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What Makes Me See Inequality as Just?

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Abstract

Economists should be interested in understanding the factors behind the fairness assessment of inequality since this codetermines individuals' willingness to cooperate and to exert positive reciprocity as a tax payer and citizen. So far, this topic has been largely neglected in the economic literature. This contribution wants to shed light on the factors behind the individual assessment of inequality: Why do some individuals consider the inequality in their country as just while others do not? Our empirical analysis based on survey data for Germany shows that very different forces shape the individual fairness assessment: distributive preferences, beliefs on the sources of inequality, satisfaction with democracy and several socio-economic characteristics. Given that the welfare and tax state depends on the voluntary cooperation of citizens, our insights are relevant for many political and economic contexts, such as tax compliance or welfare benefit cheating.

Zusammenfassung

Diese Arbeit befasst sich mit einer Frage, die in der ökonomischen Literatur bisher kaum Beachtung gefunden hat: Welche Faktoren bestimmen, ob Individuen das bestehende Ausmaß an sozialen Unterschieden als gerecht oder ungerecht einstufen? Diese Fragestellung ist von Bedeutung, belegen doch viele Forschungsergebnisse, dass die Fairnessbewertung mitbestimmt, inwieweit Individuen sich der Gesellschaft gegenüber positiv reziprok verhalten (etwa als Steuerzahler oder als Bezieher von Sozialleistungen). Der Beitrag analysiert die individuelle Fairnessbewertung sozialer Unterschiede anhand von Befragungsdaten für Deutschland. Dabei zeigt sich, dass die Fairnessbewertung von einer Reihe unterschiedlicher Faktoren abhängt. Neben den grundsätzlichen Verteilungspräferenzen spielen die vermuteten Ursachen von Ungleichheit, die Zufriedenheit mit der Demokratie und eine Reihe sozio-demographischer Charakteristika eine Rolle. Unsere Ergebnisse haben Relevanz für eine Vielzahl politischer und ökonomische Kontexte wie die Steuerehrlichkeit oder den Sozialbetrug.

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1. Introduction

In the last decade, economists began to analyze data from large-scale surveys, such as the World Values Survey or the German Socio-Economic Panel, to learn more about the factors that drive individual lifesatisfaction, trust or preferences for redistribution. In this paper, we focus on a variable that has not received comparable attention in this literature so far. We aim at identifying the main factors behind the fairness assessment of inequality: Why do some citizens assess the inequality in income and wealth in their country as just while others consider the identical situation as unjust? A better understanding of the factors that drive differences in this individual fairness assessment is important in at least two different respects.

First, the fairness assessment directly matters for the subjective well-being of people since people prefer to live in a just society (e.g., Rubin/Peplau, 1975; Benabou/Tirole, 2006; Malahy et al., 2009). Happiness research has stressed the fact that lifesatisfaction is influenced to a large extent by social comparisons (Layard, 2006). The extent to which individuals regard social differences as fair is of obvious relevance in this context.

Second, the individual fairness assessment has behavioral consequences. Overwhelming empirical evidence from experimental studies indicates that human beings think and act in a reciprocal way: They are ready to reward fair and to sanction unfair behavior even if this implies personal costs (Dohmen et al., 2009; Fehr/Gächter, 2002). Reciprocal behavior is observed in gift exchange games (Fehr et. al., 1993), trust games and ultimatum games (Güth et. al., 1982; Fehr/Gächter 2000; Falk/Fischbacher, 2000). The readiness to sanction unfair behavior is not limited to cases where the sanctioning individual himself is the victim of an unfair treatment. People are ready to incur costs even for punishing a treatment of third parties which is perceived to be unfair but where these punishing persons themselves are not affected (Fehr/Fischbacher, 2004). The evidence on reciprocity from abstract games is reconfirmed by experimental, survey and field evidence in market and policy related contexts: Workers who perceive their wage as unfair have more days of absenteeism and are less ready to work overtime (Dohmen et al., 2009). Workers who feel treated in an unfair way are more likely to shirk or to conduct sabotage activities (Fehr/Falk, 1999; Bewley, 1999). Reciprocity is equally well established for interactions between citizens and the state. In public good games, there is a strong willingness to punish other players who violate dominating fairness norms (Fehr/Gächter, 2000; Carpenter/Seki, 2005; Croson, 2007). Taxpayers are conditionally cooperative and the relationship between tax authorities and taxpayers can be modeled as an implicit contract (Feld/Frey, 2002): The perception that taxpayers are treated in a fair way boosts tax morale and tax compliance. Hence, positive/negative reciprocity stabilizes/destabilizes social norms (Fehr/Fischbacher, 2004). These social norms represent crucial pillars of a

functioning fiscal state. This does not only hold with respect to taxes but, similarly, also with respect to welfare benefits: The norm not to cheat on the welfare state can be destabilized by negative reciprocity: the perception of being treated in an unfair way by the government or other citizens erodes welfare state morale (Lindbeck, 1995; Heinemann, 2008; Halla et. al., 2010).

