifty senior and junior researchers and the Bielefeld University Library are involved in the SFB. Along with sociologists, it brings together scholars from the Bielefeld University faculties of Business Administration and Economics, Educational Science, Health Science, and Law, as well as from the German Institute for Economic Research (DIW) in Berlin and the University of Erlangen-Nuremberg. In addition to carrying out research, the SFB is concerned to nurture new academic talent, and therefore provides doctoral training in its own integrated Research Training Group. A data infrastructure project has also been launched to archive, prepare, and disseminate the data gathered.

Research Project A6 “The Legitimation of Inequalities – Structural Conditions of Justice Attitudes over the Life-span”

This project investigates (a) the conditions under which inequalities are perceived as problems of justice and (b) how embedment in different social contexts influences the formation of attitudes to justice across the life course.

We assume that individuals evaluate inequalities in terms of whether they consider them just, and that they hold particular attitudes toward justice because, and as long as, these help them to attain their fundamental goals and to solve, especially, the problems that arise through cooperation with other people (cooperative relations). As a result, attitudes on justice are not viewed either as rigidly stable orientations across the life span or as “Sunday best beliefs” i.e. short-lived opinions that are adjusted continuously to fit situational interests. Instead, they are regarded as being shaped by the opportunities for learning and making comparisons in different phases of the life course and different social contexts.

The goal of the project is to use longitudinal survey data to explain why individuals have particular notions of justice. The key aspect is taken to be changes in the social context – particularly households, social networks, or workplaces – in which individuals are embedded across their life course. This is because social contexts offer opportunities to make social comparisons and engage in social learning, processes that are decisive in the formation of particular attitudes to justice. The project will test this empirically by setting up a special longitudinal panel in which the same individuals will be interviewed three times over an 11-year period.

The results of the project will permit conclusions to be drawn on the consequences of changes in a society's social and economic structure for its members' ideas about justice. The project therefore supplements the analysis of the mechanisms that produce inequality, which is the focus of SFB 882 as a whole, by looking at subjective evaluations, and it complements that focus by addressing the mechanisms of attitude formation.

Research goals

- (1) Analysis of the conditions in which justice is used as a criterion for evaluating inequalities.
- (2) Explanation of attitudes toward justice as the outcome of comparison and learning processes mediated by the social context.
- (3) Longitudinal observation of the individual development of attitudes to justice over the life course.

Research design

- (1) Continuation and expansion of the longitudinal survey of evaluations of justice conducted by the German Socio-Economic Panel Study (SOEP).
- (2) Commencement of an independent longitudinal panel with ties to the process-generated individual data of the German Institute for Employment Research (IAB) and information on companies and households (the plan is to carry out three survey waves over an 11-year period).

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Occupational gender segregation and gender differences in justice evaluations

Sonja Kruphölter, Carsten Sauer, Peter Valet

Abstract

Gender differences in justice evaluations of earnings are of considerable interest since the late 1970s, especially against the backdrop that women usually earn less than men but widely perceive their earnings as being more just. Newer research specifically draws attention to contextual influences in order to explain this seeming paradox. The idea of this paper is to first identify three parameters that are crucial for justice evaluations: comparison processes, status beliefs and occupational segregation. We assume that the segregation of the labor market in male and female dominated occupations influences justice evaluations of men and women. Hypotheses are tested using data from the German Socio-Economic Panel Study (SOEP) of years 2009-2013. Results indicate that women working in female dominated occupations evaluate their earnings as being less unjust than women in male-dominated occupations. Men in female-dominated occupations do not show differences in their justice evaluations compared to men in other occupations. The implications of these findings are discussed in the light of the literature on gender segregation, social comparisons, status beliefs and distributive justice.

1 Introduction

Justice matters in many societal outcomes. Perception of injustice are considered as fundamental social experiences that are assumed to trigger diverse psychological and behavioral consequences (Younts and Mueller 2001). As there is no absolute value of justice these perceptions are always relational and are based on various types of information collected in social encounters. Research on just earnings reveals that men and women differ considerably in the justice perceptions of their earnings: Despite the fact that women still earn less than comparable men, they widely perceive their earnings as less unjust than their male counterparts (Liebig, Sauer and Schupp 2012; Liebig, Valet and Schupp 2010). Moreover, when assigning just wages to fictitious employees, women as well as men consider lower wages for female employees with equivalent characteristics as equivalent male employees as just (Jann 2008; Jasso and Webster 1997; Sauer 2014). The key question is, thus, how these differences can be explained? Research on gender specific justice perceptions is predominantly conducted in social psychology and explanations for why they occur are, hence, mostly focused on individual level processes. From a sociological perspective, explanations on why gender-differences in just earnings exist and prevail have to take individual level as well as structural level processes into account.

The central process guiding individual justice evaluations is rooted in social comparisons. If people try to evaluate the justice of their earnings they have to compare their own situation with the situation of some referent standard. Equity theory, as the classical theory of distributive justice suggests that people consider their earnings as just if their own input to outcome ratio is proportional to the input to outcome ratio of a salient reference person (Adams 1965; Homans 1961). Apart from this proportionality principle Homans (1961) already referred to the importance of the status and the related reward expectations of each party in such comparison processes. Equity theory is, however, quite vague concerning the questions on (1) which referent standards people choose to compare themselves with? And on (2) how they form reward expectations based on these comparisons?

