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Principles of the just distribution of benefits and burdens: The "basic social justice orientations" scale for measuring order-related social justice attitudes

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# **Principles of the Just Distribution of Benefits and Burdens: The “Basic Social Justice Orientations” Scale for Measuring Order-Related Social Justice Attitudes**

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## **Abstract**

The paper introduces a short scale for measuring attitudes to four fundamental principles of the just distribution of benefits and burdens in a society. The Basic Social Justice Orientations (BSJO) scale is an eight-item scale that measures agreement with the equality, equity, need, and entitlement principle. In contrast to comparable other scales that have been used in justice research in the past, the BSJO scale is consistent with the current state of empirical justice research and allows for the study of the constructs distinguished by studies in that area and, more specifically, in the context of population surveys and with respect to societal distribution conflicts. The paper reports the methodological aspects of the construction and use of the scale in population surveys, as well as results concerning reliability and validity. The study uses data from three general social surveys that have been conducted in Germany: LINOS-1, SOEP Innovation Sample 2012, and ALLBUS 2014. The analysis of these three data sets confirms the assumed four-factorial structure of the justice dimensions, and the construct validation supports the hypothesized relationships between the dimensions of the BSJO scale and socio-structural characteristics, political attitudes, and other justice related attitudes.

## **Keywords**

Social justice, justice attitudes, distributive justice, justice ideologies, attitude measurement, survey research, equity, equality, entitlement, need

## 1 Introduction

The perception of social inequalities and the normative expectations people have regarding the distribution of benefits and burdens in a society has been one of the key components of nearly all major national and international survey programs in empirical social research since the 1970s. Whereas in the early days, the primary purpose was to examine the distribution preferences with respect to equality and inequality, in the 1990s, a more differentiated approach began to develop that was inspired by the advances in psychological and social-psychological justice research (see Liebig and Sauer 2016). Starting in the mid-1970s, psychologists began to understand that individuals use a small, limited set of fundamental distribution rules when distributing and evaluating the allocation of benefits and burdens. In contrast to equity theory, which had been the predominant theory until then and which is based on the assumption that justice is assessed solely on the basis of the principle of proportionality, the new “multi-principle approach” emphasized the important role of the principles of equality and need (Deutsch 1975). This set of three fundamental principles of distributive justice—equity, equality, and need—was later extended to also include a fourth principle, namely the principle of entitlement, according to which the allocation and distribution of benefits and burdens are considered to be just if the benefits and burdens in question are allocated and distributed on the basis of ascribed or acquired status characteristics (Miller 1979 1999). For a long time, these four fundamental principles of distributive justice were only used to study justice attitudes and justice behavior within social aggregations below the societal level (e.g., dyads, groups, organizations) (Gollwitzer and van Prooijen 2016). In contrast, the Basis Social Justice Orientations (BSJO) Scale presented in this paper applies these principles to examine the normative attitudes to the resolution of societal distribution problems. In line with the distinction first proposed by Wegener (1992) and by Liebig and Sauer (2016), we will regard these attitudes as *order-related justice attitudes*, because these attitudes relate to the rules or norms that guide allocation and distribution. Order-related justice attitudes are distinct from procedure-related and outcome-related justice attitudes. *Procedure-related justice attitudes* are preferences concerning those decision-making procedures that are used to ensure a just allocation and distribution (e.g., lotteries, majority decisions). *Outcome-related justice attitudes*, by contrast, reflect assessments of specific results of allocation and distribution (e.g., assessments of what amount of money might constitute a just income).

This paper introduces the BSJO scale and describes how it can be used to measure order-related justice attitudes. The BSJO scale captures justice attitudes by distinguishing four dimensions: equality, need, equity, and entitlement. One reason for developing this scale was to provide sociologists focusing on questions of social justice with an instrument that would be directly compatible with previous justice research and would reflect the current state of theory building and the most recent empirically based insights into the structure of individual justice attitudes. The new scale has made it possible to overcome the conceptual weaknesses of previously developed instruments of survey-based justice research. The aim was to develop a short, eight-item scale that would allow for easy and time-efficient application in large-scale population surveys.

The paper is structured as follows: Section 2 details how survey research has been measuring order-related justice attitudes in the past and the problems associated with the methods used in such research. Section 3 discusses the theoretical foundations of the BSJO scale and how it is supposed to overcome the problems identified in Section 2. Section 4 introduces the three data sets that are used to validate the BSJO scale—ALLBUS 2014 (GESIS 2015a); SOEP-IS 2012 (Richter and Schupp 2012); LINOS-1 (Sauer and Valet 2014)—and the different versions of the scale that were used in the generation of each of those data sets. Section 5 examines the quality of the scale on the basis of the criteria commonly used in the research (Rammstedt et al. 2015). The paper closes with a discussion.

## 2 The Measurement of Order-Related Justice Attitudes in Population Surveys

Normative ideas as to how benefits and burdens should be distributed in a society have been an integral aspect of every large-scale population survey that has been conducted in the social sciences at regular intervals since the early 1970s (e.g., GSS, ALLBUS, ISSP). However, most of these surveys lacked a clear theoretical or conceptual framework, and their purpose was to measure justice preferences along the axes equality vs. inequality. These measurements did not systematically draw from the theoretical concepts that had been developed in psychological justice research by that time or from the then current debates in political philosophy. One of the results was that the questions used in those surveys were very vague and unspecific and did not have any appropriate theoretical foundation. Wegener und Liebig (1995) sought to address this by proposing a instrument for measuring justice attitudes that not only was more differentiated than those that had been used previously but that also had a solid foundation in theory, namely in the cultural anthropologist Mary Douglas' grid-group theory (Douglas 1982). Based on that theory Wegener and Liebig (1995) distinguished four "ways of thinking about justice" or "justice ideologies": ascriptivism, egalitarianism, individualism, and fatalism, each of which relates to two structural dimensions of social life: membership in social groups (group) and restrictions on individual freedom of choice imposed by social regulations (grid). The authors detailed these four justice ideologies as follows: Ascriptivists,

"first, will have a vested interest in keeping the responsibility for prevailing social inequalities impersonal. They maintain that the factual distribution of privileges and goods, although in fact ascribed, is natural and self-evident and therefore good. We call this type of justice ideology *ascriptivism*. Enclavists, on the other hand, appeal to authority. They hold the state ultimately responsible for the unjust distribution of wealth. Hence, the redistribution of resources that aim to fulfill the egalitarian wish for maximum equality should, in their view, also be the responsibility of the state. This is therefore the justice ideology of *egalitarianism*. Individualists, in contrast, hold that only achievers are rewarded with success and that a system of free competition is fair and functional; they support *individualism* as justice ideology. This is in direct contrast to the point of view of the isolates who blame the "system" for his or her unfortunate situation. Feeling at the mercy of a "system" that denies them justice they tend to accept their situation *fatalistically*." (Wegener and Liebig 2000: 184f.).

**Table 1. Operationalization of the four justice ideologies**

<b>Ideology</b>	<b>Item text</b>
Introductory text	
<b>Egalitarianism/statism</b> I will now read out some statements that have been made about the role of government in [country]. Using one of the phrases on this card, please tell me how much you agree or disagree with each statement.	The government should guarantee everyone a minimum standard of living.  The government should provide a job for everyone who wants one.
<b>Individualism</b> Now some questions about incomes in ... (country). For each statement I read, tell me to what extent you agree or disagree with each, using the phrases on this card.	There is an incentive for individual effort only if differences in income are large enough.  It is all right if businessmen make good profits because everyone benefits in the end.
<b>Fatalism</b> Here are some more statements that are sometimes made about what is just and unjust in ... (country). Using the same card tell me how much you agree or disagree with each.	There is no point arguing about social justice since it is impossible to change things.  The way things are these days, it is hard to know what is just anymore.
<b>Ascriptivism</b> I will read out some statements about wealth and income. For each statement please tell me how much you agree with each, using a phrase from this card.	People are entitled to keep what they have earned, even if this means some people will be wealthier than others.  People are entitled to pass on their wealth to their children.

*Notes:* 5-point scale for all items with the following categories: 1 = “Strongly agree”; 2 = “Somewhat agree”; 3 = “Neither agree nor disagree”; 4 = “Somewhat disagree”; 5 = “Strongly disagree.”

*Source:* Stark et al. (2000).

The measurement of these four justice ideologies has not been based on a specifically developed scale; instead, it relied on eight items from the ISSP module on social inequality (1987) that had already been in use. The items were originally embedded in different item batteries with different introductory questions. The selected items were used and validated in the course of several survey waves of the International Social Justice Project (Stark, Liebig, and Wegener 2000). Table 1 lists the introductory texts, the item texts, and the response scales used in those surveys.

The justice ideologies derived from Douglas’ cultural theory represent a major step toward the measurement of order-related justice attitudes for three reasons. First, the measurement is based on a clear theoretical conceptualization that not only defines the scope of order-related justice attitudes but that also formulates hypotheses regarding the (socio-structural) causes of varying justice attitudes (Liebig and Schlothfeldt 2002). Second, the justice ideologies take into consideration the fact that there are other principles of allocation besides the equity and equality principle that are regarded as legitimate or just. Third, the scale has certain validity as it correlates and predicts other justice related attitudes and behaviors.<sup>1</sup>

However, the concept of justice ideologies and their measurement have five major shortcomings:

- (1) The items used to measure preference for a distribution principle (statism/egalitarianism: equality; individualism: equity; ascriptivism: entitlement) are not one-dimensional: the dimension of a preferred principle is connected with a dimension that is related to the

<sup>1</sup> See the extensive body of literature provided by the German workgroup of the International Social Justice Project at <https://www.sowi.hu-berlin.de/de/lehrebereiche/empisoz/forschung/archiv/isjp>.

institution that is responsible for the distribution in question. It is generally assumed that people who lean toward statism prefer a redistributing state, whereas individualistically inclined people prefer distribution by the market. No such equivalent exists for ascriptivism in the respective items. Due to this confounding of distribution principle and institutions an item might measure a low value of support for a justice principle, despite the fact that this principle is strongly supported by a respondent—the reason for that may be that the distributing institution is disapproved by the respondent.