While this literature has convincingly established the link between perceived societal fairness and cooperative behavior in a wide range of social contexts, we know surprisingly little about the determinants of perceived fairness within a society. Here, our study comes in. Our variable of interest is the fairness assessment of inequality in income and wealth. This inequality is one of the factors which, according to the literature cited above, should activate positive or negative reciprocity. Thus, by studying the drivers of social fairness assessment we contribute to a better understanding of why people may differ with respect to their degree of cooperation as workers, taxpayers, welfare benefit recipients and citizens in general.

Given the potentially important role of the fairness assessment of inequality, the economic literature is surprisingly silent on the driving factors behind it.[1] There is a substantial body of literature on the preferences for different social policies aiming at reducing inequality. The empirical studies show that policy preferences are driven by self-interest, fairness preferences and beliefs (e.g., Corneo / Grüner, 2002; Alesina / Angeletos, 2005; Alesina / Giuliano, 2009). Alesina / Angeletos (2005), for example, stress that the belief on the determinants of individual economic success is crucial for redistributive preferences. Hence, voters who – as in the US – assign a large role to individual effort will accept substantial inequality as a result. Kerr (2011) tests to which extent this static link also holds in a dynamic context so that rising inequality would lower the political support for redistribution. The focus of these studies on redistributive preferences is, however, conceptually different from ours. Our interest for the fairness assessment of inequality is related to an earlier stage in the process of forming policy preferences and answers a different question. Fairness assessments refer to the question "Is the current distribution of income and wealth fair?" while redistributive policy preference answer the question "Should the distribution of income and wealth be changed through policy interventions?" Obviously, citizens' redistributive policy preferences are strongly influenced by their fairness assessment. Beyond that, however, redistributive policy preferences also depend on the perception of upward mobility (Benabou / Ok, 2002) or on the assessment on the trade-off between fairness on the one hand and

[1] There is a rich sociological literature on the factors that drive differences in the attitude towards inequality across different cleavages and / or countries (e.g., Svallfors, 1997; Lippl, 2003a,b; Osberg / Smeeding, 2006). Yet, when analyzing the attitude on the individual level, those studies only control for a limited number of demographic characteristics but omit economic beliefs and fairness preferences. Furthermore, those studies do not apply sophisticated econometric methods.

growth or efficiency on the other. Thus, the fairness assessment of inequality is related to but clearly distinct from redistributive preferences.

Our study also differs from Alesina / Angeletos (2005) and a number of other studies who are mainly interested in a country's representative (or median voter) preferences in the context of an international comparison where multiple equilibria with respect to inequality, the extent of redistribution and beliefs exist and can be used to classify countries. In contrast to that, our analysis looks at intra-country heterogeneity and asks why individual assessments differ from the representative voter. This question is important because the level of positive reciprocity with which citizens meet the fiscal state does not depend on the fairness assessment of the representative voter only. It also depends on the degree to which the numerous citizens who are not representative for their country arrive at a positive assessment.

We analyze the individual assessments of inequality using representative survey data for Germany for the years 1991, 2000 and 2004 (German General Social Survey, "ALLBUS"). The empirical results suggest that the assessment is shaped by very different forces ranging from distributive preferences over views on procedural fairness and beliefs to several socio-economic characteristics. Our findings underline that the assessment of inequality does not simply reflect the objective distributive situation but is heavily influenced by the way citizens explain the emergence of this distributive outcome. We also find evidence for a moderate self-serving bias.

The paper is organized as follows. Section 2 briefly reviews the main factors which potentially drive the assessment of inequality. Section 3 describes relevant variables covered by the ALLBUS survey and presents the hypotheses to be tested. The results of our empirical analysis are presented and discussed in section 4 followed by some concluding thoughts in section 5.

2. Factors Driving the Assessment of Inequality – A Brief Review

When assessing the inequality in the society he lives in, an individual uses information available to him to get a picture of the status quo distribution and the degree of inequality that he is asked to assess. Information from his private environment is likely to have a large impact on the picture. At the same time, his picture is driven by the individual sensitivity to inequality. The more visible and severe the disparities in income and living standard transported in his subjective selection of information and the higher his degree of sensitivity, the higher is the degree of observed inequality in his picture of the status quo distribution. Second, the individual has to form a judgment about the degree to which the observed inequality is just. Here, the individual fairness preferences

serve as a yardstick against which he measures the observed inequality. In addition, the individual's beliefs concerning the degree of procedural fairness and the factors driving inequality are important (e.g., Konow, 2003; Alesina / Angeletos, 2005; Faravelli, 2007). Konow (2003) distinguishes between discretionary and exogenous factors as determinants of economic success. Discretionary factors are those for which the agent is accountable while for exogenous factors he is not (e.g., Buchanan, 1986).