Research on pay referents suggests that employees are most likely to compare their own earnings with the earnings of employees working in the same occupation. Coupled with the finding that men and women concentrate in distinct occupations this suggests that the embeddedness of employees in different occupations is likely to influence individual justice evaluations. The assumption is that the occupational gender segregation prevents women to detect actual inferiorities in their earnings positions, as they will usually compare themselves to other women (Major 1994). Few previous studies suggest that gender specific justice

evaluations are indeed related to occupational gender segregation (Davison 2014; Moore 1990; Moore 1991). There are, however, conflicting results whether occupational gender segregation leads to the same effects among men and women.

How men and women form reward expectations is in the focus of status theories. One explanation for why people assign lower just wages to fictitious female employees is that people use double standards (Foschi 1996) when they evaluate the work force of men and women (Jasso and Webster 1997). According to Ridgeway's (2006) status construction theory, status differentials between men and women arise if performance expectations are associated with the nominal characteristic gender. The diffusion of these status expectations leads to the attachment of independent status value to the nominal characteristic. This is especially the case if there are rigid contextual structures that reinforce those beliefs. In regard to occupational gender segregation this is apparently demonstrated by the devaluation of women dominated occupations (England 2006).

Our theoretical explanation builds on this prior research and identifies two processes and one constraint as crucial for the emergence of gender differences in justice evaluations. The comparison process is the basic mechanism how people proceed justice judgments (Jasso 2006). Status beliefs attach values to nominal characteristics and therefore guide the selection of whom to compare to and what to expect as being just. The occupational segregation of men and women provides the structural constraint which makes comparisons to specific individuals or groups more or less likely. Within this framework it is assumed that women working in female-dominated occupations compare themselves to other women and accept actually lower wages as being just, compared to women who work in male-dominated occupations who have different constraints. On the other hand, according to status theory it is less likely for men working in female-dominated occupations to adjust their expectations as they are less likely to compare to women in the same occupation.

The aim of this paper is to extend the research on gender specific justice evaluations by the consideration of the programmatic macro-micro link of sociological justice research. Hence, we do not only consider social comparison processes and status beliefs as crucial but also take the structural embeddedness of individuals as constraint and opportunity for comparisons and status formation processes into account. The theoretical contribution of this paper is the coherent integration of social comparison and status theories. As a result, we are able to identify actual occupational gender segregation as crucial structural context that influences gender specific injustice perceptions. The empirical contribution of this paper is that it provides the first empirical test with large scale data on the influence of occupational

gender segregation on gender specific injustice perceptions. We use data of the German Socio-Economic Panel Study of the years 2009-2013, which provides sufficient observations for each occupational group and, thus, enable us to test our hypotheses empirically.

Our results suggest that the segregation of the labor market in male and female dominated jobs has a remarkable influence on employees' justice evaluations of their earnings. Employees in female dominated jobs perceive their earnings as less unjust than in male dominated jobs. Gender specific analysis, however, reveals that this effect is only observable among women.

2 Justice Evaluations of Earnings

2.1 Equity Theory: Distributive Justice Evaluations

The investigation of justice perceptions has attracted special interest in the social sciences, as they are assumed to trigger a range of attitudinal and behavioral consequences such as job satisfaction, work performance, or withdrawal (Colquitt et al. 2001). Concepts of distributive justice are the key element in understanding such evaluations as they are "concerned with the way in which socially valued rewards, such as salaries, promotions, or privileges, are allocated to members of social systems" (Berger et al. 1972: 119). The concept most prominently related to distributive justice evaluations is equity theory (Adams 1965; Homans 1961; Walster, Berscheid and Walster 1973), which is based on social exchange theory (Blau 1964; Homans 1958).

Homans (1961) mainly focused on the analysis of social exchange relationships as the main social situation in which outcomes are evaluated. In his seminal work he already referred to the importance of the proportionality principle as well as to the status of each party in such a relationship. Based on relative deprivation theory (Runciman 1966; Stouffer et al. 1949) and Festinger's cognitive dissonance theory (Festinger 1957) these key elements were then incorporated into Adams' version of equity theory (Adams 1965). Adams particularly focused on the process of justice evaluations by considering the "antecedents and consequences of injustice in human exchanges" (Adams 1965: 268). Accordingly, the evaluation of the individual input to output ratio is influenced by specific expectations developed in social comparison processes with salient referents. The ratio of own inputs and outputs is compared to the input-output ratio of a relevant *other*, which may be the counterpart in a social exchange relationship, or any other reference point which is comparable to the individual. The theory defines an equitable relationship if the input-output-ratios of the people involved are proportional to each other. Any deviation from this

equilibrium is referred to as inequity which in turn leads to corrosive effects. This definition suggests that perceived injustice is influenced by social comparison processes and the holding of certain status characteristics.

Equity theory is, however, quite vague concerning the questions (1) which referent standards people choose to compare themselves with? And (2) how they form reward expectations based on these comparisons?

2.2 Social Comparison and Reference Standards in the Evaluation of Earnings

Social comparison theories point to the general disposition of human beings to evaluate their own social standing in comparison to others. Researchers speak of “a fundamental psychological mechanism influencing people’s judgments, experiences and behavior” (e.g. Corcoran, Crusius and Mussweiler 2011: 119). For example based on experiments as well as on survey data Clark, Maslet and Villeval (2010) show that efforts at work depend on own earnings as well as on what others earn. An important factor influencing the social comparison between individuals is similarity: people usually select comparison referents which are similar to them, and if they have to compare themselves with individuals different to them, they try to reduce the perceived dissimilarity (Festinger 1954). Although classical social comparison theory only refers to abilities and opinions as objects of social comparison, similarity is considered as the major driving force for comparisons in general, and for diverse other social interactions as well (Buunk and Gibbons 2007; McPherson, Smith-Lovin and Cook 2001).

