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and their Consequences for
Justice Perceptions of Earnings**

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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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Social Comparison Orientations and their Consequences for Justice Perceptions of Earnings*

Simone Schneider and Peter Valet

Abstract

Recently, research on social comparison orientations (SCOs) has shown remarkable inter-individual variation in people's tendency to compare themselves with others. Whether this variation bears any consequences for social justice research that assumes social comparisons to be a valuable asset in forming images of just earnings is still an unsolved question. This paper takes up this research challenge and investigates whether the formation of justice attitudes is moderated by inter-individual differences in SCOs. It asks whether people who tend to compare their abilities with others react more strongly towards others' earnings when they evaluate the justice of own earnings. The analyses are based on data from the 2010 and 2011 pretest modules of the German Socio-Economic Panel Study (SOEP). SCOs are measured by the short scale of the *Iowa-Netherlands Comparison Orientation Measure (INCOM)*. The results are in line with theories on distributive justice showing that individuals who earn less than the average of the respective occupational status group are more likely to perceive their earnings as unjust; while respondents who earn more or equally well tend to perceive their earnings as just. This effect is remarkably stronger for people with high SCOs compared to those with low SCOs. Implications for research on social justice are discussed.

Keywords

Social comparison, personality, social justice research, justice of earnings, relative deprivation, SOEP

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1. Introduction

The social mechanism approach in its various forms (e.g. Bunge, 2010; Gross, 2009) explains social phenomena by processes which lead under the same objective circumstances to the same results. Advocates of the approach posit that sociological research should neither be directed towards grand theories nor towards a micro-level focused empiricism. By reference to middle range theories and causal processes the mechanism approach looks into the “black box” and explains how and why social phenomena occur (e.g., Coleman, 1990; Elster, 2007; Hedström & Ylikoski, 2010).

Theories in sociology and social psychology point to *social comparisons* as a fundamental psychological mechanism that links objective facts to subjective evaluations. The idea is that information on others’ living conditions generates social standards on what to consider as “normal” or “common” and, thus, facilitate the evaluation of one’s own living conditions. This self-evaluation process is also relevant in the formation of justice attitudes as highlighted by theories on distributive justice, such as social evaluation theory (Pettigrew, 1967), reference group theory (Merton 1968), the theory of relative deprivation (Crosby, 1976; Davis, 1959; Gurr, 1970; Runciman, 1966), and equity theory (Adams, 1965; Homans, 1961/1974; Homans, 1976). Individuals, that evaluate their own rewards, are expected to compare themselves with others – whether these are colleagues working in the same company, the partner at home, close friends, or abstract referential standards. Thus, a thorough understanding of the social comparison process is crucial to reveal how individuals evaluate themselves and others in a set of variant contextual conditions.

Sociologists working on social attitudes, and especially on social justice, can contribute to research on the underlying mechanisms – and social comparisons in particular – in three important ways: (a) by investigating more closely the factual (objective) conditions in which individuals evaluate themselves in; (b) by examining the link between objective and subjective comparison standards (while *objective* comparison standards inform individuals on the variation of attributes in society; *subjective* standards define the person’s individual representations of general others or specific reference groups); (c) and by investigating systematic variations in the selection of comparison standards (upward vs. downward comparisons; selection of specific references groups) and the use of information on the other.

This paper contributes to research on social justice by investigating the consequences of inter-individual variation in social comparisons. It asks whether objective comparison standards are equally important to individuals in the justice evaluation processes or whether their significance varies with the frequency and strength in which the individual involves in social comparisons. Thereby, this study picks up on recent research into social comparison processes that discovered *inter-individual differences* in the application of social comparisons and the use and interpretation of information on the other. It shows that individuals differ greatly in the degree and strength to which they compare themselves with others. Researchers even speak of a ‘disposition towards social comparisons’ (Gibbons & Buunk, 1999). This finding is expected to carry significant consequences for other fields of research, specifically those studying the consequences of social comparisons, e.g. justice evaluations. People who report a higher tendency to engage in social comparisons may react more strongly towards information on others’ earnings than people who do not show this tendency. If so, objective conditions are only important to those individuals who compare themselves with others more frequently. Hence, social comparisons are conditional on individual characteristics and are only a formative mechanism for justice evaluations if individuals show a disposition towards them.

To our knowledge, the consequences of individual variation in social comparisons for the explanation of justice evaluations have not yet been studied systematically. This paper takes up this research challenge and analyzes whether inter-individual differences in the use of social comparisons bear any consequences for research on just earnings. Following theories on distributive justice, it tests whether people who earn less than the average person of the same occupational status group perceive their earnings as more unjust than people who earn more or equally well. Furthermore, it investigates whether this reaction pattern is moderated by an individual’s fundamental tendency to compare own abilities with those of others.