The psychological literature suggests that – subconsciously – the fairness assessment process is distorted by a self-serving bias. The essence of the self-serving bias is "to conflate what is fair with what benefits oneself" (Babcock / Loewenstein, 1997, 110). Examples in the literature are related to the fairness of compensation for extra hours worked, voluntary giving to religious communities and the assessment of lawsuits or management compensations (Dahl / Ransom, 1999; Babcock / Loewenstein, 1997). In all these examples, individuals' self-interest is clearly mirrored in their fairness assessment in the sense that, for example, workers who work (no) extra hours regard a high (low) compensation for extra hours as fair. This bias may be indeed self-serving as it reduces cognitive dissonances (or simply a "bad conscience") which result from a possible conflict between self-interest and individual fairness judgment (Konow, 2000) and, thus, promotes happiness and mental health (Taylor / Brown, 1988).

The self-serving bias is likely to affect both steps of the assessment process. First, it may distort the individual's picture of the existing inequality by influencing the selected information and his sensitivity to inequality. This amplifies the perceived level of inequality if individual *i* has a low social status and reduces it for an individual with a high social status (as measured primarily by relative income). Second, the self-serving bias may shape fairness preferences and fairness-related beliefs. Specifically, the self-serving bias causes an individual with high social status (and income) to believe more strongly that discretionary factors shape the income distribution. Similarly, these individuals are more likely to follow a concept of fairness which can justify inequality more easily. The opposite is true for individuals with low social status and income.

3. Data

The German General Social Survey ("ALLBUS") offers a promising starting point to analyze the factors that drive the individual assessment of inequality.[2]

[2] From 1980 to 1986 and in 1991, the ALLBUS program was funded by the German Science Foundation (DFG). For all other surveys, state and federal funding has made available through GESIS (Gesellschaft sozialwissenschaftlicher Infrastruktureinrichtun-

This survey has been conducted biannually between 1980 and 2010 and is representative for the German population. The variables central to our study are not included in every survey. Therefore, we restrict our analysis to the years 1991, 2000 and 2004. We focus on the following survey question as our dependent variable: "All in all, I think the social differences in this country are just". This question comes very close to a general assessment of a country's inequality in income and wealth, allowing both for the inclusion of objective data and the individual evaluation of the given distributive situation.[3]

The participants provide their view on a scale from 1 ("I fully agree") to 4 ("I disagree entirely"). Hence, a larger (lower) value is associated with a less (more) favorable assessment. With respect to the factors driving the assessment, ALLBUS offers information on the demographic, social and economic situation of individuals and households. Additionally, it contains questions concerning their preferences and beliefs on a number of important political and societal issues and, thus, offers proxies for the different types of factors described in section 2. Table 1 contains the description of all variables used in this paper.

Fairness preferences

ALLBUS reports on two questions that provide insights into the respondents' fairness preferences. These questions refer to concepts of distributive justice that judge fairness by the final outcomes. The need principle demands that every member of society, irrespective of his own abilities and initial allocation, is guaranteed sufficient material means for a tolerable living (e.g., Deutsch, 1975). The equity principle demands the ratio of individual wealth or income (output) to individual input (especially effort) to be the same for all

gen). ALLBUS/GGSS is a joint project of the Center for Survey Research and Methodology (ZUMA – Zentrum für Umfragen, Methoden und Analysen e. V., Mannheim) and the Central Archive for Empirical Social Research (ZA – Zentralarchiv für Empirische Sozialforschung, Cologne) in cooperation with the ALLBUS scientific council. Data and documentation are obtainable through the Central Archive for Empirical Social Research (ZA, Cologne). The institutions and persons mentioned above bear no responsibility for the use or interpretation of the data in this publication.

[3] We assume that individuals who reach a negative assessment regard the inequality as too high (rather than too low). This assumption is backed by the fact that the correlation between the assessed fairness of social differences (a higher value of this variable corresponds to a lower assessed justice of social differences) and the individual preference for higher (instead of lower or unchanged) social transfer payments is about 0.32. Thus, individuals who tend to be less content with the justice of the social differences are also more in favour of higher transfer payments (usually most beneficial to low-income recipients). The magnitude of this correlation is also relatively sizable since the coefficient is higher than the correlation between both the equivalent household income (–0.19) and being from East Germany (0.29) and the preference for higher transfer payments.