The literature on pay referents provides insights on the attributes of a comparison referent or a referential structure which are deemed to be salient for people’s justice evaluations of their earnings: Based on the work of Goodman (1974), Blau (1994) identified five major categories of salient referents: (1) The social referent refers to comparisons in the private sphere; (2) the financial referent refers to comparisons with the individual's own financial needs, (3) the historical referent specifies the comparison with the individual's own pay in the past; (4) the organizational referent refers to comparisons with people within the organization; (5) the market referent specifies comparisons with people outside the organization. Accordingly the historical and financial referent imply reflexive comparisons, the other three referents involve comparisons with significant others (Tremblay, St-Onge and Toulouse 1997). Whereas comparisons with a social referent or an organizational referent may be classified as local comparisons, comparisons relying on a market referent such as people in the same occupation, or of the same gender can be classified as referential comparisons (Schneider 2010). This is congruent with the distinction of comparisons within

social groups involving face-to-face interaction and more general comparisons with social categories not involving any direct interaction (Bygren 2004). Results on the relative importance of these comparison referents suggest that the market referent, precisely the comparison with people working in the same occupation, is more important for the evaluation of earnings than local comparisons (Brown 2001; Bygren 2004; Schneider 2010).

2.3 Reward Expectations of People

While the research on comparison referents deals with the question who people choose to compare with, another question left open by equity theory is how people form reward expectations based on these comparisons. A theory which explicitly refers to this question is the status value formulation of expectation states theory introduced by Berger, Zelditch, Anderson, and Cohen (1972).¹ According to this theory, comparisons cannot be evaluated in terms of distributive justice without "a stable frame of reference providing a standard in terms of which local comparisons are given meaning" (Berger et al. 1972: 133). This frame of reference is also referred to as the reference structure, which is a generalized other, holding certain status characteristics certain reward levels are attributed to. The status significance of a given reference structure is based on subjectively perceived similarity to the own situation. The assignment of status value to characteristics and rewards is a central parameter of the reward expectations people form for themselves, and the corresponding distributive justice judgment. Accordingly, the type of referential structure activated and how certain attributives gain status significance are important for the outcome of distributive justice evaluations. This, by assuming a certain reference structure as given is, however, not taken into account by the status value formulation of expectation states theory (Berger et al. 1977). Moreover, the salience of different reference structures is assumed to vary depending on certain work-related and individual characteristics (Shah 1998; Tremblay, St-Onge and Toulouse 1997).

How individual characteristics generally gain status significance can be derived from status construction theory (Ridgeway 1991; Ridgeway 1997; Ridgeway 2006; Ridgeway 2011; Ridgeway et al. 2009) which is another substring of expectation states theory. In the tradition of expectation states theory, Ridgeway assumes that in goal-oriented interactions, people develop performance expectations for each participant and form an according status hierarchy based on apparent characteristics such as resource levels. Local status expectations are likely to spread (to diffuse) to other contexts and, thus, become widely accepted

¹ Expectation states theory designates a conglomerate of different theories with the shared target to explain the emergence and effect of status hierarchies in social interaction (see Berger, Joseph, and Murray Webster. 2006. "Expectations, status, and behavior." Pp. 267–300 in *Contemporary social psychological theories*, edited by Peter J. Burke. Stanford, Calif.: Stanford Soc. Sciences.).

convictions. Ridgeway (1991) defines these structural conditions referring to Blau's structural theory (Blau 1977; Blau and Schwartz 1984). Accordingly, situations where people differ both in their resource endowment and a certain salient characteristic, specifically a nominal characteristic, performance expectations are associated with that characteristic. Since people have learned to base their expectations upon this salient characteristic, it is also likely that they transfer these status beliefs to other situations where people differ in this nominal characteristic. As a consequence, independent status value is attached to the nominal characteristic (Ridgeway 1991). According to Ridgeway, inequality based on such status characteristics is regarded as legitimate, or just, as long as they are allegedly associated with actual differences in performance (Ridgeway 2006).

3 Gender Differences in Justice Evaluations and the Influence of Occupations

The previous chapter provided insights into the process of distributive justice evaluations. The section on social comparison processes and salient referents suggests that in order to evaluate the justice of their earnings people have to compare themselves with others and that people working in the same occupation are expected to be the most important comparison standard (Brown 2001; Bygren 2004; Schneider 2010). Expectation states theory suggests that status expectations built on the basis of a significant reference structure constitute an essential source of information for distributive justice assessments. However, the relevance of a referential structure seems to vary according to individual characteristics. Expectation states theory, furthermore, indicates that this may be especially the case for status characteristics. Besides, both sections indicate that structural conditions guide comparison processes as well as that they influence status expectations. Hence, structural conditions are assumed to have important influences on individual justice evaluations.

Against the backdrop of these considerations the following section will deal with gender differences in justice evaluations and describes how they are determined by the individual embeddedness in occupations as an example of a relevant structural condition.