- (2) From the perspective of social psychological research fatalism is a dimension that cannot be derived logically and therefore does not belong to the set of fundamental world views that are the subject of justice research (Deutsch 1975, 1985; Miller 1999; Konow 2003).
- (3) The four justice ideologies cannot be used to measure preferences related to the need principle as a separate principle. The different applications of the concept show that the equality principle and the need principle are confounded in the “egalitarianism/statism” ideology. As a result, there are two rule preferences that are regarded as distinct in justice and welfare state research and that cannot be measured independently of each other with the justice ideology scale.
- (4) The individual items listed in Stark et al. (2000) do not clearly and unambiguously relate to societal distribution problems. In addition, these items do not in all cases include the stimulus “just”; instead, this stimulus is used only in those items that measure the two ideologies of fatalism and ascriptivism. Some of the items also do not include any explicit stimulus that would indicate that what is concerned are questions related to the distribution of benefits and burdens within society rather than within partnerships, families, groups, or organizations. Thus, it remains unclear whether the respondents are actually aware that they are being asked to state their preferences concerning distributive *justice in society* (see Liebig 2001).
- (5) The individual items of the scale are not measured together as parts of a single item battery, but instead are measured as parts of several different item batteries, each of which involved a different introductory text (ISJP 1991, 1996, 2000, 2006). What makes this issue even more difficult is that these different item batteries were not included in successive order in the questionnaire but were placed in different parts. One consequence of this is that the use of the scale—resp. the related items—is less time-efficient, as different introductory texts have to be used for each item battery. Another methodological problem is that the placement of the different items at different points throughout the questionnaire may lead to order and context effects.

### 3 Conceptualization of the Scale

#### 3.1 Theoretical Background

Given the above limitations, it was considered necessary to develop an instrument that would (1) measure order-related justice attitudes on the basis of a differentiated set of dimensions; (2) be more compatible with previous normative and empirical justice as well as welfare state research; (3) clearly relate to societal distribution problems and take into consideration those central principles of distribution that are institutionalized in the welfare state security system; (4) uses a clear stimulus related to justice and fairness, and (5) ensure time-efficient application when used in large-scale population surveys.

The BSJO scale was developed to meet these requirements. It is a scale that measures order-related justice attitudes in relation to a preference for any one of the four principles of distribution that are distinguished in justice research (Deutsch 1975; Konow 2003; Gollwitzer and van Prooijen 2016; Liebig and Sauer 2016):

- *Equality*: According to the equality principle, the allocation and distribution of benefits and



burdens is just if everyone is allocated the same share.

- *Equity*: According to the equity principle the distribution of benefits and burdens is just if the benefits and burdens in question are allocated according to individuals' current individual contributions and efforts.
- *Need*: According to the need principle, benefits are allocated according to people's individual needs.
- *Entitlement*: According to the entitlement principle, benefits and burdens should be allocated on the basis of specific entitlements that are themselves based on ascriptive characteristics (e.g., social origin, sex) or on status characteristics that have been acquired in the past (e.g. occupational status). Unlike in the case of the equity principle, benefits are not allocated according to individuals' current contributions or efforts.

The BSJO scale overcomes the imprecision problem that results from the justice ideologies. It measures equality and need as two distinct, independent dimensions without also measuring the institution or entity responsible for allocation or distribution. The latter aspect would be a subject of research on procedure-related justice attitudes, because this area of research focuses on the procedures of allocation and distribution and on the institutions and entities that are entrusted with those decisions (Liebig and Sauer 2016). In addition, to different extents and in different combinations, each of the four distribution principles can be identified as guiding norms for allocating and distributing goods and burdens within different societal institutions (Nullmeier and Vobruba 1995), meaning that the BSJO scale refers to a set of norms or principle that can be identified in the basic institutional structure of modern societies independently from attitude research.

### 3.2 Development of the Instrument

The BSJO scale was developed to create and provide a valid instrument for measuring the four order-related justice attitudes—equality, equity, need, and entitlement—that would take the form of a short, eight-item scale for time-efficient use in large-scale population surveys. The instrument was not developed with any specific target population in mind, but instead was developed in a way that would ensure that it can be used in general population surveys and that it is easy to understand and unambiguous for everyone regardless of their individual socio-structural characteristics. The tool was developed in German and thus far has been used only in German-speaking contexts (see Appendix A for the German version of the scale).

In order to appropriately define the four dimensions, in the first step, three items were formulated for each of the dimensions. This was done by drawing on experience gained during previous studies and item testings (see Jäckle 2002). For example, Item B is identical with an item that was measured by the International Social Justice Project (ISJP) in 2006 (Legewie et al. 2007), and the wording of Item F is based on that of an item used in the same survey (Gerlitz, Mühleck, and Scheller 2007: 23). All other items were specifically developed for the BSJO scale.

**Table 2.** BSJO scale for measuring order-related justice attitudes

Justice principle	Item	Item text
Equality	C	It is just if all people have the same living conditions.
	K	It is just if income and wealth are equally distributed among the members of our society.
	G	<i>A society is just if there are only minor income disparities.</i>
Need	E	A society is just if it takes care of those who are poor and needy.
	J	It is just if people taking care of their children or their dependent relatives receive special support and benefits.
	A	<i>A society is just if all people have sufficient nutrition, shelter, clothing as well as access to education and medical care.</i>
Equity	B	It is just if hard working people earn more than others.
	I	It is just if every person receives only that which has been acquired through their own efforts.
	H	<i>A society is just if differences in income and assets reflect performance differences between people.</i>
Entitlement	D	It is just if members of respectable families have certain advantages in their lives.
	L	It is fair if people on a higher level of society have better living conditions than those on the lower level.
	F	<i>It is just if people who have achieved good reputation and wealth profit from this later in life.</i>

Notes: Items in italics are items that are not included in the short version of the BSJO scale with eight items.

Source: Question 2 in the LINOS-1 questionnaire (see Sauer et al. 2014: 142).

Each item of the BSJO scale was subjected to several pretests before being used in three general population surveys: LINOS-1, SOEP-IS 2012, and ALLBUS 2014. Following the LINOS-1 pretest, Item G was reworded slightly for clarity.<sup>2</sup> The pretest for the main survey of ALLBUS 2014 involved the testing of eight of the original twelve items. Following this pretest, Item B was reworded (ALLBUS committee meeting on November 19, 2013; on the wording of Item B, see Section 4.3.2). Following the SOEP-IS 2012 pretest, no modifications were made to the tested survey tool (see Section 4.2.2).

Thus, the short scale was constructed on the starting basis of the twelve items in the LINOS-1 data set, with three items for each dimension (see Table 2; see also Sauer et al. 2014: 142). Because the short BSJO scale was to include only two items for each dimension—that is, a total of eight items—the number of items had to be reduced further. The criterion used for item selection was factorial validity (see Section 5.3.1).

### 3.3 Differences Between the BSJO Scale and Other Constructs

Measurement by means of the BSJO scale differs from measurement by means of the justice ideologies in several ways (see Wegener and Liebig 1995; Stark et al. 2000). Both the BSJO scale and the justice ideologies are used to measure preferences for specific principles of distribution. For

<sup>2</sup> Pretest wording of Item G (LINOS-1): „Eine Gesellschaft ist gerecht, wenn Einkommensunterschiede gering sind.“

example, the purpose of both the “equality” dimension of the BSJO scale and the “egalitarianism/statism” dimension of the justice ideologies is to measure a preference for equality (see Table 3). However, unlike the justice ideologies, the BSJO scale does not consider the institution or entity responsible for the distribution (egalitarianism/statism: the state; individualism: the market). Thus, the BSJO items are formulated one-dimensional and there is no confounding of principles and institutions. In addition, the BSJO scale includes the “need” dimension, which is especially relevant to questions of social policy, whereas the measurement of justice ideologies does not consider this dimension.

**Table 3. Distribution principles measured by the justice ideologies and the BSJO scale**

Distribution principle	Dimensions	
	Justice ideology	BSJO scale
Equality	Egalitarianism/statism	Equality
Equity	Individualism	Equity
Entitlement	Ascriptivism	Entitlement
Need	—	Need

## 4 Data Sets and Instrument

The BSJO scale was implemented in three large-scale surveys, the LINOS-1 survey, the SOEP-IS 2012, and the ALLBUS 2014. Subsections 4.1 through 4.3 each present one of the three data sets, and Subsection 4.4 introduces the data set that was pooled from these three data sets. In addition, information is provided on the operationalization of the instrument and specific peculiarities of each survey are addressed. Descriptive statistics of single items and the dimensions of the BSJO scale by data set are provided in Appendix C; reference values of the BSJO scale by socio-demographic characteristics and data set are provided in Appendix D.

### 4.1 LINOS-1

#### 4.1.1 Data

The BSJO scale was developed as part of the first wave of the long-term panel “**Legitimation of Inequality Over the Life Span**” (LINOS-1) of Subproject A6 of the Collective Research Center (CRC) 882 (Sauer and Valet 2014; Valet et al. 2014). The data set<sup>3</sup> is the result of a survey with about 4,700 respondents that was conducted in Germany in the winter of 2012/13 (Sauer et al. 2014). The population consists of respondents who, on December 31, 2011, were subject to social security contributions and who were between 19 and 59 years of age. The sample was drawn from a data file provided by the Federal Employment Agency (*Bundesagentur für Arbeit*, BA). In view of the specific focus of the research project, some groups were oversampled to ensure sufficient sample sizes for these groups in the analyses. As a result, younger respondents and respondents with shorter job tenure are overrepresented in the LINOS-1 sample.<sup>4</sup> LINOS-1 is a multi-mode survey that involves paper-and-pencil interviewing (PAPI), computer-assisted web interviewing (CAWI), and computer-assisted personal interviewing (CAPI). Sampling depended on the survey mode used in each case. The PAPI/CAWI sample is a nationwide random sample. Sampling for

<sup>3</sup> [doi:10.4119/unibi/sfb882.2014.9](https://doi.org/10.4119/unibi/sfb882.2014.9)

<sup>4</sup> For analyses weights are available that account for these design effects.