Table 1

Variable explanations

Variable	Unit	Explanation	Categories	Corresponding ALLBUS question
Dependent variable				
Fairness assessment	Discrete variable	Respondent's answer to the statement "*inequality in Germany is just*".	1: "completely agree" to 4: "completely disagree".	v155
Preferences				
Need	Dummy	*"Decent income even without achievement."*	1, if the respondent approves; 0 otherwise.	v152
Socialism	Dummy	*"Socialism: Good idea, poorly implemented."*	1, if the respondent approves; 0 otherwise.	v109
Influence for citizens	Dummy	*"Political goals: More influence for citizens."*	1, if the respondent ranks it as most/second most important goal; 0 otherwise.	v97
Beliefs				
Industrious	Dummy	*"Prerequisites for social success and upward mobility: Achievement, industriousness."*	1, if the respondent approves; 0 otherwise.	v142
Background	Dummy	*"Prerequisites for social success and upward mobility: Right social background."*	1, if the respondent approves; 0 otherwise.	v145
Democracy	Dummy	*Satisfaction with democracy in the FRG*	1, if the respondent approves; 0 otherwise.	v17
Procedural fairness	Dummy	Interaction term between beliefs in and preferences for procedural fairness.	1, if the respondent prefers and believes in procedural fairness; 0 otherwise.	v17, v97
Self-interest/self-serving bias				
Unemployed	Dummy	Employment status of the respondent.	1, if the respondent is currently unemployed; 0 otherwise.	v461, v462

Continued next page

Table 1 (continued)

Variable	Unit	Explanation	Categories	Corresponding ALLBUS question
Equivalent income	Continuous variable	Monthly net income (in Euro) of the respondent's household adjusted by the number of household member. (Calculation based on the "OECD-modified scale": $\frac{v582}{1+(v983-1)\cdot 0.5+(v983-v995)\cdot 0.3}$)		v582, v983, v995
Further variables				
Female	Dummy	Sex of respondent.	1, if the respondent is female; 0 otherwise.	v434
Education	Dummy	Respondent's general school leaving certificate.	1, if the respondent has a secondary qualification for university entrance; 0 otherwise.	v441
Age	Discrete variable	Age of respondent.	18–97 years.	v432
East	Dummy	Origin of respondent.	1, if the respondent is born in East Germany; 0 otherwise.	v874
Religion	Dummy	Religious denomination of the respondent.	1, if the respondent is a member of a religious community; 0 otherwise.	v435
Unemployment rate	Continuous variable	Unemployment rate of the respondent's federal state (in %). Source: German Statistical Office.		v904

Note: We use the translation proposed by the ALLBUS Codebook 1980–2004 (comp. ALLBUS/GGSS, 2006).

individuals (e.g., Buchanan, 1986; Fong, 2001; Konow, 2003; Faravelli, 2007). As an indicator for the respondents' distributive fairness preferences, we use their agreement to the statement that people should have a "decent income even without achievement". As a robustness check, we also make use of an alternative measure which captures the attitude towards socialism since the idea underlying socialism is strongly connected with equality. Specifically, we expect those participants supporting the following sentence: "Socialism is basically a good idea, it was just put into practice badly" to be in favor of an egalitarian distribution. Both statements capture the relative importance of the need principle versus the equity principle in individual fairness preferences. For both measures, we construct dummy variables (*need* and *socialism*) which equal one if a respondent prefers a distribution according to the need-principle, and zero otherwise. We expect a positive sign for both variables; other things equal, those who prefer the need principle assess a given (unequal) distribution as less just.[4]

Furthermore, ALLBUS entails information on the individual preferences for procedural fairness. According to this concept, the question of whether a certain allocation is considered fair crucially depends on the procedure through which it has been generated. By meeting certain requirements (see Dolan et al., 2007), fair procedures protect individuals against arbitrary decisions and ensure that all relevant information is considered. Beyond that, they increase the acceptance especially among the disadvantaged because they feel treated politely and in a respectful way (e.g., Sondak / Tyler, 2007). We measure procedural fairness preferences using a question on political priorities. People who ranked "more influence for citizens" to be the most or second most important political goal are defined to have a high preference for procedural fairness (i.e., in this case the dummy variable *influence for citizens* equals one and is zero otherwise). We do not expect that the importance assigned to procedural fairness will have a direct impact on the assessment of inequality. However, in combination with an individual's satisfaction with democratic practice it should matter. We will come back to this issue later.