The analyses are based on data from the 2010 and 2011 pretest modules of the German Socio-Economic Panel Study (SOEP). To test the moderating effect of an individual’s disposition towards social comparison, we use the short scale of the *Iowa-Netherlands Comparison Orientation Measure* (INCOM).

2. Social Comparisons in Pay Evaluations

Social comparisons are a driving force for all kinds of outcome evaluations often discussed by social psychologists. Theories on distributive justice, especially on just rewards, use social

comparisons to explain, why people differ in their justice judgments. In simple terms, they expect individuals who earn less compared to a referential standard to view themselves as unjustly under-rewarded; those who assess their earnings to be equal or more than their referential standard are expected to evaluate their earnings either as just or as unjustly too high. Characteristics of the social context affect justice evaluations through social comparison processes. Social comparisons are, therefore, viewed as a central *mechanism* that helps individuals to evaluate themselves in a set of variant contextual conditions. They form the cognitive link between structural inequalities and subjective outcome evaluations.

Theories that propose social comparison as a fundamental element of the justice evaluation process are, among others, the theory of relative deprivation (Crosby, 1976; Runciman, 1966; Davis, 1959; Gurr, 1970), equity theory (Adams, 1965; Homans, 1958; Homans, 1961/1974), and status value theory (Berger, Zelditch, Anderson, & Cohen, 1972).¹ In its simplest form, relative deprivation theory states that people are relatively deprived if they perceive their own rewards to be lower compared to a respective reference group. Equity theory refines this assumption, looking at the ratio of inputs (investments) and outputs (rewards) between persons: if an individual perceives an imbalance between her/his own ratio and the ratio of the other, a feeling of injustice occurs. Status-value theory modifies this assumption proposing that comparisons with a ‘generalized other’ that is a typical image of a person with specific characteristics are important for the justice evaluation. Thus, these theories all point to the relevance of social comparisons in the process of justice evaluation.

In her general theory of comparison processes, Jasso (2006) speaks of the *actual holding* – the amount of personal assets – and the *comparison holding* – the referent to which the actual holding is compared to. In combination they lead to the *comparison outcome*. In her theory on distributive justice, Jasso (1980) replaced the actual holding by the ‘actual reward’, and the comparison holding by the image of ‘just rewards’ that are again summarized in a ratio term labeled as the justice evaluation process. Images of ‘just rewards’ are produced by referential structures, so called ‘comparison aggregates’ which are used by individuals to “calculate their relative share of a quantity good” (Jasso, 1980: 4). The importance of comparisons is

¹ This list is incomplete and can easily be extended by, for example, the ‘referent cognitions model’ (Folger, 1986) that proposes that individuals who feel relatively deprived towards a referent outcome respond with higher resentment when they perceive the chances for achieving the outcome as given/high. Major (1994) introduces the feeling of ‘entitlement’ that transforms comparison incomes into pay evaluations, e.g. satisfaction with income or justice of earnings. She proposes that “beliefs about *entitlement* are a critical determinant of how members of social groups react affectively, evaluatively, and behaviorally to their socially distributed outcomes” (Major, 1994: 293/294). Similar to theories stated above, both approaches highlight the importance of social comparison for pay evaluations.

therefore undeniable: “Humans compare themselves to others or to previous or envisioned selves; more precisely humans compare their amounts or levels of goods (and of bads) to the amounts of levels they regard as just or desirable for themselves. As well, they form ideas about the appropriate rewards for others and compare what another has to what they think that others should have” (Jasso, 1993: 232). Hence, social comparisons are apparently important for the image of the just reward which is a fundamental ingredient of the justice evaluation process.

Various empirical findings support the importance of social comparisons in pay evaluations showing that individuals who earn less compared to similar others are more likely to perceive their earnings as unjust compared to those who earn more or equally well (see Böttcher 2007; Card, Mas, Moretti, & Saez, 2012; Liebig, Sauer, & Schupp, 2012; Major & Forcey, 1985; Major & Konar, 1984; Moore, 1991; Schneck, 2013). Similar findings are reported for studies on job and pay satisfaction showing that the lower the relative earnings of respondents compared to a referential standard, the less satisfied they are (see e.g. Blau, 1994; Bygren, 2004; Clark & Oswald, 1996; Goodman, 1974; Scholl, Cooper, & McKenna, 1987; Senik, 2009; Summers & DeNisi, 1990; Sweeney, McFairlin, & Inderrieden, 1990; Williams, McDaniel, & Nguyen, 2006). Only few studies claim a reversed relationship: They find that the higher the average income of referents, the higher the satisfaction (Clark, Kristensen, & Westergård-Nielsen, 2009; Senik, 2004; Senik, 2008; Kingdon & Knight, 2007).