CAPI involved a two-step selection process. The first step was to draw 60 sampling points randomly from among 156 BA districts. From these sampling points, a random sample of employees was then drawn in proportion to the number of employees in each sample point (Sauer and Valet 2014).

#### 4.1.2 Instrument

In LINOS-1, the BSJO scale consisted of a twelve-item battery. The introductory text read: “There are different ideas about how a society can be fair and just. What is your personal opinion about this?” (German: „Es gibt unterschiedliche Vorstellungen darüber, wann eine Gesellschaft gerecht ist. Wie ist Ihre persönliche Meinung dazu?“). The respondents were then asked to state to what extent they agreed or disagreed with each of the items.<sup>5</sup> The five-point Likert scale, which is based on the scale of justice ideologies in the ISJP (see Stark et al. 2000), distinguishes the following answer categories: “strongly agree,” “somewhat agree,” “neither agree nor disagree,” “somewhat disagree,” and “strongly disagree” (see Sauer and Valet 2014: 25ff.). The response scale was inverted for all calculations presented here, with the result that higher values reflect a greater degree of agreement: (1) “strongly disagree,” (5) “strongly agree.”

Table 2 provides an overview of the wordings of the twelve items and of how they relate to each dimension (i.e., the four justice principles). The items were presented in alphabetical order to the respondents, meaning that Item A was presented first and Item L was presented last. The German version of the instrument used in LINOS-1 is provided in Appendix A.

## 4.2 SOEP-IS 2012

### 4.2.1 Data

The Innovation Sample of the Socio-Economic Panel (SOEP-IS) is an independent, household-based longitudinal survey that is representative of private households in Germany. It supplements the main SOEP survey in that it provides a respondent infrastructure that can be used to test innovative survey modules and field processes.

The SOEP-IS 2012 (Richter and Schupp 2012; SOEP 2014)<sup>6</sup> is based on three samples: Samples E and I from the main SOEP survey and an supplementary sample, which was included in 2012 in order to increase the sample size for analysis. The sample design encompasses random-route sampling in combination with separate address random sampling. The population consists of members of the selected private households in Germany who were at least 16 years of age. Seven innovation modules were included in the supplementary sample in 2012 with four splits, meaning that each respondent responded only to some instead of all modules. As a result, the innovation module that includes the BSJO scale was presented only for respondents of the supplementary sample of 2012, and only to a proportion of the sample, which reduces the sample size even further. The interviews were conducted using CAPI (see SOEP 2014).

### 4.2.2 Instrument

As in the case of LINOS-1, the BSJO scale used for SOEP-IS 2012 consisted of twelve items, which were presented in the same order in which they were presented in LINOS-1. To ensure consistency among SOEP-IS surveys, the response scale is different from that used in LINOS-1 and

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<sup>5</sup> Instructions for completing the questionnaire varied depending on the mode.

<sup>6</sup> The data for 2012 were taken from DIW (2015), a more recent version of the SOEP-IS 2013 data set.

ALLBUS 2014, in that it is a partially verbalized seven-point scale ranging from (1) “do not agree at all” to (7) “agree completely”. Thus, higher values already reflect a greater degree of agreement, which made inverting the scale for the analyses unnecessary. The introductory text for the item battery read (modifications are indicated in italics): “There are different views when *our* society is just. I am now going to read out *a series of statements to you. In each case, please tell me your personal opinion.*” (German: „Es gibt unterschiedliche Vorstellungen darüber, wann *unsere* Gesellschaft gerecht ist. Ich lese *Ihnen im Folgenden einige Aussagen vor. Sagen Sie mir bitte jeweils, wie Ihre persönliche Meinung dazu ist.*“) The differences in the wording of some of the items were as follows (modifications are indicated in italics):

- Item B (equity): “It is just *that* hard working people earn more than others.” (German: „Es ist gerecht, *dass* Personen, die hart arbeiten, mehr verdienen als andere.“)
- Item F (entitlement): “It is just *that* people who have achieved good reputation and wealth profit from this later in life.” (German: „Es ist gerecht, *dass* Personen, die es im Laufe ihres Lebens zu Ansehen und Wohlstand gebracht haben, auch im Alter davon profitieren.“)
- Item G (equality): “A society is just if there are only minor income disparities [...].” (German: „Eine Gesellschaft ist gerecht, wenn Einkommensunterschiede [...] gering sind.“)

### 4.3 ALLBUS 2014

#### 4.3.1 Data

The BSJO short scale was used in the 2014 German General Social Survey (**Allgemeine Bevölkerungsumfrage der Sozialwissenschaften**, ALLBUS 2014) (see GESIS 2015a, ZA Study No. 5240). The population of the ALLBUS consists of those members of the population of Germany (Germans and foreigners) who were living in private households at the time of the survey and who were born before 1996. Two-step, disproportionately stratified random sampling was used. In the first step, communities in East and West Germany were drawn with a probability in proportion to the size of their adult population. In the second step, respondents were drawn randomly from among the residents included in the resident registers (see GESIS 2015b: xv). The standardized interviews involved the use of CAPI. The resulting data set contains information of about 3,500 respondents. However, because a split-ballot design was used, the BSJO scale was presented only in half of the cases.

#### 4.3.2 Instrument

The BSJO scale used in ALLBUS 2014 consisted of eight items. The order in which the items were presented remained the same like in LINOS-1, except that the Items B, F, G, and K were not used. The response scale and the introductory texts for the item battery were the same as those used for LINOS-1. The wording of some items was slightly different from that used in LINOS-1 (modifications are indicated in italics):

- Item B (equity): “It is just if people, who *contribute much at work*, earn more than others.” (German: „Es ist gerecht, wenn Personen, die *im Beruf viel leisten*, mehr verdienen als andere.“)
- Item K (equality): “It is just if income and wealth *are* equally distributed among the members of our society.” (German: „Es ist gerecht, wenn Einkommen und Vermögen in unserer Gesellschaft an alle Personen gleich verteilt *sind*.“)

#### 4.4 Pooled Data Set

The three data sets—LINOS-1, SOEP-IS 2012, ALLBUS 2014—were pooled to explore potential method effects between the data sets in the quality of the BSJO scale.

To ensure comparability of the values of the BSJO scale across the data sets the scales for LINOS-1 and ALLBUS 2014 were inverted, with the result that higher values now reflect a greater degree of agreement (in the case of SOEP-IS 2012, this was not necessary owing to the coding used in that survey). The BSJO scale used in the SOEP-IS 2012 is a 7-point scale instead of a 5-point scale. For this reason, for all data sets the scale was z-standardized in all those cases in which factor scores were used for calculations. Detailed information on the data sets and on the operationalization of the BSJO scale for each data set is provided in the previous sections.

### 5 Quality of the BSJO Scale

#### 5.1 Objectivity

In each case, the BSJO scale was administered under standardized conditions, which is taken as an indication of *implementation objectivity*. In addition, only closed-ended questions were used, which is taken as an indication of *evaluation objectivity*, and the fact that descriptions of each dimension of the scale were provided, along with reference values in the form of means and standard deviations, is taken as an indication that *interpretation objectivity* was achieved to a large extent (see Rammstedt 2010).

#### 5.2 Reliability

The reliability, or measuring accuracy, of a scale indicates the accuracy with which it measures a certain personality trait or a behavioral characteristic (see Lienert and Raatz 1998: 9). We measured the reliability with Cronbach's  $\alpha$ , which is commonly used to assess internal consistency (see Cronbach 1951). The value of  $\alpha$  depends on a number of factors, including the number of items used (Rammstedt 2010). For this reason, if scales or subscales are used that consist of only two items—as is the case with the subscales of the short version of the BSJO scale—one should expect lower values. Table 4 provides an overview of the values of internal consistency for each data set.

**Table 4. Internal consistency of the short version of the BSJO scale (8 items) by data set**

		<b>Equality</b>	<b>Need</b>	<b>Equity</b>	<b>Entitlement</b>
<b>LINOS-1</b>	$\alpha$	0.609	0.407	0.350	0.473
	Correlation (AIIC)	0.438	0.255	0.212	0.310
	N	4,509			
<b>ALLBUS 2014</b>	$\alpha$	0.533	0.458	0.236	0.421
	Correlation (AIIC)	0.363	0.297	0.134	0.267
	N	1,036			
<b>SOEP-IS 2012</b>	$\alpha$	0.435	0.505	0.313	0.437
	Correlation (AIIC)	0.278	0.338	0.185	0.280
	N	742			
<b>Pooled data set</b>	$\alpha$	0.575	0.443	0.318	0.477
	Correlation (AIIC)	0.404	0.284	0.189	0.313
	N	7,748			

Notes:  $\alpha$  = standardized Cronbach's  $\alpha$ ; AIIC = average inter-item correlation; N = sample size; listwise deletion as in the cases of the respective factor analyses (see Section 5.3.1).

### 5.3 Validity

#### 5.3.1 Factorial Validity

The factorial validity can be examined by means of a dimensionality analysis, which must confirm the existing assumptions concerning the dimensional structure of the construct in question (see Rammstedt 2010: 253). In the current context, this means that empirical evidence must be provided that the BSJO scale has a four-dimensional structure consisting of the dimensions of equality, need, equity, and entitlement. This section draws on the results of a number of factor analyses to examine the factorial validity of the BSJO scale. The dimensionality analyses include the three data sets (LINOS-1, SOEP IS 2012, and ALLBUS 2014) and a data set that was pooled from these three data sets.