Beliefs

To develop an indicator for the participants' beliefs with respect to the relative influence of discretionary variables on individual allocation, we evaluate their answers to the questions whether individual "achievement, industriousness" or "right social background" (i.e. coming from the right family) are important prerequisites for "social success and upward mobility". We expect that

[4] Since the variable *socialism* might be related to more general values and norms rather than capturing purely distributive preferences, the variable *need* remains our main indicator.

respondents assigning more explanatory power for individual success to the first (second) factor should assess inequality as relatively just (unjust) (e.g., Buchanan, 1986; Fong, 2001, 2007; Faravelli, 2007). We construct the dummy variables *industrious* and *background* equal to one for the answer "(very) important" and zero otherwise and expect a negative (positive) sign for the *industrious* (*background*) dummy. Next, we include the satisfaction with "democracy as practiced in Germany" (*democracy*) because many crucial factors that affect the distribution of income (e.g., tax rates, unemployment benefits and public pensions) are determined politically. Thus, this variable covers the essential procedures relevant for our analysis. We predict that satisfaction with the democratic system should be favorable to a more positive view on inequality. Furthermore, we expect this impact to be particularly strong for those who have a strong preference for citizens' influence. This reasoning leads us to include an interaction between the satisfaction with the democracy and the preference for more influence of citizens (dummy *procedural fairness* equals one if a respondent both prefers more influence for the citizens and believes that it is given and is zero otherwise).

Self-serving bias

We suppose that the judgment of inequality is biased by the individuals' self-interests (see section 2). To test for the relevance of a self-serving bias, we make use of income as our primary indicator. The ALLBUS survey provides information on the net household income and the size as well as the composition of households, which enables us to calculate the household equivalent income based on the OECD-modified scale (*equivalent income*).[5] The self-serving bias theory suggests a positive relationship between the respondent's income and his readiness to accept inequality as just. Similarly, the employment status may produce a self-serving bias. We expect unemployed respondents (dummy *unemployed* equals one if unemployed, and zero otherwise) to have a more critical view on inequality in their country.

Personal characteristics and individual differences in sensitivity towards inequality

In previous studies, a number of individual characteristics are found to determine fairness judgments. In the assessment of inequality, their impact is related to two channels. First, these factors may be correlated with certain preferences, beliefs or determinants of self-interest, respectively self-serving bias. Second,

[5] The scale assigns a weight of 1 to the households head, of 0.5 to each additional household member older than 18 and of 0.3 to each under-aged child.

individual characteristics can cover group-specific differences in the sensitivity to inequality.[6]

The literature reports that women have a stronger preference for income redistribution – be it through government policy or charity (e.g., Corneo/Grüner, 2002; Delaney/O'Toole, 2008; Piper/Schnepf, 2008). This difference may result from a gender gap in income, education or job opportunities and the stronger role of household labor, which promotes a self-serving bias in favor of more equality. In addition, a gender gap is reported for beliefs (e.g., Schlesinger/Heldman, 2001; Fong, 2001), risk-aversion (e.g., Meier-Pesti/Penz, 2008) and in the sensitivity to inequality (e.g., Schlesinger/Heldman, 2001). Thus, women are likely to arrive at a more negative assessment of existing inequality. The dummy variable *female* (equaling one for female and zero for male respondents) captures the gender effect. A positive sign is expected.

Religiosity is a second important personal characteristic. Religious people are more likely to believe that it is one's duty to be industrious in the here and now (e.g., Benabou/Tirole, 2006; Tan, 2006). Combined with the conviction that effort pays, this may lead them to accept social inequality as just. On the other hand, they are likely to exhibit a stronger sensitivity to inequality and/or place stronger emphasis on the need principle (e.g., Tan, 2006). The net effect of religion on the assessment of existing inequalities is, thus, undetermined. The dummy variable *religion* is included to capture the respondent's membership in an institutionalized religious community (equaling one if the respondent is a member and zero otherwise).

Furthermore, age is likely to have an impact on the assessment of inequality. Older people may remember the substantial inequalities before the expansion of the welfare state since the 1970s (Lindbeck, 1995; Heinemann, 2008). These memories may make them see today's situation less critical. The old may also pay less attention to inequality because it does not serve as an indicator for social risks in their own life as it does for the young. This aspect promotes a self-serving bias. Both arguments lead us to postulate a positive impact of age on the assessment of inequality. We introduce the respondent's *age* in the regression.

Education is likely to have an impact on the assessment of inequality (e.g., Lewin-Epstein et al., 2003). It is a useful proxy for a person's permanent income and, thus, relates to a self-serving bias. However, better education may also coincide with more abstract thinking about fairness and may lead to super-

[6] Sensitivity defines the degree to which a certain person becomes aware of existing inequalities. Insensitive persons only become aware of them if they are substantial in size. The more sensitive a person, the lower the threshold the inequality has to exceed in order to become recognized. Higher sensitivity does not necessarily go along with a higher inequality aversion but is a characteristic of the sensual system.

ior knowledge about the existing level of inequality. The overall effect of education is ambiguous. We include the dummy variable *education*, which equals one if the participant has a qualification for university entrance (high-school degree, A-levels), and is zero otherwise.