Although people tend to use multiple pay referents (Brown, 2001; Ronen, 1986), people of the same *working sphere*, i.e. people of the same occupation and/or co-workers, turned out to be one of the most relevant. Bygren (2004) shows that earnings of similar others in the same occupation and in the labor market as a whole are most influential for pay evaluations. Others found similar effects (Dornstein, 1989; Loscocco & Spitze, 1991; Scholl et al., 1987; Williams et al., 2006). The significance of work-related comparisons is, furthermore, underscored by self-reports on pay referents: Based on data from the third wave of the European Social Survey (ESS), Clark and Senik (2010) report work colleagues as the most important reference group followed by friends and family members. Schneider and Schupp (2010) support this finding for Germany based on data from the SOEP pretest modules in 2008 and 2009. Out of nine potential pay referents respondents rated colleagues and people of the same profession as the most relevant pay referents. Thus, comparisons within the working sphere are most likely to influence how people evaluate their pay.

In sum, people differ in their pay evaluations by comparing their own pay with others' payments. Social comparison forms the underlying psychological process that transforms useful information on others' incomes into self-evaluations and which, thereby, explains why some people are more (or less) satisfied with their earnings or why they consider their earnings as more (or less) just. So far, researchers assume this process to be universal. Whether influences of others incomes on justice evaluations are robust towards individual variations in social comparison remains unclear and needs further thought.

3. Inter-Individual Differences in Social Comparisons: The Concept of SCO

A novel perspective in theories on social comparison looks at *individual differences* in social comparisons. It suggests variation "in the extent to which people compare with others and in the way that comparison information is interpreted" (Buunk & Mussweiler, 2001: 470). This proposition does not oppose the universality assumption of social comparison processes but basically suggests that people do not apply social comparisons evenly. Those who engage more often in social comparisons tend to pay more attention to their social surrounding and react differently towards it (Wheeler, 2000).

Gibbons and Buunk (1999) use the term *social comparison orientations* (SCOs) to target individual differences in social comparisons. Following Festinger (1954) they discriminate between comparisons with other's *abilities* and comparisons with other's *opinions* that are supposed to follow different baseline questions. Comparisons of *abilities* refer to the question "How am I doing?" while comparisons of *opinions* look for answers to the question "What shall I feel/think?" (see also Suls & Wheeler, 2000). In general, the concept of SCO assumes that people vary in the extent and frequency they engage in social comparisons in their daily lives: the assumption is that some people more frequently and extensively compare their *abilities* (to gather information on other people's success) and *opinions* with others (looking for guidance in their daily structures); while some people rarely or never make use of social comparisons. This concept is based on various empirical findings that observed variation in social comparisons and its attitudinal or behavioral consequences (see Gibbons & Buunk, 1999).

To empirically test for SCOs, Gibbons and Buunk (1999) developed the *Iowa-Netherlands Comparison Orientation Measure (INCOM)*. The authors attempt to measure "individual differences in the inclination to compare one's accomplishments, one's situation, and one's experiences with those of others" (Buunk & Gibbons, 2006: 16). The underlying assumption

is that people reflect on the use of social comparison and are able to provide accurate answers on these processes. People who score high on the scale are more prone to gather information about others and also to relate this information to themselves. The scale was developed to measure tendencies towards social comparison in two countries: the Netherlands and the United States. Schneider and Schupp (2013) tested the empirical validity of this instrument for the German population.

A series of studies based on the SCO framework found that people who scored high in SCOs also compared themselves more often with others and were also more affected by these comparisons than those who scored low in SCOs. In sum, people high in SCOs “seek out more comparisons, spend more time engaging in comparisons, experience more reactions (feelings) from comparing themselves with others, base their personal risk perceptions (more) on comparisons with others, and assess their own relational future on the basis of comparisons with others” (Buunk & Gibbons, 2006: 19). Of particular interest is the moderating function of SCOs. Several reactions towards social comparisons reported by Buunk and Gibbons (2006) were only observable for those who show a high SCO. In a recent study, Buunk, Groothof, and Siero (2007) found evidence that satisfaction with social relationships was significantly influenced by comparison with others’ relationships only if individuals showed an inherent tendency to compare themselves with others. The findings of Clark and Senik (2010) and Schneider and Schupp (2013) support this assumption: Clark and Senik (2010) observed that people to whom comparisons were of no importance reported higher levels of happiness while Schneider and Schupp (2013) results indicate that the financial situation within the neighborhood only affects the life satisfaction of those who show a SCO above-average.