**Table 5. Factor structure of the justice principles on the basis of the original twelve items (LINOS-1)**

<b>Item</b>	<b>Equality</b> 1st factor	<b>Need</b> 3rd factor	<b>Equity</b> 2nd factor	<b>Entitlement</b> 4th factor	Uniqueness
<b>C</b>	0.724	0.153	0.060	-0.017	0.449
<b>K</b>	0.810	0.022	-0.095	0.038	0.333
<b>G</b>	0.716	0.136	0.005	-0.110	0.457
<b>E</b>	0.157	0.742	-0.099	-0.041	0.413
<b>J</b>	0.037	0.636	0.096	-0.052	0.582
<b>A</b>	0.183	0.554	0.030	-0.040	0.658
<b>B</b>	-0.220	0.140	0.674	-0.001	0.477
<b>I</b>	0.219	-0.174	0.763	0.039	0.338
<b>H</b>	-0.323	0.124	0.550	0.210	0.534
<b>D</b>	0.117	-0.039	-0.023	0.852	0.259
<b>L</b>	-0.260	-0.065	0.172	0.692	0.420
<b>F</b>	-0.239	0.311	0.356	0.394	0.564

Notes: Factor loadings of the principal component analysis; rotation method: varimax; total explained variance: 54.3 percent; data: LINOS-1; all respondents; listwise deletion; N = 4,457; cells highlighted in grey: items that are assumed to load high on the respective dimension; values in italics: items that were excluded in the short version of the BSJO scale.

### 5.3.1.1 LINOS-1

The short version of the BSJO scale was constructed based on the twelve items in the LINOS-1 data set, which consists of four dimensions, each of which has three items. In a first step these twelve items were examined for their dimensionality. The factor analysis (in each case: principal component analysis; rotation method: varimax) reveals a four-factor solution, which confirms the assumed factor structure. However, the item loadings on each of the theoretically derived attitude dimensions are not satisfactory in all cases (see Table 5). This is particularly true of Item F, which has a weak loading on entitlement and cross loadings on the other dimensions. Also the factor loadings of Items H (equity) and A (need) are relatively low.

In a second step, the number of items was reduced to eight with only two items per dimension for the construction of the short version of the BSJO scale. For the item selection factorial validity was used as a criterion for exclusion and was considered as an indicator of the degree to which a simple structure of the factor loading matrices exists. A number of stepwise factor analyses were run and items that had either a weak loading on the respective construct or strong cross loadings were excluded in this process (in Table 5, these items are indicated in italics).

In the case of LINOS-1, the remaining eight items of the BSJO scale reveal a four-factor solution, which confirms the assumed simple structure (see Table 6): each item shows a strong loading only on the respective theoretically assumed construct and only weak cross loadings. As expected, Items C and K load on equality, Items E and J on need, Items B and I on equity, and Items D and L load on entitlement.

**Table 6. Factor structure of the justice principles on the basis of the short version of the BSJO scale (LINOS-1)**

Item	Equality 1st factor	Need 3rd factor	Equity 4th factor	Entitlement 2nd factor	Uniqueness
<b>C</b>	<b>0.797</b>	0.116	0.084	-0.056	0.342
<b>K</b>	<b>0.827</b>	0.054	-0.063	0.015	0.308
<b>E</b>	0.171	<b>0.764</b>	-0.103	-0.045	0.374
<b>J</b>	0.009	<b>0.791</b>	0.096	-0.009	0.365
<b>B</b>	-0.298	0.168	<b>0.710</b>	0.034	0.377
<b>I</b>	0.183	-0.103	<b>0.819</b>	0.078	0.279
<b>D</b>	0.139	-0.021	-0.002	<b>0.860</b>	0.241
<b>L</b>	-0.302	-0.028	0.150	<b>0.739</b>	0.339

*Notes:* Factor loadings of the principal component analysis; rotation method: varimax; total explained variance: 67.2 percent; data: LINOS-1; all respondents; listwise deletion; N = 4,509; cells highlighted in grey: items that are assumed to load high on the respective dimension.

In principle, the BSJO scale can be used in combination with a variety of interviewing *modes*. The BSJO scale (with 8 items) was validated using the LINOS-1 data set and a multi-mode design that involved the PAPI, CAWI, and PAPI techniques. The results of the factor analyses of these subsamples for the different modes confirm the factor structure described above. The relative strength of the factors varies, as is reflected in the differences in the order of the factors when compared with the order in the total sample of LINOS-1. However, the factor structure as such is stable for each of the three modes, in that in each case the analyses reveal the expected simple structure (see Appendix B for the results of the factor analyses for each mode). The fact that these results are consistent and thus unambiguous can be taken as evidence of the factorial validity of the BSJO scale for LINOS-1.



### 5.3.1.2 SOEP-IS 2012

Also for the SOEP-IS 2012 the assumed four-dimensional factor structure could be replicated for the BSJO scale, i.e. the items have the strongest loadings on the respectively assumed dimensions: (see Table 7). Accordingly, Items C and K load on equality; items E and J load on need; Items B and I load on equity; and Items D and L load on entitlement. Also as expected, the strongest loading of Item D is on entitlement; however, it should be noted that this item also loads on equality. The strongest loading of Item B is on equity, which is as expected; in addition, this item has a positive loading on need and a negative loading on equality. The last result is plausible considering that people in favor of the equity principle are skeptical about an unconditional equal distribution. Thus, the factorial validity of the short BSJO scale is to a large extent confirmed also for the SOEP-IS 2012.

**Table 7. Factor structure of the justice principles on the basis of the short BSJO scale (SOEP-IS 2012)**

Item	Equality 2nd factor	Need 1st factor	Equity 4th factor	Entitlement 3rd factor	Uniqueness
<b>C</b>	<b>0.690</b>	0.190	0.297	-0.251	0.336
<b>K</b>	<b>0.794</b>	-0.010	-0.106	0.153	0.334
<b>E</b>	0.137	<b>0.780</b>	0.017	-0.133	0.356
<b>J</b>	-0.001	<b>0.773</b>	-0.021	-0.074	0.396
<b>B</b>	-0.321	0.468	<b>0.508</b>	0.166	0.392
<b>I</b>	0.074	-0.035	<b>0.889</b>	-0.016	0.203
<b>D</b>	0.417	-0.123	-0.005	<b>0.670</b>	0.362
<b>L</b>	-0.130	-0.061	0.013	<b>0.854</b>	0.250

*Notes:* SOEP-IS 2012; factor loadings of the principal component analysis; rotation method: varimax; eigenvalues: at least 0.95; total explained variance: 67.2 percent; full-time and part-time employees; listwise deletion; N = 742; cells highlighted in grey: items that are assumed to load high on the respective dimension.

### 5.3.1.3 ALLBUS 2014

Also for the ALLBUS 2014 a four-factor solution results for the BSJO scale. As expected, Items C and K load on equality, Items E and J load on need, while Items D and L load on entitlement (see Table 8). Also as expected, Items B and I load on equity, with Item B having a somewhat less strong loading on equity. In addition, Item B has a negative loading on equality, which is plausible considering that people who are in favor of a form of (income) distribution that is based on the equity principle (i.e., on individual efforts) are likely to object to an equal distribution of incomes. These results thus confirm the factorial validity of the short version of the BSJO scale for the ALLBUS 2014 data.

**Table 8. Factor structure of the justice principles on the basis of the short version of the BSJO scale (ALLBUS 2014)**

Item	Equality 1st factor	Need 2nd factor	Equity 4th factor	Entitlement 3rd factor	Uniqueness
<b>C</b>	<b>0.698</b>	0.230	0.009	-0.012	0.460
<b>K</b>	<b>0.821</b>	0.017	0.076	0.041	0.318
<b>E</b>	0.089	<b>0.790</b>	-0.172	-0.066	0.334
<b>J</b>	0.031	<b>0.752</b>	0.125	-0.053	0.415
<b>B</b>	-0.474	0.312	<b>0.407</b>	0.146	0.492
<b>I</b>	0.049	-0.049	<b>0.932</b>	0.033	0.126
<b>D</b>	0.274	-0.082	0.048	<b>0.809</b>	0.262
<b>L</b>	-0.322	-0.015	0.030	<b>0.770</b>	0.302

*Notes:* ALLBUS 2014; factor loadings of the principal component analysis; rotation method: varimax; eigenvalues: at least 0.96; total explained variance: 66.2 percent; full-time and part-time employees; listwise deletion; N = 1,036; cells highlighted in grey: items that are assumed to load high on the respective dimension.

### 5.3.1.4 Pooled Data Set

Finally, the analysis of the pooled data set that encompasses LINOS-1, SOEP-IS 2012, and ALLBUS 2014 shows that the items load on the dimensions on which they were expected to load, thus clearly showing a simple structure (see Table 9). By far the strongest cross loading is that of the equity item B, which has a negative loading on equality. As mentioned earlier, this is a plausible finding, because the equality principle is contrary to the idea of the importance of personal achievement (see the previous factor analyses). In summary, the results confirm the factorial validity of the short BSJO scale for the pooled data set—as in the first three cases, the factor structure is stable.

**Table 9.** Factor structure of the justice principles on the basis of the short version of the BSJO scale (pooled data set)

Item	Equality 1st factor	Need 3rd factor	Equity 4th factor	Entitlement 2nd factor	Uniqueness
<b>C</b>	<b>0.769</b>	0.161	0.106	-0.076	0.366
<b>K</b>	<b>0.823</b>	0.025	-0.031	0.057	0.318
<b>E</b>	0.146	<b>0.786</b>	-0.077	-0.068	0.350
<b>J</b>	0.011	<b>0.775</b>	0.097	-0.025	0.389
<b>B</b>	-0.351	0.251	<b>0.635</b>	0.063	0.407
<b>I</b>	0.153	-0.077	<b>0.860</b>	0.041	0.230
<b>D</b>	0.201	-0.046	0.000	<b>0.830</b>	0.268
<b>L</b>	-0.263	-0.037	0.095	<b>0.781</b>	0.310

*Notes:* Pooled data set from LINOS-1, ALLBUS 2014, and SOEP-IS 2012; factor loadings of the principal component analysis; rotation method: varimax; eigenvalues: at least 0.97; variables were z-standardized prior to analysis; total explained variance: 67.0 percent; all respondents; listwise deletion; N = 7,748; cells highlighted in grey: items that are assumed to load high on the respective dimension.