It is well known from the psychological literature that a person's judgment of his country's situation is strongly influenced by highly salient information, e.g. with respect to neighbors' or friends' situations. This information influences the sensitivity to inequality and drives the perceived level of inequality they have to assess (Fiske / Taylor, 1991; Singer / Fehr, 2005). In addition, local unemployment rates indicate local exposition to economic risk (e.g., Moene / Wallerstein, 2003) and point to possible negative local externalities, such as the prevalence of crime (e.g., Piven / Cloward, 1971), hereby, promoting a possible self-serving bias. The *unemployment rate* in the respondents' resident states is included to proxy the effect of local economic conditions. We expect high regional unemployment rates to lead people to arrive at a more negative assessment of inequality.

Finally, we introduce a dummy variable equal to one for the place of birth being in Eastern Germany to account for the effects of socialization under Communism (Ockenfels / Weimann, 1999).[7] Alesina / Fuchs-Schündeln (2007) show that compared to their Western German countrymen, Eastern Germans have a stronger preference for redistributive policies that cannot fully be explained by self-interest and the simple fact that Eastern Germans are relatively poor. It must be stressed that these known effects are accounted for by the inclusion of fairness preferences into our study design. Beyond that, however, it may well be the case that the experience under a Communist regime has an independent impact on the assessment of inequality, for example by making people highly sensitive to take note of inequality. Therefore, we expect Germans born in the German Democratic Republic to assess the social situation as relatively unfair and predict a positive sign[8].

Table 2 contains the descriptive statistics of our variables. The average ALLBUS respondent tends to assess the social differences as relatively unjust. With respect to the explanatory factors, there exists a considerable variation between the respondents. The need principle (*need*) but also the general idea behind socialism (*socialism*) receive a relatively large support. The satisfaction with

[7] The *east*-dummy is constructed based on information on the federal state where the respondent was born. By using this variable, we restrict our analyses to individuals who had been born in Germany and, thus, exclude foreign-born individuals.

[8] For reasons of robustness, we also use the share of life-time spent under socialist rule as an alternative measure (measured by the age at 1990 divided by the age at the year of observation for all individuals born after 1948; for the others, only the years 1949 – 1990 are included in the enumerator). This measure is highly correlated with the *east*-dummy and shows the same performance. Hereafter, we only report on the latter.

Table 2

Descriptive statistics

Variable	Observations	Mean	Standard deviation	Minimum	Maximum
Dependent Variable					
Fairness assessment	21587	2.8321	0.8944	1	4
Preferences					
Need	15661	0.4558	0.4981	0	1
Socialism	17009	0.5614	0.4962	0	1
Influence for citizens	46953	0.5584	0.4966	0	1
Beliefs					
Industrious	11125	0.9553	0.2066	0	1
Background	10906	0.5963	0.4907	0	1
Democracy	19088	0.7058	0.4557	0	1
Procedural fairness	18744	0.3801	0.4854	0	1
Self-interest/self-serving bias					
Unemployed	47904	0.0509	0.2198	0	1
Equivalent income	22972	1073.415	653.4533	20	26666.67
Further variables					
Female	47947	0.5238	0.4994	0	1
Education	47210	0.2096	0.4070	0	1
Age	47878	46.5997	17.2790	18	97
East	16741	0.4046	0.4908	0	1
Religion	47754	0.7664	0.4231	0	1
Unemployment rate	9808[x]	11.2355	5.0304	3.7	22.1

[x] The summary statistics for the unemployment rate include only observations from the relevant years.

the democratic system in Germany is high (*democracy*), however, less so for those who think that more influence for citizens is particularly important (*procedural fairness*). An overwhelming majority holds the belief that individual industriousness is a necessary prerequisite for success (*industrious*). At the same time, the majority also regards the individual success to be related to the social background (*background*). Additional test (not reported in Table 2) show that the correlation between the explanatory variables is low. Except for the correlation between *east* and *unemployment* (–0.66) and *east* and *religion* (–0.56), the correlation coefficients are well below an absolute value of 0.3.

More importantly, variables of self-interest on the one hand and preferences and beliefs on the other hand are not found to be highly correlated. Thus, the distinction between these categories should be upheld.