To our knowledge research on reward justice has not yet systematically considered possible moderating effects of SCO. Researchers rather built on the proposition that social comparisons are universal processes of the human mind that are more or less evenly performed by individuals. They largely rely on Festinger (1954) who proposes that “to the extent that objective, non-social means are not available people evaluate their opinions and abilities by comparison respectively with the opinions and abilities of others” (Festinger, 1954). So what is to expect when people do not compare themselves with others? Literature on the consequences for un-/availability of information on the other suggest that if no such information is available individuals feel equitably rewarded. “Whether or not a situation is defined as inequitable depends upon the amount of knowledge an individual has concerning the positions or ranks of persons in the same situation on the social dimensions which serve as

bases for the distribution of valued outcomes, goods or services. In the absence of such information, (...) individuals do not enter states of inequity. Instead, they tend to assume that their position or rank on the dimension of evaluation is consistent with the level of outcome they have been allocated“ (Cook, 1975: 387; see also Card et al., 2012). This proposition is assignable to the pay evaluation process. Individuals may feel more unjustly rewarded if they tend to compare themselves with others. At the same time, SCOs will moderate how people make use of information on others’ earnings and in consequence how this information affects people’s justice evaluation. Thus, relative income may influence the pay evaluation more strongly if people show a tendency for social comparison.

In this paper, we empirically investigate the direct and moderating functions of individual differences in social comparisons for the justice evaluation of own earnings. Since SCOs of abilities capture comparisons about other peoples’ economic successes, we consider this dimension of the SCOs to be of specific interest for the study of just rewards.

4. Hypotheses

Theories in social psychology posit that social comparison processes are a fundamental *mechanism* for the justice evaluation process. Empirical studies support the assumption that it is not only ‘absolute earnings’ (the amount of money they receive for their work) but also ‘relative earnings’ (the amount of money compared to a pay referent) which determines whether people view their earnings as just or unjust. Following this reasoning, we assume that *individuals who earn less than the average (person) of the same occupational status are more likely to perceive themselves as unjustly under-rewarded while people who earn as much as (or more than) their reference group tend to perceive their earnings as just (or as unjustly too high) (relative income hypothesis).*

The SCO-approach re-specifies this assumption by proposing inter-individual variation in the use of social comparisons. It suggests that people differ in the frequency they compare their *abilities* and *opinions* with others. Since the ability component captures comparisons with other peoples’ economic success, it is assumed to be of specific relevance for the evaluation of just rewards. The disposition towards social comparison affects the justice evaluation process in two ways: We assume that *individuals who do not rely on the information on the other perceive their income as more just than people who compare themselves with others (direct SCO hypothesis).* We also assume that *earnings differences to the average earnings of the own occupational status group will influence the justice evaluation more strongly for*

people with high SCO towards others' abilities compared to those who do not (or only slightly) show this tendency (moderation SCO hypothesis). In more technical terms, we speak here of a moderation effect, since we assume that individual SCOs influence the effect the relative payment has on the justice evaluation.

5. Data, Variables, Methods

5.1 Data

The analyses are based on data from the Socio-Economic Panel Study (SOEP). The SOEP is an annual German household panel that started in 1984 (Wagner, Frick, & Schupp, 2007; Haisken-DeNew & Frick, 2005). Questions on social comparison orientations were queried in the 2010 and 2011 SOEP pretest modules (SOEP, 2012a/b). The pretest modules are representative population samples conducted once a year in order to test new questions and items for the main SOEP surveys (Schupp, 2009). Along with new questions the pretest modules query standard items on individual characteristics such as age, gender, educational background, information on income as well as job characteristics, and the household composition. The studies consist of 1,058 (2010) and 1,030 (2011) randomly chosen respondents between the age of 16 and 94. Due to the fact that only employees are considered in our analyses we pool the two pretests leading to a sample of 471 respondents. To gain reliable measures on standard earnings for certain groups we compute mean earnings for different occupational status groups using data of the SOEP main study 2010 (N=18.990) and match these data with the pretest modules.

5.2 Dependent Variable

The crucial dependent variable is the individual justice evaluation of own earnings. In the pretest modules the justice evaluation of own earnings is queried with two questions. First, respondents have to answer whether they perceive their earnings as just or unjust (“Is the income that you earn at your current job just, from your point of view?”). People who consider their earnings as unjust have to specify an amount of Euros they consider as just (“How high would your income have to be in order to be just?”).² In order to obtain an individual justice evaluation measure we compute the justice evaluation measure J (Jasso, 1978):

² For respondents who perceive their earnings as just the amount of just earnings is equal to the amount of actual earnings.

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

J is the justice evaluation, A the actual monthly gross earnings and C the monthly gross earnings the respondent subjectively considers as just. For respondents who perceive their own earnings as just, J is 0 as actual and just earnings are the same ($\ln(1) = 0$). If just earnings exceed the actual earnings, J is negative; the respondent feels underpaid while if actual earnings exceed just earnings, J is positive and the respondent feels overpaid.

5.3 Independent Variables

We consider three variables to be crucial for predicting the justice evaluation: (1) the amount of absolute earnings, (2) earnings relative to a significant reference group and (3) the individual Social Comparison Orientation (SCO) of abilities (see Table A1 in the appendix for the standard statistics).