### 5.3.2 Construct Validity

A construct is valid if a measured value of a scale is a suitable indicator of the characteristic to be measured with the scale. The degree of suitability can be evaluated on the basis of how well the method stands up to empirical scrutiny during the testing of hypotheses that have been derived from the model of the characteristic that is to be measured. Construct validation is based on theoretical considerations that are considered to postulate positive, neutral, and negative relationships between the construct or scale that is to be validated and certain other constructs (nomological network). The next step is then to examine whether the predicted pattern can be confirmed empirically (Krohne and Hock 2007: 70; Kovaleva et al. 2012: 15).

This can be done by means of scales that measure the same or a similar construct. In the case of the BSJO scale, the justice ideologies suggest themselves (Wegener and Liebig 1995; Stark et al. 2000; see also Section 3.1) and respective relationships are analyzed in Section 5.3.2.2. In addition, the validity of the BSJO scale is to be assessed by evaluating the suitability of its dimensions as predictors of external criteria, such as voting intention (Section 5.3.2.3). Also the relationship between voting intention and the four dimensions of justice attitudes is analyzed (see Section 5.3.2.4). In a first step (Section 5.3.2.1) we analyze which justice preferences are prevalent among a number of different population groups and compare the results with findings from the literature.

#### 5.3.2.1 Order-Related Justice Attitudes Among Different Population Groups

Justice attitudes differ among different population groups, as well as between different welfare states (Alesina and Angeletos 2005; Fischer and Smith 2003). For example, people in Sweden and Germany favor more the equality principle, whereas people in the United States have a stronger

preference for the equity principle (Haller, Mach, and Zwicky 1995; Liebig and Wegener 1995). In order to validate the BSJO scale, in the following we will therefore test a number of assumptions concerning relationships among certain order-related justice attitudes measured via the BSJO scale and a list of socio-demographic characteristics (sex, region, age, education, and income). In doing so, we will draw from previously published research results to formulate our expectations regarding the assumed relationships, and we will compare these results with the results of our own measurements using the BSJO scale to determine whether we will arrive at the same or similar results.

**Table 10. Means of the short version of the BSJO scale by socio-demographic characteristic (LINOS-1)**

	N	Equality		Need		Equity		Entitlement	
		M	SD	M	SD	M	SD	M	SD
<i>Region</i>									
West	3,588	2.74	1.07	4.59	0.50	4.01	0.76	1.97	0.85
East	875	2.89	1.13	4.56	0.51	4.08	0.77	1.90	0.81
<i>Sex</i>									
Male	2,151	2.68	1.09	4.56	0.52	4.09	0.74	2.05	0.87
Female	2,312	2.87	1.07	4.60	0.48	3.97	0.77	1.87	0.81
<i>Age (Germany as a whole)</i>									
≤ 29 years	1,874	2.80	1.06	4.54	0.51	4.06	0.74	1.96	0.83
30–44 years	1,398	2.74	1.10	4.59	0.50	3.96	0.76	1.99	0.86
≥ 45 years	1,191	2.77	1.11	4.63	0.49	4.04	0.77	1.91	0.85
<i>Age (Region: West)</i>									
≤ 29 years	1,544	2.78	1.06	4.55	0.51	4.06	0.74	1.97	0.83
30–44 years	1,124	2.68	1.07	4.59	0.49	3.96	0.77	2.00	0.86
≥ 45 years	920	2.77	1.10	4.63	0.50	3.98	0.77	1.92	0.87
<i>Age (Region: East)</i>									
≤ 29 years	330	2.90	1.07	4.49	0.51	4.04	0.78	1.90	0.79
30–44 years	274	2.98	1.17	4.58	0.52	3.96	0.75	1.94	0.87
≥ 45 years	271	2.80	1.15	4.64	0.47	4.26	0.74	1.86	0.78
<i>Education (CASMIN)</i>									
Low	610	3.12	1.13	4.63	0.50	4.26	0.71	2.04	0.93
Medium	2,712	2.85	1.06	4.58	0.49	4.07	0.73	1.93	0.83
<i>Net income<sup>a</sup></i>									
< Median	1,570	2.95	1.10	4.61	0.48	4.05	0.77	1.88	0.84
≥ Median	1,605	2.54	1.03	4.56	0.52	4.00	0.75	1.99	0.83
<i>Net household income<sup>a</sup></i>									
< Median	1,816	2.94	1.11	4.60	0.48	4.01	0.80	1.92	0.84
≥ Median	1,871	2.59	1.03	4.57	0.51	4.01	0.73	1.96	0.84
<b>Total</b>	<b>4,463</b>	<b>2.77</b>	<b>1.09</b>	<b>4.58</b>	<b>0.50</b>	<b>4.02</b>	<b>0.76</b>	<b>1.95</b>	<b>0.84</b>

Notes: N = sample size; M = mean; SD = standard deviation; data: LINOS-1; all respondents; listwise deletion; N = 4,463; unweighted values; inverted scale ranging from (1) “strongly disagree” to (5) “strongly agree.”

<sup>a</sup>: Missing values integrated into the analysis as dummy variables: net income (N = 1,288), net household income: (N = 776).

Table 10 shows the means and standard deviations of the BSJO scale for each of the four dimensions of equality, need, equity, and entitlement in the LINOS-1 data set.<sup>7</sup> The bottom row of

<sup>7</sup> Reference values for these socio-demographic characteristics in each data set are provided in Appendix D. Aside from a few minor deviations, the results are largely the same for all three data sets.

the table shows the means for the sample as a whole, which indicates the average degree of agreement or disagreement with the four justice principles across Germany. The results reveal that the need principle and the equity principle are the principles that are preferred most among the population ( $M = 4.58$  and  $4.02$ , respectively), and that the entitlement principle is the least preferred principle ( $M = 1.95$ ). When asked about the equality principle, the majority of respondents has an indifferent or somewhat negative attitude ( $M = 2.77$ ), with the standard deviation ( $SD = 1.09$ ) indicating the largest amount of variation in the degree of agreement and disagreement with any of the justice principles among the population in this study.

### *Sex*

A finding often reported in the literature is that women are more likely than men to support the equality principle (Liebig and Krause 2006; Forsé and Parodi 2009), whereas men are more likely than women to prefer distributive justice that is based on the equity principle (Wegener and Liebig 1993). This finding is supported by the results of the analyses of the LINOS-1 data (see Table 10): egalitarian justice attitudes (equality and need) are more prevalent among women, whereas inegalitarian justice attitudes (equity and entitlement) are more prevalent among men.<sup>8</sup>

### *Region*

Wegener and Liebig (1995, 2010) showed that, on the whole, people living in East Germany (former German Democratic Republic, DDR) are more likely to lean more toward the equality principle than are people living in West Germany. This finding has stood the test of time despite a slightly increasing convergence between East and West Germany between 1990 and 2010 (Gerlitz et al. 2012; Wegener and Liebig 2010). Our analyses using the LINOS-1 data set confirmed this particular difference in attitudes between the two parts of the country: individuals from the new federal states had a significantly greater preference for equality ( $M = 2.89$ ,  $SD = 1.13$ ) than did individuals from the old federal states ( $M = 2.74$ ,  $SD = 1.07$ ),  $t(4461) = -3.64$ ,  $p = 0.000$ . This difference is explained by the fact that socio-structural conditions have an influence on attitude formation and attitude change. It can be expected that the more the conditions in East and West Germany will converge in the future, the sooner the attitudes will converge as well (Wegener and Liebig 2010).

### *Age*

We expect that order-related justice attitudes vary depending on the age of the respondents and on the region (East and West Germany) in which they live. There are several reasons to expect this to be the case. According to the socialization hypothesis, the years of emerging adulthood have a particularly strong formative influence on the development of certain normative ideas (Alwin and Krosnick 1991), which would suggest that cohort effects play a role in attitude formation. One would therefore expect older individuals from the new federal states who spent their formative years under the socio-structural conditions of the GDR to favor more the equality principle than younger individuals who were not subjected to socialist socialization before the fall of the Wall and/or who had not reached emerging adulthood by that time (Wegener and Liebig 1995). For this reason, we expect to observe differences in age effects between East and West Germany

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<sup>8</sup> Two-sample t-tests for equal variances after Levene-test show in each case that men are significantly more in favor of the equity principle ( $M = 4.09$ ,  $SD = 0.74$ ) than are women ( $M = 3.97$ ,  $SD = 0.77$ ),  $t(4,461) = 5.37$ ,  $p = 0.000$ . Men are also significantly more in favor of the entitlement principle ( $M = 2.05$ ,  $SD = 0.87$ ) than are women ( $M = 1.87$ ,  $SD = 0.81$ ),  $t(4,461) = 7.17$ ,  $p = 0.000$ . In contrast, women are more in favor of egalitarian justice principles ( $M = 2.87$ ,  $SD = 1.07$ ) than are men ( $M = 2.68$ ,  $SD = 1.09$ ),  $t(4,461) = -5.87$ ,  $p = 0.000$ . Women are also significantly more in favor of the need principle ( $M = 4.60$ ,  $SD = 0.48$ ) than are men ( $M = 4.56$ ,  $SD = 0.52$ ),  $t(4,350) = -2.20$ ,  $p = 0.014$  (the last-mentioned finding is the result of a Satterthwaite's two-sample t-test).

(socialization effect).

Our analyses of the LINOS-1 data set show a U-shaped pattern of preference for equality across age cohorts in West Germany and an inverted U-shaped pattern across age cohorts in East Germany (see Table 10). This indicates that individuals from East Germany who were children and adolescents at the time of the Honecker administration—that is, between 1971 and 1989—have a stronger preference for the justice principle of equality than do cohorts who were socialized before or after that period. This finding is consistent with the results of the analysis of the equity dimension, which show a U-shaped pattern for the group of East German respondents aged between 30 and 44 years. Hence, the results reported here would appear to support the socialization hypothesis.