3.1 Determinants of Gender Differences in Justice Evaluations

Gender differences in justice evaluations have become a central interest in justice research. As there is persistent earnings inequality between men and women in many countries (e.g. Mandel and Semyonov 2005; OECD 2014: 288) , coupled with the ongoing devaluation of women's work force, it is hypothesized that women would regard their earnings as more unjust than men. The puzzling finding is, however, that although women on average earn less

than men, they widely deem their earnings as less unjust. This is the case even under control of other relevant factors, such as education, work experience, or different job trajectories. Moreover brain imaging evidence suggests that effects of absolute and relative earnings are relatively similar for both genders (Dohmen et al. 2011). Therefore, it can be ruled out that men and women differ fundamentally in the processing of inequality. An obvious explanation for the discrepancy in justice perceptions is, thus, that women and men choose different comparison standards to evaluate their earnings (e.g. Liebig, Valet and Schupp 2010; Moore 1991).

Research on the determinants of just earnings, moreover, suggests that women as well as men assign lower just earnings to fictitious female employees than to their male counterparts (Jann 2008; Jasso and Webster 1997; Sauer 2014) . According to Jasso and Webster (1997) this so called just gender pay gap arises because people use different standards when they evaluate male or female employees.

Expectation states theory provides insights how such double standards emerge (see Ridgeway 1991; Ridgeway 1997; Ridgeway 2006). According to Ridgeway (1997), gender status beliefs are one of the most persistent groups of status beliefs structuring direct interaction: In spite of fundamental structural changes gender status beliefs continue to persist and are crucial to maintain a status hierarchy which favors men over women. This is particularly the case in the work environment (see Rashotte and Webster 2005: for supportive empirical results).

Apart from these status processes Ridgeway identifies the so called similarity bias as an additional interactional process which leads to gendered comparison processes. This bias is assumed to be particularly influenced by the positional as well as the occupational gender segregation in the work environment (Ridgeway 1997).

3.2 The Work Environment as Crucial Context for Gender Specific Justice Evaluations

Although organizations can be considered as the interactional setting of inequality producing mechanisms of occupational segregation and hierarchization (Avent-Holt and Tomaskovic-Devey 2010; Baron and Newman 1990; Tomaskovic-Devey et al. 2009) the occupational level itself seems to explain a significant share of earnings inequality in general (Mouw and Kalleberg 2010; Weeden 2002). It is assumed that diverse closure mechanisms operate at the occupational level which ensure that some occupations are able to generate more returns than would be possible in a perfect market (Sorensen 1983; Weeden 2002; Weeden and Grusky 2005).

At the occupational level a quite persistent gender segregation is detectable in Germany (Trappe and Rosenfeld 2004), meaning that the occupational landscape is characterized by a numerical concentration of men or women in different occupations (Charles and Grusky 2004). Women are for instance more likely to work in fixed pay occupations and are less likely to work in occupations with a variable pay scheme in which average wages tend to be higher (Dohmen and Falk 2011). This gender segregation is, hence, assumed to be a driving force of the persistent wage inequality between male and female employees as it is assumed to indirectly foster wage discrimination of women (Cohen and Huffman 2003). Furthermore, research findings show that wage discrimination is also directly related to the occupational gender segregation as the devaluation of work done by women is related to the numerical concentration of women in an occupation. This in turn leads to remarkably lower wages in female dominated work environments (Blau and Kahn 2000; Cohen and Huffman 2003; Cotter, Hermsen and Vanneman 2003; England, Budig and Folbre 2002). Consequently, occupational gender segregation is related to the production and persistence of earnings inequality between male and female employees.

Occupational gender segregation is, furthermore, assumed to have a crucial influence on the salience and choice of reference standards. As the average wage level in female dominated occupations is usually lower compared to that of male dominated occupations, reward expectations should also be oriented towards a lower reference standard. This in turn is assumed to influence employees' justice perceptions on their earnings. As discussed above, occupational gender segregation is, moreover, presumed to bias referent choice suggesting that men and women tend to choose referents of the same gender as comparison other (Ridgeway 1991) which is also said to affect the individually perceived justice of earnings (Major and Forcey 1985).

There are only a few studies that investigate gender specific justice perceptions against the backdrop of occupational gender segregation. The few studies, however, underscore that the choice of a referent has a direct effect on subjective justice evaluations and that the choice of referent is influenced by occupational gender segregation (Crosby 1982; Major and Forcey 1985; Moore 1990; Moore 1991). For example Moore (1991) shows that same-occupation comparisons are more likely when people work in an occupation that is dominated by employees of the same gender. Major and Forcey (1985), show that people predominantly make same-job comparisons, but the choice of referents with the same gender is dependent on the type of job. This indicates that women are more likely to compare themselves to other women if they work in a women dominated occupation. Recent results, however, suggest that

in male-dominated industries the both men and women are more likely to compare themselves with male (Davison 2014).

Taking these findings into consideration gender-biased referent choice is likely to occur in occupations that are dominated by the own gender. This should be the case for both women and men (Moore 1991). Nevertheless, the referential bias is mostly assumed to influence women's justice perceptions: Since women are generally paid less than men and men count to the less disadvantaged group even in female-dominated occupations (England, Budig and Folbre 2002; Kraus and Yonay 2000; Simpson 2004), women should expect lower wages than men and, therefore, perceive their earnings as less unjust. Women, thus, are likely to use a lower referent standard when comparing with other women in female-dominated occupations and are less likely to detect existing earnings inequalities (Major 1994). Therefore, *women in female-dominated occupations rather use a gender-biased within-occupation referent standard when evaluating their wages, and thus (all else equal) tend to evaluate their earnings as less unjust compared to women in male-dominated occupations (H1)*.