Amount of absolute earnings: We measure absolute earnings as the natural logarithm of gross hourly earnings.³

Earnings compared to referential sub-group: Based on previous findings (Clark & Senik, 2010; Schneider & Schupp, 2010) and given the availability of data, we chose to compare the respondents' earnings with groups of *similar occupational status*. We measure relative earnings as the deviation of the respondent's gross hourly earnings from the mean gross hourly earnings of the respective occupational status. In total, we distinguish 20 occupational status groups.⁴ For each of these groups we calculated mean gross hourly earnings on the basis of the SOEP data 2010.⁵ We matched the data with the SOEP pretest modules to obtain reliable mean earnings (y^*) for each occupational status group.⁶ Negative numbers indicate that the respondent earnings (y) are smaller than the mean of the reference group and positive numbers indicate that the respondent earns more than the mean of the reference group ($y - y^*$). Table A2 (in the appendix) reports the descriptive statistics of these 20 occupational status groups.

³ Gross hourly earnings are calculated to account for differing weekly working hours between respondents. Therefore, it is also possible to include part-time as well as marginally employed people in our models.

⁴ We excluded self-employed people from our data, since we cannot assume that earnings differences among different groups of self-employed people are equally salient as among employed people of the same occupational status.

⁵ We applied standard weights to correct for measurement bias.

⁶ While some groups comprise only few individuals in the pretest modules group means could be biased due to outliers. So, the groups were calculated on regular SOEP data which provides several hundred observations per group. Therefore, the calculated mean earnings should be much more accurate.

Social Comparison Orientations: To examine the consequences of individual differences in SCOs and their consequences for justice evaluations, we build on the shortened questionnaire of the INCOM scale introduced by Schneider and Schupp (2010). The shortened scale comprises six items of which three items relate to the dimension “ability” and three items relate to the dimension “opinion”.⁷ Individual SCO scores are obtained by a confirmatory factor analysis (CFA). The results support a distinct two-dimensional structure of comparison orientations (Table 1). The model fit indices prove to be good.

Table 1: Confirmatory Factor Analysis of the Shortened INCOM Scale

| Dimension | Items | Factor 1 | Factor 2 | R ² |
|-----------|--|----------|----------|----------------|
| Ability | I always pay a lot of attention to how I do things compared with how others do things. | 0.75*** | - | 0.56 |
| | I often compare how I am doing socially (e.g., social skills, popularity) with other people. | 0.83*** | - | 0.69 |
| | I am not the type of person who compares often with others. (reversed) | -0.36*** | - | 0.11 |
| Opinion | I often try to find out what others think who face similar problems as I face. | - | 0.76*** | 0.57 |
| | I always like to know what others in a similar situation would do. | - | 0.81*** | 0.66 |
| | If I want to learn more about something, I try to find out what others think about it. | - | 0.67*** | 0.45 |

Model Fit Indices: χ^2 : 21.028; df(8); $p < .007$; CFI: .984; TLI: .970; RMSEA: .059; SRMR: .030

Note: SOEP pretest 2010 and 2011; N = 471; reports the standardized factor loadings, the level of significance (***) $p < .001$, (**) $p < .01$, (*) $p < .05$), and the amount of unexplained variance for 6 items of the INCOM Scale; robust maximum likelihood estimation is used; standard weights are applied to adjust for sampling bias.

Since the *ability* dimension reflects attitudes about other peoples’ economic success we claim that comparisons with other people’s *abilities* are especially important for the evaluation of payments only this dimension is included in the empirical analysis.

Control variables: We control for various characteristics that are considered to influence the justice evaluation of own earnings: the respondent’s sex, age, weekly overtime hours and gross monthly earnings. Because data is pooled we control for the year of the survey.

5.4 Methods

The analysis is divided into two sections: In the first section we report descriptive results of the mean justice evaluations and relative income. In the second section we estimate three OLS

⁷ Respondents were asked the following question: „Most people compare themselves from time to time with others. For example, they may compare the way they feel, their opinions, their abilities, and/or their situation with those of other people. There is nothing particularly “good” or “bad” about this type of comparison, and some people do it more than others. We would like to find out how often you compare yourself with other people. To do that we would like you to indicate how much you agree with each statement below, by using the following scale: 1 strongly disagree; 5 strongly agree.”