### *Income*

According to the self-interest hypothesis, an individual's preference for particular justice principles is the result of that individual's position within the inequality structure of a society (Kunovich and Slomczynski 2007; Gerlitz et al. 2012). This hypothesis suggests that individuals tend to prefer those justice principles that will be more likely than others to help further their own interests when it comes to the distribution of benefits and burdens within the society in which they live and thus will be more likely to increase their own personal gains, be they monetary or otherwise. One would therefore expect to find that individuals in lower-status positions in the income hierarchy lean more toward the equality and need principles, because they believe that the implementation of these two egalitarian principles will lead to an increasing redistribution of benefits from top to bottom, whereas one would expect to find that respondents in higher-status positions lean more toward the entitlement and equity principle.

As expected, the empirical results for equality show a negative effect (net income:  $r = -0.222$ ,  $p < 0.001$ ; net household income:  $r = -0.227$ ,  $p < 0.001$ ) (see Table 11). Also as expected, the results for need also show a negative effect (net income:  $-0.051$ ,  $p < 0.01$ ), and the results on entitlement show a positive relationship (net income:  $r = 0.099$ ,  $p < 0.001$ ; net household income:  $r = 0.044$ ,  $p < 0.05$ ). This means that the worse a respondent's individual financial situation is, the more likely that respondent will be to be in favor of egalitarian principles (equality and need) and to reject the inegalitarian entitlement principle. These results thus support the self-interest hypothesis.

**Table 11. Correlations between the dimensions of the short version of the BSJO scale, education and income**

		Education (CASMIN)	Net income (ln)	Net household income (ln)
<b>BSJO</b>	Equality	-0.214***	-0.222***	-0.227***
	Need	-0.027	-0.051**	-0.024
	Equity	-0.219***	-0.050**	-0.009
	Entitlement	-0.029	0.099***	0.044*

Notes: Data: LINOS-1; listwise deletion; N = 2,918; statistical significance: \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

### *Education*

The use of education as a proxy for an individuals' social situation is common practice, with the result that education has become a key demographic characteristic that is used in virtually every survey based study. With regard to preferences for particular justice principles, it seems reasonable to assume that education serves as a proxy for an individual's chances of reaching a favorable position in the social structure. One would therefore expect that individuals who have little chance of reaching an advantageous position will be more in favor of principles whose implementation will compensate for, or at least mitigate, the effects of their unequal life chances and of the resulting position in the social structure.

For this reason, we expect to find a stronger preference for the equality and need principles among

respondents with a lower education and thus a negative relationship between education and a preference for the equality principle. This expectation is supported by our finding that there is a negative relationship between education (CASMIN) and a preference for the equality principle ( $r = -0.214$ ,  $p < 0.001$ ) (see Table 11). However, the results also show a negative relationship between education and a preference for the equity principle: individuals with a lower level of education lean more heavily toward the equity principle than do individuals with a higher level of education. In Wegener and Liebig (2010) a similar pattern can be observed, although the negative effect of education is not significant on the 5%-level.

### 5.3.2.2 The Relationship Between the BSJO Scale and the Justice Ideologies

Now, what is the relationship between the dimensions of the BSJO scale and the justice ideologies (Wegener and Liebig 1995; Stark et al. 2000), and what assumptions can be made about this relationship? Order-related justice attitudes can be broadly divided into two opposing groups: egalitarian and inegalitarian justice attitudes (Kluegel and Matějů 1995). When viewed from this perspective, the equality principle and the need principle are regarded as egalitarian justice attitudes, whereas the equity principle is regarded as an inegalitarian justice attitude (Smith and Matějů 2012). If we extend this list to include all of the constructs contained in the BSJO scale and in the justice ideologies, we arrive at the following classification: equality, need, and egalitarianism are egalitarian constructs, whereas equity, entitlement, individualism, and ascriptivism are inegalitarian constructs (see also the description of the individual constructs in Sections 2 and 3). There is no relationship between fatalism and distributive principles. Generally speaking, it is safe to assume that there are positive associations among the constructs in each group (i.e., between the egalitarian and between the inegalitarian justice principles) and that, conversely, there are negative correlations between a given construct from one group and a given construct from the other.

Based on LINOS-1 Table 12 provides information on the correlations among the constructs of the two scales. All of the validity coefficients (correlations) reported in the following are highly significant ( $p < 0.001$ ) and are based on mean indices. As expected, within the group of egalitarian constructs we find a positive relationship between egalitarianism and equality ( $r = 0.380$ ) and between egalitarianism and need ( $r = 0.213$ ). Within the group of inegalitarian constructs we find positive relationships between individualism and equity ( $r = 0.279$ ) and between individualism and entitlement ( $r = 0.299$ ), as well as between ascriptivism and equity ( $r = 0.234$ ) and between ascriptivism and entitlement ( $r = 0.217$ ). Also as expected, we find negative relationships between constructs in the two different groups, such as between need and individualism ( $r = -0.062$ ), as well as between equality and individualism ( $r = -0.208$ ), between equality and ascriptivism ( $r = -0.259$ ) and between entitlement and egalitarianism ( $r = -.101$ ).

**Table 12. Correlations between the dimensions of the short version of the BSJO scale and the justice ideologies**

		Justice Ideologies		
		Egalitarianism	Individualism	Ascriptivism
<b>BSJO</b>	Equality	0.380***	-0.208***	-0.259***
	Need	0.213***	-0.062***	0.004
	Equity	0.002	0.279***	0.234***
	Entitlement	-0.101***	0.299***	0.217***

Notes: Mean indices of both scales; data: LINOS-1; listwise deletion;  $N = 4,342$ ; statistical significance: \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

Source: Stark et al. (2000).

### 5.3.2.3 Explaining Voting Intention/Party Identification

This section provides some further analysis of the construct validity of the BSJO scale, with a focus on the prediction of voting behavior, i.e. the individual voting intention/party identification. Previous research has found evidence of a relationship between individual preferences for particular distributive norms and individual preferences for particular political parties (see, e.g., Mühleck and Wegener 2006). In this study, we regard order-related justice attitudes as issues in the sense that individuals consider the application of a specific justice principle as a specific issue in itself. In social-psychological studies on voting behavior (see Campbell et al. 1960), issue orientation is regarded as one of the short-term factors that can explain voting intentions. We therefore chose to examine whether the BSJO scale can make a significant contribution to explaining the voting intention or party identification, and whether the dimensions of the BSJO scale can appropriately differentiate among the different preferences for particular political parties if they are used as predictors.

The system of political parties in Germany can be described by means of the left–right scale (see Downs 1957): The Social Democratic Party (SPD), the Left, and Alliance '90/The Greens (The Greens) can be defined as center-left, whereas the Christian Democratic Union (CDU) and its sister party, the Christian Social Union of Bavaria (CSU), can be characterized as center-right. The Free Democratic Party (FDP) is more or less close to the center, though given that it has been a junior coalition partner to the CDU/CSU several times in the past, it is politically closer to the center-right parties than to the center-left (Neundorf 2012: 239). For the purposes of this study, we assume that individuals with egalitarian justice attitudes (equality and need) lean more toward center-left parties, whereas individuals with inegalitarian justice attitudes (equity and entitlement) are more likely to prefer center-right parties. We therefore expect to find positive effects for equality and need among supporters of center-left parties and negative effects among supporters of center-right parties. Conversely, we expect to find negative effects for equity and entitlement among supporters of center-left parties, as well as negative effects for equality and need among supporters of center-right parties.

To test the empirical validity of these assumptions, we used the data set that was pooled from the LINOS-1, ALLBUS 2014, and SOEP-IS 2012 surveys (see Section 4.4). We estimated a multinomial logistic regression model,<sup>9</sup> with voting intention/party identification as the dependent variable.<sup>10</sup> The model differentiates among the five above-mentioned parties, with the CDU/CSU as the reference category. Model M1 controls for the effects of socio-demographic characteristics (see Table 13). Model M2 additionally considers the four dimensions of the BSJO scale as predictors; their effects will now be discussed in detail. As expected, inegalitarian justice attitudes (equity and entitlement) were associated with negative effects on the likelihood of voting for a center-left party when compared with the CDU/CSU. The more individuals are in favor of the equity principle, the less likely it is that they will vote for the SPD ( $-0.216$ ,  $p < 0.001$ ), the Greens ( $-0.528$ ,  $p < 0.001$ ), or the Left ( $-0.340$ ,  $p < 0.001$ ). Similar negative effects were found for the entitlement principle: the more individuals are in favor of the entitlement principle, the less likely it is that they will vote for the SPD ( $-0.195$ ,  $p < 0.001$ ), the Greens ( $-0.307$ ,  $p < 0.001$ ), or the Left ( $-0.510$ ,  $p < 0.001$ ). Our analysis of the effects of inegalitarian justice attitudes among supporters of center-right parties found positive effects on the likelihood that these individuals will vote for the FDP rather than for the CDU/CSU, which was as expected; however, these effects are not significant.

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<sup>9</sup> On the use and interpretation of multinomial logistic regression models, see, Andreß et al. (1997) and Backhaus et al. (2006), among others.

<sup>10</sup> For reasons of data availability, party identification and voting intention were treated as one: data on the voting intention (“Sonntagsfrage”) was collected by the ALLBUS 2014 and LINOS-1, but not by the SOEP-IS 2012, which collected data on party identification but not on voting intention. Party identification is considered to be by far the strongest predictor of voting intentions in empirical political research, which is why we treat them as one.