For men, a different referential bias is considered to influence their justice perceptions: Men in male-dominated occupations are likely to compare themselves to other men. According to status theory it is less likely for men to make comparisons to female referents (Schneider 2010), especially when they work in a female-dominated occupation (Moore 1991). Bygren (2004) suggests that men predominantly compare themselves to a national wage standard if they do not work in a male dominated occupation. In this case they are, however, part of a disadvantaged group compared to a national wage standard. Therefore, *men in female-dominated occupations tend to evaluate their earnings as more unjust compared to women in female-dominated occupations (all else equal), as they are more likely to use a national wage standard as a comparison referent (H2)*.

Hence, it is expected that although women's employment has risen in the past, this development does not alter gender-specific patterns of justice evaluations, as the structural conditions of the labor market, precisely the gendered segregation of occupations, should rather reinforce gender status beliefs.

4 Data, Variables, and Method

4.1 Data

Hypotheses are tested by using data of the German Socio-economic Panel Study (SOEP 2014). The SOEP Study is a longitudinal household study which was started in 1984. Each year about 20,000 respondents from about 11,000 households are queried on a vast array of

topics related to the respondent's current life and employment situation (Wagner, Frick and Schupp 2007). Due to the fact that subjective justice perceptions of employee's gross earnings are queried biennially since 2009 we use data of the years 2009, 2011, and 2013. We only consider respondents who either were full-time, part-time or marginally employed in at least one of the three observed periods. We excluded observations in which people were in vocational training or reported being self-employed.² Our analysis sample comprises 21,623 observations from 12,307 employees.

4.2 Variables and Method

4.2.1 *Dependent Variable: Justice Evaluation*

Employee's justice evaluations of their earnings are measured via the justice function proposed by Jasso (1978):

$$J = \ln\left(\frac{A}{C}\right)$$

In this function A denotes the amount of actual gross earnings and C the amount of gross earnings the individual considers as just for herself. The justice evaluation function is assumed to "always [produce] precise and unambiguous evaluations in meaningful justice units" (Jasso 1978: 1417). Actual gross earnings (A) are queried in each wave of the SOEP. The amount of gross earnings respondents would consider as just for themselves are queried biennially since 2009 if respondents indicated that they consider their actual earnings as unjust. For those who indicated that they consider their actual earnings as just the amount of actual gross earnings are taken as just earnings. In Jasso's justice-function negative J -values indicate that people perceive themselves as under-rewarded, whereas positive values mean that people perceive themselves as over-rewarded. A value of zero indicates that earnings are perceived as just. In order to facilitate interpretation of individual justice perceptions we reversed the justice scale as follows:

$$J_{rev} = \ln\left(\frac{A}{C}\right) * (-1)$$

Accordingly, positive numbers reflect the extent of individual injustice perceptions due to underpay.

² As both are not necessarily compensated for their actual input their justice judgments are likely to be different from regular employees.

4.2.2 *Independent Variables*

Occupational gender segregation: In order to investigate differential comparison effects of working in a female- or male-dominated occupation, we distinguish two measures of occupational gender segregation. The first measure is continuous and reflects the share of woman in the respective occupational group. The second is a categorical variable with three values which distinguishes between female-dominated, male-dominated, and integrated occupational groups. The measures are generated on the basis of the BIBB classification of 54 occupational groups (Tiemann et al. 2008). In accordance with research on gender-related occupational segregation, those occupational groups are defined as male- or female-dominated, in which over 70 percent of the employees are male, respectively female (e.g. Allmendinger and Hackman 1995; Kmec 2005; Pfeffer and Davis-Blake 1987).

4.2.3 *Other Covariates*

Gross hourly earnings: Gross hourly earnings are included in the model as part of the individual input-output-ratio influencing the justice evaluation. Following the assumptions of equity theory, it is less likely that people perceive their earnings as unjust with higher earnings per hour worked. Thus, gross hourly earnings should have a positive effect on the justice evaluation. However, this should rather be the case for men than for women, as the German welfare model is still oriented towards a male primary breadwinner, and men, thus, should place a higher importance on the amount of own earnings (Blossfeld and Buchholz 2009).

Household income: As an indicator of the monetary well-being of a household, this measure acknowledges that costs for accommodation and standard of living are usually shared among the members of household. Thus, the disposable income of individuals might exceed the amount of personal earnings and in this case is likely to diminish the corrosive effects of low individual earnings.

Occupational Prestige: Treiman's Standard International Occupational Prestige Scale (SIOPS) is included as a proxy to account for the external status value of an occupation (Treiman 1977). The higher the occupational prestige, the higher the expected status-related rate of return, and thus, all else equal, the more unjust a person should regard her income. Relating to the devaluation-hypothesis of gender inequality, female-dominated occupations should have a lower average prestige score than male-dominated occupations (Cohen and Huffman 2003). The effect if occupational prestige should be more pronounced for men, as they are assumed to have a higher external status orientation.

Civil service: As findings in pay referent research suggest that people in the public sector may use a different referential comparison structure than people in the private sector (see e.g. Brown 2001), a dichotomously coded variable is included indicating whether a person works in the civil service.