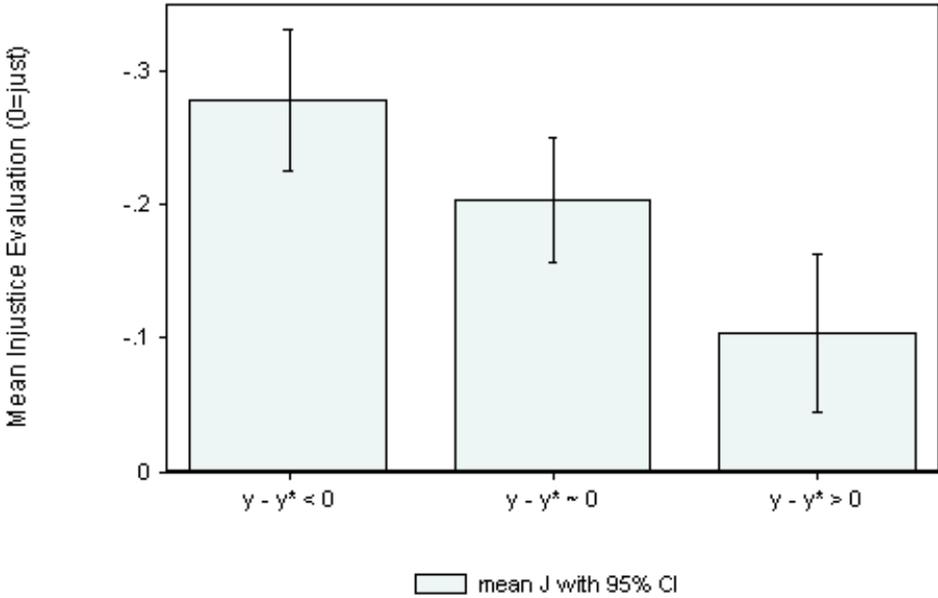
regressions to test our hypotheses. In the first model (our baseline model) we estimate the main effects of absolute earnings, the SCO (ability) and the control variables. In the second model we include the measure on relative earnings to the average earnings of the own occupational status group. In the third model we additionally include the interaction of the SCO (ability) and the relative earnings differences to test for the moderation effect of SCO on the individual justice evaluation. To adjust for statistical biases from heteroskedasticity we estimate all models with robust Huber-White standard errors.

6. Results

6.1 Descriptive Results

Figure 1 shows the mean justice evaluation of three groups: (1) for individuals who earn less, (2) who earn about the same, and (3) who earn more than the average of the corresponding occupational status group. The bars show that on average all groups perceive themselves as unjustly under-rewarded. Only the magnitude of the perceived injustice differs: people who earn less than the average of their occupational status group evaluate their earnings as more unjust than people who earn about the same or more. The results support the relative income hypothesis.

Figure 1: Mean Justice Evaluation and Type of Compensation



Note: SOEP pretest 2010 and 2011; N=471; y: own earnings; y* average earnings of own occupational status group.

6.2 Multivariate Analyses

Table 2 reports the coefficients and robust standard errors of the three regression models. The estimates of model 1 indicate that SCOs have no direct influence on the justice evaluation of earnings. Furthermore, we observe that respondents with higher gross hourly earnings tend to be more positive about their earnings than people with lower earnings. People who have to work overtime tend to evaluate their earnings as unjust. We do not observe any significant gender or age effects.

The second column (model 2) shows that the difference of individual gross hourly earnings in comparison to the mean gross hourly earnings of the own occupational status group indeed influences the justice evaluation of own earnings. The positive sign of the coefficient denotes that people who earn more than their reference group are more likely to perceive themselves as paid appropriately (or unjustly over-rewarded). Consequentially, people who earn less than the average of their reference group perceive themselves as unjustly underpaid. The findings suggest a linear relationship: the larger the distance to the occupational average, the stronger the perception of injustice. Altogether, this finding is in line with theories on distributive justice which claim that people perceive their earnings as unjust if earnings are lower than those of pay referents.

Whether this effect varies with the individual SCOs of abilities is shown in the third column (model 3). Here, we integrate the interaction term of SCOs (abilities) and relative income. The positive interaction effect indicates that people's justice perception of earnings differences is amplified by SCOs. Thus, individual differences in SCOs of abilities are likely to moderate the strength in which the relative standard affects the justice evaluation process.

Table 2: SCO, Relative Earnings Differences and Individual Justice Perceptions of Own Earnings