4. Econometric Results

We use an ordered probit approach to analyze the determinants of the individual assessment of inequality empirically. The results are summarized in Table 3. Column 1 reports the results of our basic specification including explanatory variables from all categories introduced in section 3. Specification 2 uses the opinion about socialism as a proxy for distributional fairness preferences instead of the variable *need*. In order to focus on the impact of procedural fairness, we add the preferences for fair political processes and interact them with the beliefs concerning the democratic practice (interaction variable *procedural fairness*). The latter are a bottleneck concerning the number of years included in our estimation. Omitting this variable allows us to include observations from 2004 (column 4).[9]

Our first robust result is the highly significant and positive correlation of preferences concerning distributional fairness with the assessment of inequality. While the preferences for procedural fairness prove insignificant, the satisfaction with democracy has the predicted sign and is highly significant in all models. This indicates that individuals are more willing to accept unequal outcomes if these result from a fair (democratic) process. The interaction between procedural preferences and the corresponding beliefs is insignificant. The coefficients of our variables capturing the respondent's beliefs about the driving forces of individual success show the expected signs, though only the industriousness variable is persistently significant. Respondents who are convinced that a person's own industriousness determines his success in life assess the given inequality as less unjust. Believing that the social background determines the individual fortunes is only significant if the satisfaction with democracy is not controlled for (see column 4).

As anticipated, the self-serving bias captured by the household equivalent income influences the assessment. Individuals with a higher equivalent income are more likely to accept inequality. The impact of the employment status is only weakly significant and positive, while the local rate of unemployment in the respondent's resident state shows a strong positive impact. This indicates that unemployed respondents and those living in regions with high unemployment risk are less content with the given distribution. Among the individual characteristics, the respondent's age, gender, religion, and origin is clearly re-

[9] Year dummies are included in all set-ups and the likelihood ratio test justifies their introduction.

Table 3

Determinants of the individual fairness assessments (ordered probit estimations)

	(1)		(2)		(3)		(4)	
Variable	**Coefficient**	**Marginal effect[x]**	**Coefficient**	**Marginal effect**	**Coefficient**	**Marginal effect**	**Coefficient**	**Marginal effect**
Preferences								
Need	0.2460 (5.38)***	0.0773			0.2393 (5.19)***	0.0747	0.2051 (5.75)***	0.0660
Socialism			0.2726 (5.52)***	0.0841				
Influence for citizens					0.1322 (1.36)	0.0406		
Beliefs								
Industrious	–0.2039 (–1.85)*	–0.0677	–0.2333 (–2.08)**	–0.0785	–0.1856 (–1.67)*	–0.0610	–0.3041 (–3.68)***	–0.1053
Background	0.0570 (1.23)	0.0178	0.0631 (1.34)	0.0198	0.0676 (1.45)	0.0210	0.0893 (2.48)**	0.0284
Democracy	–0.5086 (–9.74)***	–0.1690	–0.4965 (–9.30)***	–0.1659	–0.6075 (–6.53)***	–0.2027		
Procedural fairness					0.1680 (1.52)	0.0528		
Self-interest/self-serving bias								
Unemployed	0.1783 (1.80)*	0.0587	0.1751 (1.75)*	0.0580	0.1727 (1.73)*	0.0565	0.2113 (2.86)***	0.0715
Equivalent income[#]	–0.0001 (–3.78)***	–0.00004 [–0.0261]	–0.0001 (–4.25)***	–0.00004 [–0.0261]	–0.0001 (–3.90)***	–0.00004 [–0.0261]	–0.0002 (–6.83)***	–0.00005 [–0.0327]
Further variables								
Female	0.1452 (3.22)***	0.0454	0.1650 (3.60)***	0.0520	0.1481 (3.25)***	0.0460	0.1821 (5.24)***	0.0582

Continued next page

Table 3 (continued)

	(1)		(2)		(3)		(4)	
Variable	**Coefficient**	**Marginal effect[x]**	**Coefficient**	**Marginal effect**	**Coefficient**	**Marginal effect**	**Coefficient**	**Marginal effect**
Education	0.0141 (0.25)	0.0044	0.0009 (0.02)	0.0003	–0.0252 (–0.44)	–0.0078	–0.0758 (–1.73)*	–0.0239
Age[#]	–0.0049 (–3.39)***	–0.0015 [–0.0259]	–0.0051 (–3.46)***	–0.0016 [–0.0277]	–0.0040 (–2.72)***	–0.0012 [–0.0207]	–0.0045 (–4.12)***	–0.0014 [–0.0242]
East	0.4049 (5.72)***	0.1261	0.3725 (5.18)***	0.1168	0.3986 (5.56)***	0.1234	0.3315 (5.71)***	0.1065
Religion	–0.2906 (–5.07)***	–0.0927	–0.2474 (–4.26)***	–0.0792	–0.2675 (–4.60)***	–0.0846	–0.3017 (–6.85)***	–0.0985
Unemployment rate[#]	0.0223 (2.69)***	0.0070 [0.0352]	0.0183 (2.17)**	0.0058 [0.0292]	0.0244 (2.90)***	0.0076 [0.0382]	0.0197 (3.29)***	0.0063 [0.0317]
Year dummies								
2000	–0.2162 (–3.46)***	–0.0669	–0.2026 (–3.18)***	–0.0632	–0.2341 (–3.71)***	–0.0719	–0.2085 (–3.76)***	–0.0644
2004							0.7800 (1.41)	0.0258
Regression diagnostic								
p-value joint significance of variables	0.0000		0.0000		0.0000		0.0000	
Observations	2438		2350		2399		4072	
Pseudo-R^2	0.0978		0.0985		0.1031		0.0706	
p-value likelihood-ratio test for joint significance of the year-dummies	0.0005		0.0015		0.0002		0.0000	