**Table 13. Multinomial logistic regressions of voting intention/party identification (reference: CDU/ CSU)**

Model	SPD		The Greens		The Left		FDP	
	M1	M2	M1	M2	M1	M2	M1	M2
Constant	0.844	0.483	0.082	-0.251	0.477	-0.444	-5.089***	-4.803***
Sex [1 = female]	-0.168	-0.243*	0.561***	0.396***	-0.231	-0.425**	0.257	0.313
Age	0.007*	0.008*	0.003	0.003	0.014**	0.017**	-0.006	-0.006
Net income (ln)	-0.141	-0.082	-0.195*	-0.123	-0.404***	-0.295*	0.338	0.254
Low education	(Ref.)	(Ref.)	(Ref.)	(Ref.)	(Ref.)	(Ref.)	(Ref.)	(Ref.)
Medium education	-0.323*	-0.332*	0.343	0.239	0.016	0.014	0.109	0.134
High education	-0.437**	-0.418*	1.186***	1.000***	0.209	0.292	0.121	0.089
Region [1 = east Germany]	-0.144	-0.160	-0.470***	-0.451***	1.146***	1.085***	-0.155	-0.134
<b>BSJO dimensions:</b>								
Equality		0.320***		0.375***		0.695***		-0.347**
Need		0.069		0.192***		0.083		-0.213*
Equity		-0.216***		-0.528***		-0.340***		0.250
Entitlement		-0.195***		-0.307***		-0.510***		0.185
McFadden's pseudo-R <sup>2</sup>	0.046	0.087						
Nagelkerke's pseudo-R <sup>2</sup>	0.127	0.228						
N	2,994	2,994						

Notes: Control variables: dummy variables for the respective data set; dependent variables by data set: party identification for SOEP-IS 2012, voting intention for ALLBUS 2014 and LINOS-1; data: pooled data set (LINOS-1, ALLBUS 2014, SOEP-IS 2012); factor scores for BSJO dimensions calculated in the same way as in Table 9, with listwise deletion for this model; listwise deletion; N = 2,994; calculations conducted using Stata 13.1; statistical significance: \* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001.



Also as expected, egalitarian justice attitudes (equality and need) are associated with positive effects on the likelihood of voting for a center-left party: the more individuals are in favor of the equality principle, the more likely they are to vote for the SPD (0.320,  $p < 0.001$ ), the Greens (0.375,  $p < 0.001$ ), or the Left (0.695,  $p < 0.001$ ) rather than for the CDU/CSU. The need principle also shows positive effects for these three parties; however, this particular effect is significant only for the Greens (0.192,  $p < 0.001$ ). The effects of egalitarian justice attitudes among supporters of center-right parties are as expected negative: the more individuals are in favor of the equality principle ( $-0.347$ ,  $p < 0.01$ ) or the need principle ( $-0.213$ ,  $p < 0.05$ ), the less likely they are to vote for the FDP rather than for the CDU/CSU.

As for the usefulness of the BSJO scale in explaining voting behavior on the basis of voting intentions and party identification, we found that the model described here did indeed provide consistent empirical evidence for the hypothesized relationships. The variance decomposition shows that if the model is extended to include the BSJO scale, as was done in Model M2, the  $R^2$  value is twice the value of the  $R^2$  in the original model, Model M1, which contains only demographic variables. These empirical results demonstrate that the BSJO scale (and, by extension, the order-related justice attitudes) can make a substantial contribution to explaining voting behavior and thus has been validated externally.

#### 5.3.2.4 Relationships Between Justice Attitudes and Voting Intention/Party Identification

Figure 1 shows the results of a multiple correspondence analysis (MCA) of the relationship between voting intention/party identification and each of the four justice attitudes of the BSJO scale.<sup>11</sup> As can be seen, those individuals who support one of the five major political parties in Germany can be divided into five groups, each of which has different justice preferences, which thus serve to distinguish among the groups of supporters.

As in the case of the analysis of voting intention and party identification in the previous subsection, the multiple correspondence analysis was based on the data set that was pooled from the LINOS-1, ALLBUS 2014, and SOEP-IS 2012 surveys (see Section 4.4). The first step was to calculate mean indices for each of the four justice principles. These variables were then converted into dichotomous variables by recoding all values above the neutral category of the scale (i.e.,  $>3$  in LINOS-1 and ALLBUS 2014 and  $>4$  in SOEP-IS 2012) as “agreement” depending on the data set and all values below that point as “disagreement.” The four dichotomous variables for the justice principles and for voting intention/party identification served as the basis for the MCA (detailed results are provided in Appendix E). The results of the MCA are shown in Figure 1. Those characteristics that are similar to one another and that were mentioned quite often by respondents are relatively close to one another in the illustration, whereas those that are dissimilar (i.e., characteristics that were mentioned by different respondents) are relatively far away from one another. It should also be noted that the closer a characteristic is to the point of intersection of the scale axes (i.e., the mean of all of the characteristics), the less it contributes to a differentiation of the justice dimensions.

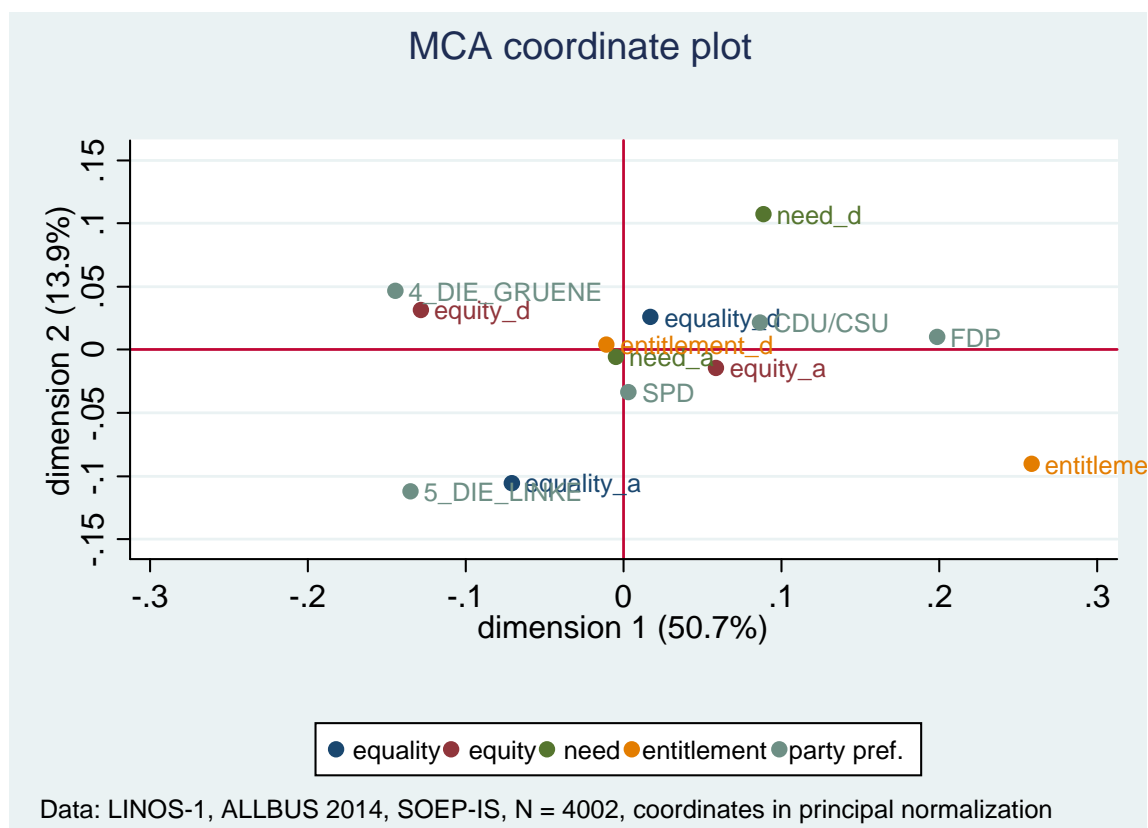
The results shown in Figure 1 can be summarized as follows: Agreement with the need principle is strong across all groups of party supporters. Thus, the general consensus in Germany is that a means tested minimum income should exist (in Figure 1, “need\_a” is at the center between the two dimensions). Supporters of center-left parties show a strong and consistent preference for the equality principle (“equality\_a”), whereas supporters of the CDU/CSU and of the FDP have a stronger preference for the entitlement principle. A strong

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<sup>11</sup> On the use and interpretation of multiple correspondence analyses, see, e.g., Blasius (2001).

preference for the equity principle was found for supporters of the SPD, the CDU/CSU, and the FDP (given here in ascending order of the degree of support). A characteristic that is typical of those who vote for the Greens is that they reject the equity principle. To sum up, the results show that the developed BSJO scale is appropriate and suitable for developing clear justice-related profiles of the different groups of party supporters in Germany.

**Figure 1. Multiple correspondence analysis: Justice orientations and voting intention/party identification**



*Notes:* Party identification for SOEP-IS 2012, voting intention for ALLBUS 2014 and LINOS-1; data: pooled data set (LINOS-1, ALLBUS 2014, SOEP-IS 2012); listwise deletion; N = 4,002; coordinates in principal normalization.

#### 5.4 Reference Values

Reference values for the short BSJO scale by socio-demographic characteristic for each data set—LINOS-1, ALLBUS 2014, and SOEP-IS 2012—are provided in Appendix D. These values enable users to check values they have measured themselves using the short BSJO scale against reference values for the German population as a whole and for individual subgroups of the German population that are based on as many as three different data sets. Appendix D provides the means and standard deviations for each of the dimensions of the scale for the characteristics of region, sex, age, education, and income. In addition, means and standard deviations for single items in the different data sets are provided in Appendix C.

## 6 Practical Notes on Interpretation

The dimensions/subscales of the short BSJO scale that measure the justice principles are each based on two items, which serve as the basis for the analysis. These can be used to calculate

mean indices that can be directly included in the analysis, as well as factor scores for each of the dimensions that can then be integrated into multivariate analysis models (on the calculation of the factor scores and the associated specifics of the different data sets, see Section 5.3.1). Specific requirements may apply depending on the data set used (see Section 4).

## **7 Discussion**

The BSJO scale presented in this paper measures justice attitudes in relation to fundamental principles of the distribution of benefits and burdens in a society by differentiating among preferences for each of the four distribution principles of equality, need, equity, and entitlement. Thus, it is directly compatible with empirical justice and welfare state research and with the justice principles that are the subject of studies in those areas.