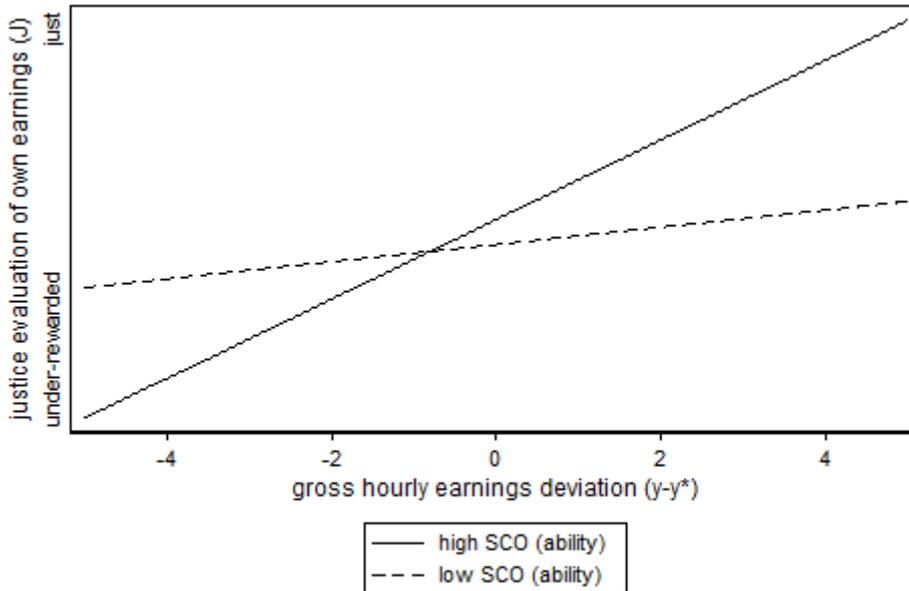
| | (1) | (2) | (3) |
|---------------------------------------|---------------------|---------------------|---------------------|
| <i>Social Comparison Orientation:</i> | | | |
| Ability | .003 (.024) | .003 (.024) | .003 (.023) |
| <i>Relative earnings differences:</i> | | | |
| To own occ. status group (y-y*) | | .009* (.004) | .011*** (.003) |
| <i>Interactions:</i> | | | |
| Ability X relative earnings (y-y*) | | | .008* (.004) |
| <i>Controls:</i> | | | |
| Gross monthly earnings (ln) | .118*** (.031) | .119*** (.031) | .119*** (.030) |
| Overtime hours (per week) | -.006** (.002) | -.006** (.002) | -.006** (.002) |
| Sex (1=female) | .060 (.040) | .047 (.040) | .041 (.040) |
| Age | -.001 (.001) | -.002 (.001) | -.002 (.001) |
| Pretest 2011(Ref.: 2010) | -.022 (.033) | -.015 (.032) | -.016 (.033) |
| Constant | -1.077*** (.279) | -1.054*** (.274) | -1.050*** (.272) |
| Observations | 471 | 471 | 471 |
| adj. R ² | .053 | .070 | .078 |

Note: OLS regression; robust standard errors in parenthesis; * p< 0.05, ** p< 0.01, *** p<0.001; SOEP Pretest 2010 and 2011, N=471.; relative earnings of own occupational status group (y*) calculated on SOEP 2010 main survey.

To get a better impression of how individual SCOs influence the justice perception of earnings we plot the marginal effect of the interaction of SCO and relative earnings in Figure 2. The x-axis shows the absolute difference of the respondents' earnings to the average earnings of the respective occupational status group. Values to the left illustrate that people earn less than their respective occupational status group ($y-y^* < 0$) and values to the right depict that people earn more ($y-y^* > 0$). The y-axis shows the magnitude of the injustice evaluation meaning that values to the top indicate that people evaluate their earnings as just. The dashed line shows the influence of relative earnings differences for people with a low SCO of abilities (one standard deviation below the mean) and the solid line shows the same influence for people with a high SCO of abilities (one standard deviation above the mean). The slope of the dashed line (representing people with a low SCO of abilities) is modest suggesting that the extent of relative earnings has only a slight impact on the justice evaluation of own earnings. The slope of the solid line (representing people with a high SCO of abilities) is much steeper. This suggests, that people who have a high SCO of abilities are

more responsive to information on others' incomes and, therefore, evaluate their earnings as less just when they earn less than their reference group.

Figure 2: Marginal Effects of Relative Earnings Differences on Injustice Perceptions of Own Earnings According to Individual Social Comparison Orientations



Note: SOEP pretest 2010 and 2011; reports marginal effects of the interaction model 3; threshold for high (low) SCO is one standard deviation above (below) the mean; over-rewards are not displayed in the graph.

7. Discussion

This paper investigated social comparison processes as one fundamental mechanism to explain attitude formation processes in general and justice evaluations of own earnings in particular. Following research on social comparison orientations (SCOs) that suggests inter-individual variation in the strength and frequency in which individuals engage in social comparisons, this paper studied the consequences of inter-individual variations in SCO for justice perceptions of own earnings. It tested whether SCO of abilities moderate the effect of relative earnings differences in comparison to the own occupational status group on the justice perception of own earnings. Three results are crucial for research on distributive justice: (1) People who earn less than their comparison standard tend to perceive their earnings as more unjust compared to those who earn about the same or more than their occupational status group. This finding supports theories on distributive justice which suggest that relative earnings are crucial for the justice perception of own earnings. (2) Our findings, furthermore, show that relative earnings (of others of the same occupational status group) influence the justice evaluations more strongly if people show a tendency to compare their abilities with others (high SCOs) compared to people who do not (or less strongly) report this tendency

(low SCOs). In line with the moderation SCO hypothesis, this finding suggests that the frequency individuals engage in social comparison affects the strength with which people react towards information on others' earnings in their justice evaluations. (3) However, and contrary to our assumption on the direct influences of SCO, we do not observe any direct effect of SCO on the justice perception of own earnings. People who reported to compare their abilities less often with others did not significantly differ in their justice evaluations. This finding is important for social justice research as it suggests that not the mere existence or absence of a psychological disposition affects justice evaluation. It is rather the use of information on the other which depends on the individual's disposition and thereby affects the justice evaluation processes.