[x] The marginal effects are reported for the most negative answer category. [#]The effect of an increase by one standard deviation is presented in the square brackets. */**/*** significant at 10/5/1 percent level.

lated to the fairness assessment. Being old and religious is connected with a higher acceptance of inequality. Contrary to that, women and individuals born in the former GDR are found to be less content with the given distribution.

In sum, we show that different categories of factors are related to the judgment of social fairness. Comparing the marginal effects reported in table 3, we find an outstanding impact of the satisfaction with the democratic system. The probability to assess the inequality in Germany as entirely unjust declines by more than 16 percentage points if the respondent is content with the democratic practice. The preference for distributional fairness is also a strong determinant. Our results indicate that the probability of assessing the given distribution as entirely unjust rises by 7.1 percentage points if one is in favor of the need-principle (8.41 if we use the variable *socialism*). In addition, the belief concerning the impact of industriousness on outcomes is important. The probability of assessing the inequality as entirely unjust decreases by approximately 7 percentage points if one believes that industriousness has a strong impact on outcomes. The assessment of inequality is also significantly driven by self-interests and the resulting self-serving bias; however, only to a modest extent. Especially the contribution of income is small: The probability to assess inequality as entirely unjust declines by only 2.6 percentage points if a respondent earns 653 Euro (one standard deviation, see table 2) more, while it is 6 percentage points higher if the respondent is currently unemployed. The impact of the unemployment rate in the respondent's neighborhood is negligible. Among the individual characteristics of the respondent, we find a strong impact of religion: Religiosity is connected with an 8.7 percentage point lower probability of being entirely discontent with the existing inequality. The gender-gap persists and being female increases the probability of assessing the distribution as entirely unjust by 5 percentage points. Since we control for beliefs, preferences as well as self-interest and several socio-economic factors, this result indicates that women tend to have a higher sensitivity for inequality. Recognizing the specific situation in Germany, the differences in fairness assessments between those respondents socialized in East and West Germany are of special interest. The *east*-dummy provides strong support for our hypothesis that East Germans are highly sensitive to inequality. The probability of assessing the differences as totally unjust is about 12 percentage points higher for those born under the communist regime.

5. Conclusion

The functioning of the welfare and tax state depends on cooperative citizens who are ready to respect the state's written and unwritten rules. Citizens tend to behave less cooperatively if they perceive a lack of fairness. A rich literature has established that this kind of reciprocity characterizes the readiness to con-

tribute to public goods or to pay taxes, for example. By contrast, the empirical literature so far has little to say about the factors that drive the citizens' assessment of societal fairness. While redistributive preferences have been explored in a growing literature, the fairness assessment of inequality as a distinct concept has so far largely been neglected. In an empirical analysis based on the ALLBUS survey for 1991, 2000 and 2004, we find fairness preferences, beliefs and a self-serving bias to be important for the fairness assessment of social differences. Thus, our results reveal that the assessment of inequality is not solely a function of the objective distributive situation but is heavily influenced by the way citizens explain the emergence of this distributive outcome. In addition, several personal characteristics matter. As for distributive preferences (Alesina/Fuchs-Schündeln, 2007), we find a distinct difference in fairness judgments between East and West German citizens even ten years after unification. A self-serving bias exists with higher income being linked to a more favorable fairness assessment. However, we do not find this bias to blur the economic distinction between preferences, beliefs and self-interest (respectively self-serving bias). The strong impact of the beliefs concerning procedural fairness is surprising for economists who are used to judge allocations by their outcomes but corresponds to the experimental literature which stresses the role of perceived intentions (Falk/Fischbacher, 2000) and procedures (Anand, 2001).

Our insights are of political relevance: If inequality in a society is perceived as increasingly unfair, this country's taxpayers, welfare recipients and voters must be expected to act in a less cooperative way. By increasing our knowledge about the factors that drive the assessment of inequality, research in this field can improve our understanding of the deeper reasons, e.g. for a country's poor level of tax compliance, its inability to embark on necessary reforms or for wide-spread cheating on welfare state benefits. Based on this understanding, it may be necessary to modify certain policies or reform concepts. In particular, economists might want to take a closer look at the procedural aspects of different policies and reform proposals. Our results stress that, beyond objective inequalities, perceived deficiencies of democratic procedures are important for negative fairness judgments and, hence, a possible lack of citizens' cooperation.

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