Input variables: According to equity theory, the perceived justice of an outcome (earnings) is especially dependent on whether it compensates for inputs deemed to be status-relevant or performance- /effort-related. Working hours can be considered as a proxy for perceived effort put into work; the higher the effort for achieving a given output, the lower the perceived injustice. This should also be true for over-time hours, which are also included in the analysis. In turn, people working part-time or in marginal employment are assumed to consider their earnings as less unjust (Liebig and Schupp 2008). Therefore, four variables are included to control for effort-related inputs: (1) Working hours, and (2) overtime hours, as well as two dichotomously coded variables marking whether someone works (3) part-time or (4) in marginal employment. Since actual earnings are assumed to heavily depend on human capital endowments, better educated respondents are assumed to expect higher earnings as just. Hence, we control for educational endowments by the CASMIN scale.

Traditional family systems: Traditional gender norms still prevail in most modern societies, although some employ a more traditional family system than others, and integrate them differently into their social institutions (Blossfeld and Drobnic 2001). In Germany, there is the unique situation that five of the 16 federal states were formerly part of the GDR, a socialist society. As other norms dominated in socialist societies it is assumed that people in post-socialist societies hold somewhat different views than people born and raised in non-socialist countries. Identity research indeed shows that men in the former GDR states still differ in the definition of their male identity. Accordingly, a dummy variable is included to identify people who live in a state of the former GDR.

In order to test our predictions we estimate random effects maximum likelihood panel regression models. Interaction models with respondent's gender are estimated to test the assumed gender specific effects in male- and female dominated occupations.

5 Results

5.1 Descriptive Results

Employees in Germany earn on average 16.23 Euros per hour. These gross earnings differ between male and female employees. As Table 1 shows men earn 17.88 euros per hour, whereas female employees earn 14.49 Euros. The gap between earnings of men and women is

about 20 percent. This difference is called the unadjusted gender wage gap as it is uncontrolled for individual characteristics and human capital endowments. In Germany, this unadjusted wage gap is among the highest within the OECD countries (OECD 2014). The adjusted wage gap was the highest among 10 European countries in 2005 (see Mandel and Semyonov 2005). Moreover, Table 1 provides information on the hourly gross wages perceived as just by the respondents. The just earnings are on average 18.07 Euros per hour, 19.86 Euros for male employees and 16.19 Euros for female employees. Thus, these just wages are about eleven percent higher than the actual earnings for both men and women. Moreover, it is important to notice that even the earnings perceived as just for women are lower than the actual earnings for men. This result is in line with the findings of the female contended worker hypothesis stated by social psychologists. Although, the results do not represent the adjusted differences (controlled for, e.g., human capital) they provide a hint that a gap exists in the German labor market in regard to earnings perceived as just of men and women. Men and women claim to an equal amount more earnings than they actually receive for their work.

Table 1: Mean gross hourly earnings and mean just gross hourly earnings by gender

	All employees	Male employees	Female employees
Gross hourly earnings	16.23	17.88	14.49
Just gross hourly earnings	18.07	19.86	16.19
Ratio in %	10.08	10.84	10.77

Note: SOEP 2009/2011/2013; DOI:10.5684/soep.v30; weighted; N = 21906.

Table 2 shows mean gross hourly earnings and mean just gross hourly earnings by (trichotomized, integrated/male-dominated/female-dominated) gender composition of the occupational group. It is evident that gross hourly earnings as well as just gross hourly earnings are remarkably lower in female dominated occupations than in integrated or male dominated occupations. Moreover, standard deviations are also comparatively lower in female dominated occupations. Means between integrated occupations and male dominated occupation differ only marginally. Standard deviations are remarkably higher in integrated occupations than in male dominated occupations.

Table 2: Mean gross hourly earnings and mean just gross hourly earnings by gender composition of occupational group

	Female dominated occ.	Integrated occ.	Male dominated occ.
Gross hourly earnings	13.16 (7.24)	18.41 (16.60)	17.85 (10.68)
Just gross hourly earnings	15.02 (11.31)	20.30 (20.27)	19.62 (13.40)

Note: SOEP 2009/2011/2013; DOI:10.5684/soep.v30; standard deviations in parenthesis; weighted; N = 21906.

Table 3 shows the average justice evaluations calculated with the reversed measure by Jasso described in Equation 2 for male and female employees and the gender composition of the occupational group. On the average the lowest injustice can be observed in the integrated occupational field whereas the highest experienced injustice can be found in female-dominated occupations. However, these differences are marginal. There are slight differences between men and women in the male-dominated occupational groups, although the values are very similar for the integrated and female-dominated occupational groups. Again, these unadjusted averages do not account for composition effects or gaps in gross earnings between men and women but provide a first glance on how the justice measure looks like.

Table 3: Mean injustice evaluation by gender and gender composition of the occupational field

	Female-dominated occ.	Integrated occ.	Male-dominated occ.	Total
Men	.127	.101	.103	.105
Women	.125	.097	.122	.115
Total	.125	.099	.105	.110

Note: SOEP 2009/2011/2013; DOI:10.5684/soep.v30; weighted; N = 21906.

The following regression analyses use two different measures of occupational segregation and test their impact on employees' injustice perceptions und control of individual characteristics like human capital and job characteristics like working workings hours to unpack the mechanism behind these descriptive findings and to test the hypotheses.

5.1.1 Regression Analysis

The results of the first set of regression analyses are shown in Table 4. The first model shows the coefficients and standard errors of the regression of injustice evaluations of earnings on the share of female employees within the occupational group and relevant controls. The share of women within the occupational field has a significant effect on the justice evaluation. The more women work in the respective occupational group the less unjust employees evaluate their earnings. For example, an employee with average gross earnings evaluates his or her

earnings as being too low if the share of male co-workers is high and as just if the share of female-coworkers is high. Note that this effect occurs under the control of gross earnings, human capital and working hours. Model 2 tests the impact of occupational segregation as a categorical measure. The effects suggest that in contrast to employees working in male dominated occupations employees consider their earnings as less unjust if they work in female dominated occupations or in integrated occupations. The test in the table footer, moreover, shows that there is no statistical significant difference between the effects of female dominated and integrated occupations. The analyses, therefore, show that employees indeed consider their earnings as less unjust in female occupations than in male occupations.