Overall, the results provide first indications that inter-individual differences in SCOs moderate the justice evaluation process. The consideration of SCO in empirical research on justice perceptions will enrich our understanding of how people produce images of just earnings and how differently information on others' incomes is used.

There are, nevertheless, some limitations in our research due to data restrictions: (1) We used mean earnings of the respective occupational status group as the crucial reference standard for comparisons of earnings while research suggests that work colleagues and people who work in the same occupation are predominantly selected as pay referents (Schneider & Schupp, 2010). Unfortunately, there are no identifiers of occupations like ISCO or KldB1992 in the pretest modules of the SOEP data. (2) We tried to obtain more power for our multivariate analyses by pooling data from two independent SOEP pretest modules. By focusing on the employed population, our sample only covered 471 of 2.088 respondents (22.6 %). Therefore, our findings are not representative for the German population and require further robustness-checks. (3) The data is cross-sectional and does not consider changes in time within individuals. Any interpretations on a causal relationship between relative income and justice perceptions are therefore speculative.

Thus, the findings reported in this paper can only be regarded as first tip-offs and are in need for further empirical investigation. We plan to re-run our analyses with data collected in the Collaborative Research Center (SFB) 882 project A6 "The Legitimation of Inequalities: The Structural Conditions of Attitudes to Justice" at Bielefeld University. This project collects data on 4500 employed respondents of the German population randomly sampled from official data records (IAB). The questionnaire includes various topics relevant for our research such as justice perception of own earnings; relative earnings (self-reports as well as statistical computations for various referential standards such as the geographic region, the company

and/or specific groups within the company, private networks (three best friends) and the partner. This will enable us to obtain theoretically more plausible measurements on relative earnings. The data will be available in mid-2013.

8. References

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9. Appendix

Table A1: Descriptives of Dependent and Independent Variables

| | mean | sd | min | max |
|-------------------------------|-------|------|--------|-------|
| Justice-Index (Jasso 1978) | -0.22 | 0.37 | -3.00 | 1.76 |
| Relative earnings differences | -0.08 | 5.62 | -51.71 | 10.88 |
| SCO (ability) | 0.10 | 0.79 | -1.31 | 2.12 |
| Monthly gross earnings (ln) | 7.29 | 0.87 | 4.53 | 9.05 |
| Overtime hours (week) | 3.54 | 5.93 | 0.00 | 40.00 |

Note: SOEP pretest 2010 and 2011; pooled; standard weights are applied to adjust for sampling bias.

Table A2: Gross Hourly Earnings in Occupational Status Groups

| | mean | median | sd | N |
|---|-------|--------|-------|------|
| <i>Blue-collar worker</i> | | | | |
| Untrained worker | 9.40 | 8.08 | 9.23 | 317 |
| Trained worker | 12.18 | 10.73 | 9.60 | 663 |
| Trained and employed as skilled worker | 14.00 | 13.85 | 6.16 | 981 |
| Foreman | 16.36 | 15.70 | 4.53 | 149 |
| Master craftsman | 17.25 | 16.73 | 8.29 | 71 |
| <i>White-collar worker</i> | | | | |
| Industry and works foreman in a salaried position | 20.32 | 20.19 | 6.45 | 47 |
| Employee with simple duties, without training/education certificate | 10.42 | 9.23 | 6.88 | 360 |
| Employee with simple duties, with training/education certificate | 12.99 | 11.26 | 11.14 | 782 |
| Employee with qualified duties | 16.19 | 15.38 | 6.13 | 2243 |
| Employee with highly qualified duties or managerial function | 24.37 | 22.80 | 10.27 | 1271 |
| Employee with extensive managerial duties | 33.98 | 27.69 | 26.74 | 123 |
| <i>Civil servant</i> | | | | |
| Lower level | 24.37 | 14.55 | 21.55 | 21 |
| Middle level | 15.92 | 15.58 | 5.19 | 145 |
| Upper level | 21.77 | 20.83 | 6.40 | 319 |
| Executive level | 28.28 | 26.83 | 11.95 | 152 |
| <i>Apprentices trainees and interns</i> | | | | |
| Apprentice / trainee in industry of technology | 3.79 | 3.46 | 2.14 | 208 |
| Apprentice / trainee in trade and commerce | 4.97 | 3.95 | 6.40 | 147 |
| Volunteer / intern | 6.19 | 6.92 | 3.16 | 38 |

Note: SOEP main survey 2010; standard weights are applied to adjust for sampling bias.

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