The control variables show that higher gross hourly earnings, higher household incomes, and more contracted working hours per week decrease employees' injustice perceptions. In contrast to this weekly overtime hours, higher education, higher occupational prestige, and living in the eastern part of Germany increase employees' injustice perceptions. Working in the public or in the private sector has no significant effect.

Table 4: Regression of injustice evaluations (J_{rev}) on occupational segregation and controls

<i>Occupational segregation:</i>				
Share females in occ.	-0.028***	(0.007)		
Integrated occ. (Ref: Male dom.)			-0.013**	(0.005)
Female dominated occ. (Ref: Male dom.)			-0.020***	(0.005)
<i>Controls:</i>				
Gross hourly earnings (log)	-0.163***	(0.004)	-0.163***	(0.004)
Household income	-0.000*	(0.000)	-0.000*	(0.000)
Contracted working hours (week)	-0.000*	(0.000)	-0.000	(0.000)
Overtime hours (week)	0.007***	(0.001)	0.007***	(0.001)
CASMIN	0.009***	(0.001)	0.009***	(0.001)
SIOPS	0.001***	(0.000)	0.001***	(0.000)
Public sector (1=yes)	0.001	(0.004)	0.001	(0.005)
East Germany (1=yes)	0.049***	(0.005)	0.049***	(0.005)
2011	0.003	(0.003)	0.002	(0.003)
2013	0.008*	(0.004)	0.008*	(0.004)
Constant	0.463***	(0.013)	0.461***	(0.013)
Sigma_u	0.168***	(0.002)	0.168***	(0.002)
Sigma_e	0.188***	(0.002)	0.188***	(0.002)
Chi2(1) [female occ. - integrated = 0]			2.175	
p_value [female occ. - integrated = 0]			0.140	
Observations	21906		21906	
Respondents	12597		12597	

Note: SOEP 2009/2011/2013; DOI:10.5684/soep.v30; all samples, linear random effects panel regression, unstandardized coefficients, standard errors in parentheses, DV: injustice evaluation.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 5 shows the coefficients and standard errors for the gender specific analyses. The same set of variables is controlled for as in the models in Table 4 (not displayed). In the first model the effects of the share of women in the occupational group is estimated separately for female and male employees. The coefficients reveal that the effect shown in Model 1 in Table 4 is

only driven by female employees. The more women work in an occupational group the less unjust females evaluate their earnings *ceteris paribus*. The effect does not exist for male employees meaning that their justice evaluations are not influenced by the share of men and women in their occupational group. The coefficients between men and women differ significantly. Model 2 shows the regression of injustice perceptions with the trichotomized variable (integrated / male-dominated / female-dominated) instead of the metric measure. The reference category is men working in integrated jobs. Again, there is no difference between men working in integrated jobs or in male or female-dominated jobs. There is, however, a significant difference between women working in male-dominated occupations to women working in female-dominated or integrated occupations. Those women evaluate their earnings, *ceteris paribus*, as being less unjust. The test in the table footer shows that there is no significant difference between women working in female dominated or integrated occupations. The result, thus, shows the same pattern for the metric measure of segregation.

Table 5: Regression of injustice evaluation on occupational segregation and gender interactions

<i>Occupational segregation:</i>				
Share females in occ. * male	0.006	(0.010)		
Share females in occ. * female	-0.035***	(0.007)		
Integrated occ. * male			Ref.	
Male occ. * male			-0.002	(0.006)
Male occ. * female			-0.005	(0.009)
Integrated occ. * female			-0.035***	(0.007)
Female occ. * male			-0.013	(0.009)
Female occ. * female			-0.034***	(0.007)
<i>Controls:</i>	X		X	
Constant	0.474***	(0.013)	0.480***	(0.014)
Sigma_u	0.167***	(0.002)	0.167***	(0.002)
Sigma_e	0.188***	(0.002)	0.188***	(0.002)
Chi2(1) [fem.occ. * fem - integ.occ. * fem = 0]			0.085	
p_value [fem.occ. * fem - integ.occ. * fem = 0]			0.770	
Observations	21906		21906	
Respondents	12597		12597	

Note: SOEP 2009/2011/2013; DOI:10.5684/soep.v30; all samples, linear random effects panel regression, unstandardized coefficients, standard errors in parentheses, controlled for: gross hourly earnings, household income, contracted working hours, overtime hours, CASMIN, SIOPS, Public sector, East Germany and period effects. DV: injustice evaluation

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

6 Discussion

This study investigated differences in justice evaluations of earnings between men and women. By considering the programmatic macro-micro link of sociological justice research this study goes beyond common approaches rooted in social psychology that usually only consider individual comparison processes. By drawing on traditional social comparison theory, research on salient pay referents and status theories three crucial parameters were

identified that guide justice evaluations. Comparison processes are the underlying mechanism of any justice evaluation; status beliefs explain which referent standards people consider as salient and what they expect for themselves; the segregation of the labor market in male- and female dominated occupations provides the structural constraint that facilitates or hinders comparison processes. First, based on theoretical findings from equity theory, status value and status construction theory, as well as empirical findings from pay referent research, social comparisons and referent choice were identified to be important parts of the process of distributive justice evaluations. Second, it was outlined how these processes may induce gender differences in justice evaluations under the assumption of gender status beliefs. Based on findings from pay referent research occupations were identified to form the structural condition which most likely influences such gender differences. Accordingly we derived two hypotheses about deviating influences of occupational gender segregation on justice evaluations of men and women:

The first hypothesis was that women in female-dominated occupations will tend to compare with other women in the same occupation, thus not getting aware of actual earnings disparities between men and women, and thus evaluating their earnings as less unjust (H1). Our analyses confirm this hypothesis: Under control of relevant variables those women who work in occupations with a larger share of female employees tend to evaluate their earnings as less unjust. A continuous measure (share of women in the occupation) and a categorical measure (female-/male-/integrated occupation) were both used to test the hypothesis and revealed similar results. Interaction models confirm that all else equal women in male dominated occupations perceive their earnings as more unjust than women in female dominated occupations. The findings underscore the importance of the structural context to explain gender differences in individual justice evaluations. The segregation of the labor market hinders women to compare their earnings with equally qualified men and, thus, reestablishes the legitimation of inequalities. This finding is in line with experimental research in social psychology that points to the importance of available reference standards as justice evaluations are always relative judgments.

The second hypothesis, conversely, predicted that men in female-dominated occupations would evaluate their earnings as more unjust than women in the same occupations, as they will rather compare themselves to referents outside the occupation (H2). The empirical analyses reveal that men in female dominated occupations indeed show different justice evaluations compared to their female counterparts. Men evaluate their earnings as being more unjust than women evaluate their earnings, *ceteris paribus*. This result

confirms the assumption that men in female dominated occupations adjust their justice evaluations to different reference standards than women. The findings also show that working in a female-dominated occupation has no effect for men on their justice evaluations compared to other men working in integrated or male-dominated occupations. They show the same patterns as other men which indicates that men compare themselves to national wage standards. This is in line with previous research findings suggesting that women are less likely to be salient referent standards for men (Festinger 1954; Moore 1991; Schneider 2010). All in all, findings indicate that the gendered bias for women in female-dominated occupations is likely to be structurally induced as a corresponding effect cannot be observed for men.

The contribution to the literature on justice attitudes is that our study provides a structural explanation for the frequently demonstrated fact of gender specific justice evaluations. The consideration of the structural context occupational segregation, hence, provides a coherent explanation for differences in justice attitudes of men and women.

Another context that might be crucial for the emergence of inequalities is the workplace. As recent studies have shown conclusively that a large portion of wage inequality emerges in differing organizational contexts. This context has not been investigated in this study but seems to be important for the understanding of legitimation processes of inequalities. Within organizations not only segregation but differing positions in the hierarchy hinder comparisons and, hence, justify inequalities. The interrelation of the organizational and the occupational context should be targeted in future studies to get the full picture of the emergence of justice attitudes and their legitimizing force throughout the society.

Keeping limitations in mind, this study provides first evidence for the structural influence of the occupational segregation on justice evaluations of women's earnings. As these differing standards are also important for negotiation processes and expectations of earnings, they might contribute to some extent to the slow convergence of wages between men and women.

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Appendix

Table 6: Table Gender-type of occupational groups

Gender-type of occupation	Integrated occupations	Male-dominated occupations	Female-dominated occupations
Number of occupations	23	21	10
Relative share (in % of total number of occupational fields)	42.59	38.89	18.52
Occupational fields	3 Stone cutting, material production, ceramics and glass 5 Paper manufacturing and processing, printing 10 Precision mechanics, related occupations 12 Spinning, textile manufacturing and processing 16 Cooks/Chefs 17 Beverages and luxury food production, other food and nutrition occupations 19 Product tester, dispatcher 20 Unskilled laborers in general 22 Chemists, physicists, natural scientists 24 Draftsmen, related occupations 25 Surveying and mapping 26 Technicians, specialists 28 Wholesale and retail clerks 29 Financial and insurance clerks 30 Other clerical occupations (except wholesale, retailing, banking) 31 Advertising specialists 36 Public administration occupations 44 Legal professions 45 Artists and musicians 46 Designers, photographers, advertising professionals 47 Health professions, approved 50 Teachers 51 Publishing, librarians, translation and associated research occupations	1 Agriculture, cattle industry, forestry, gardening 2 Mining 4 Chemistry and synthetics 6 Metal production and processing 7 Metal, plant and sheet metal construction, installation, assembly workers 8 Industrial and tools mechanics 9 Vehicle and aircraft construction, servicing occupations 11 Electrical occupations 14 Production of pastries, confectionary and candy 15 Butcher 18 Construction occupations, wood and plastic working and processing 21 Engineers 23 Technicians 32 Transport occupations 33 Aeronautic and navigation occupations 34 Packagers, warehouse workers and transport workers 35 Business management, auditing, business consulting 38 Core IT occupations 41 Personal security and security guards 42 Facility managers 43 Safety and security occupations	13 Textile manufacturing, leather production 27 Sales occupations (retail) 37 Finance and accounting 39 Clerical occupations 40 Office helps, operators 48 Health professions without medical license 49 Social occupations 52 Personal care occupations 53 Hotel, restaurant and housecraft occupations 54 Cleaning and waste disposal

Note: SOEP 2009/2011/2013; DOI:10.5684/soep.v30..

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