The validity of the BSJO scale that consists of eight items was tested using three data sets: LINOS-1 (Sauer and Valet 2014), SOEP-IS 2012 (Richter and Schupp 2012), and ALLBUS 2014 (GESIS 2015a). The analyses conducted for this purpose largely confirmed the factorial validity of the BSJO scale. As expected, the dimensionality analyses revealed a four-factor structure of the dimensions of equality, need, equity, and entitlement in all three data sets. An analysis of empirical relationships between the BSJO scale and other constructs confirmed the construct validity of the scale: First, it revealed the expected correlations between the BSJO scale and the justice ideology scale (see Wegener and Liebig 1995; Stark et al. 2000). Second, a regression analysis showed that the dimensions of the BSJO scale had the expected effects when explaining the individual voting intention or party identification regarding the five major political parties in Germany. Third, it could be shown that sufficiently large differences among the supporters of the five political parties, particularly in terms of their justice preferences, exist.

The results presented in this paper have shown that the BSJO scale is an appropriately validated instrument for measuring order-related justice attitudes, and that it is a short-term and thus time-efficient instrument that can measure the four relevant justice principles of equality, need, equity, and entitlement in large-scale population surveys.

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## Appendix

### Appendix A. German version of the BSJO scale in LINOS-1

#### Appendix A1. BSJO scale in LINOS-1 by justice principle

<i>Justice Principle</i>	<i>Item</i>	<i>Item text</i>
<i>Equality (Gleichheit)</i>	<i>C</i>	Gerecht ist, wenn alle die gleichen Lebensbedingungen haben.
	<i>K</i>	Es ist gerecht, wenn Einkommen und Vermögen in unserer Gesellschaft an alle Personen gleich verteilt werden.
	<i>G</i>	<i>Eine Gesellschaft ist gerecht, wenn die Einkommensunterschiede zwischen den Menschen gering sind.</i>
<i>Need (Bedarf)</i>	<i>E</i>	Eine Gesellschaft ist gerecht, wenn sie sich um die Schwachen und Hilfsbedürftigen kümmert.
	<i>J</i>	Es ist gerecht, wenn Personen, die Kinder oder pflegebedürftige Angehörige zu versorgen haben, besondere Unterstützung und Vergünstigungen erhalten.
	<i>A</i>	<i>Eine Gesellschaft ist gerecht, wenn jede Person ausreichend Essen, Wohnraum, Kleidung sowie Zugang zu Bildung und medizinischer Versorgung hat.</i>
<i>Equity (Leistung)</i>	<i>B</i>	Es ist gerecht, wenn Personen, die hart arbeiten, mehr verdienen als andere.
	<i>I</i>	Gerecht ist, wenn jede Person nur das bekommt, was sie sich durch eigene Anstrengungen erarbeitet hat.
	<i>H</i>	<i>Eine Gesellschaft ist gerecht, wenn Unterschiede in Einkommen und Vermögen die Leistungsunterschiede zwischen Menschen widerspiegeln.</i>
<i>Entitlement (Anrecht)</i>	<i>D</i>	Es ist gerecht, wenn Personen, die aus angesehenen Familien stammen, dadurch Vorteile im Leben haben.
	<i>L</i>	Es ist gerecht, wenn diejenigen, die in einer Gesellschaft oben stehen, bessere Lebensbedingungen haben als diejenigen, die unten stehen.
	<i>F</i>	<i>Es ist gerecht, wenn Personen, die es im Laufe ihres Lebens zu Ansehen und Wohlstand gebracht haben, auch im Alter davon profitieren.</i>

*Notes:* Items in italics are items that are not included in the short eight-item BSJO scale.

*Source:* Question 2 in the LINOS-1 questionnaire (see Sauer and Valet 2014: 188).

## Appendix A2. BSJO scale in LINOS-1—original representation in the PAPI questionnaire

2		Es gibt unterschiedliche Vorstellungen darüber, wann eine Gesellschaft gerecht ist. Wie ist Ihre persönliche Meinung dazu? Bitte geben Sie an, ob Sie jeweils: voll zustimmen, etwas zustimmen, weder zustimmen noch ablehnen, etwas ablehnen oder ganz ablehnen.				
		stimme voll zu	stimme etwas zu	weder noch	lehne etwas ab	lehne ganz ab
A	Eine Gesellschaft ist gerecht, wenn jede Person ausreichend Essen, Wohnraum, Kleidung sowie Zugang zu Bildung und medizinischer Versorgung hat.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B	Es ist gerecht, wenn Personen, die hart arbeiten, mehr verdienen als andere.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C	Gerecht ist, wenn alle die gleichen Lebensbedingungen haben.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D	Es ist gerecht, wenn Personen, die aus angesehenen Familien stammen, dadurch Vorteile im Leben haben.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E	Eine Gesellschaft ist gerecht, wenn sie sich um die Schwachen und Hilfsbedürftigen kümmert.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F	Es ist gerecht, wenn Personen, die es im Laufe ihres Lebens zu Ansehen und Wohlstand gebracht haben, auch im Alter davon profitieren.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G	Eine Gesellschaft ist gerecht, wenn die Einkommensunterschiede zwischen den Menschen gering sind.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H	Eine Gesellschaft ist gerecht, wenn Unterschiede in Einkommen und Vermögen die Leistungsunterschiede zwischen Menschen widerspiegeln.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I	Gerecht ist, wenn jede Person nur das bekommt, was sie sich durch eigene Anstrengungen erarbeitet hat.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
J	Es ist gerecht, wenn Personen, die Kinder oder pflegebedürftige Angehörige zu versorgen haben, besondere Unterstützung und Vergünstigungen erhalten.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
K	Es ist gerecht, wenn Einkommen und Vermögen in unserer Gesellschaft an alle Personen gleich verteilt werden.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L	Es ist gerecht, wenn diejenigen, die in einer Gesellschaft oben stehen, bessere Lebensbedingungen haben als diejenigen, die unten stehen.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Source: Question 2 in the LINOS-1 questionnaire (see Sauer and Valet 2014: 188).



## Appendix B. Analysis of possible mode effects in the factor structure of the short BSJO scale for LINOS-1

**Table B1. Factor structure of the justice principles on the basis of the short BSJO scale—survey method: PAPI (LINOS- 1)**

Item	Equality 1st factor	Need 3rd factor	Equity 4th factor	Entitlement 2nd factor	Uniqueness
<b>C</b>	<b>0.823</b>	0.096	0.057	−0.018	0.309
<b>K</b>	<b>0.832</b>	0.042	−0.066	−0.009	0.301
<b>E</b>	0.146	<b>0.747</b>	−0.102	−0.127	0.394
<b>J</b>	0.016	<b>0.795</b>	0.061	0.037	0.363
<b>B</b>	−0.302	0.181	<b>0.694</b>	0.099	0.385
<b>I</b>	0.133	−0.112	<b>0.847</b>	0.040	0.250
<b>D</b>	0.140	−0.030	0.021	<b>0.864</b>	0.233
<b>L</b>	−0.337	−0.038	0.124	<b>0.719</b>	0.353

*Notes:* LINOS-1; all individuals interviewed using PAPI; factor loadings of the principal component analysis; rotation method: varimax; total explained variance: 67.7 percent; listwise deletion; N = 2,328; cells highlighted in grey: items that are assumed to load high on the respective dimension.

**Table B2. Factor structure of the justice principles on the basis of the short BSJO scale—survey method: CAWI (LINOS- 1)**

Item	Equality 1st factor	Need 3rd factor	Equity 4th factor	Entitlement 2nd factor	Uniqueness
<b>C</b>	<b>0.803</b>	0.100	0.087	−0.097	0.329
<b>K</b>	<b>0.835</b>	0.066	−0.069	0.018	0.294
<b>E</b>	0.184	<b>0.775</b>	−0.113	−0.056	0.349
<b>J</b>	0.002	<b>0.794</b>	0.117	−0.011	0.356
<b>B</b>	−0.235	0.207	<b>0.713</b>	0.068	0.390
<b>I</b>	0.147	−0.112	<b>0.831</b>	<b>0.026</b>	0.275
<b>D</b>	0.099	−0.017	−0.027	<b>0.866</b>	0.239
<b>L</b>	−0.265	−0.047	0.143	<b>0.751</b>	0.343

*Notes:* LINOS-1; all individuals interviewed using CAWI; factor loadings of the principal component analysis; rotation method: varimax; total explained variance: 67.8 percent; listwise deletion; N = 1,211; cells highlighted in grey: dimensions that are assumed to involve high item loadings.

**Table B3. Factor structure of the justice principles on the basis of the short BSJO scale—survey method: CAPI (LINOS- 1)**

Item	Equality 1st factor	Need 4th factor	Equity 3rd factor	Entitlement 2nd factor	Uniqueness
<b>C</b>	<b>0.741</b>	0.164	0.109	−0.117	0.398
<b>K</b>	<b>0.797</b>	0.039	−0.141	0.066	0.339
<b>E</b>	0.155	<b>0.758</b>	−0.131	0.101	0.375
<b>J</b>	0.011	<b>0.753</b>	0.170	−0.121	0.390
<b>B</b>	−0.240	0.082	<b>0.774</b>	−0.053	0.334
<b>I</b>	0.371	−0.083	<b>0.668</b>	0.220	0.360
<b>D</b>	0.126	−0.045	−0.071	<b>0.851</b>	0.253
<b>L</b>	−0.261	0.056	0.255	<b>0.712</b>	0.357

*Notes:* LINOS-1; all individuals interviewed using CAPI; factor loadings of the principal component analysis; rotation method: varimax; total explained variance: 64.9 percent; eigenvalues: at least 0.98; listwise deletion; N = 970; cells highlighted in grey: items that are assumed to load high on the respective dimension.

**Appendix C. Descriptive statistics of items and dimensions of the short BSJO scale by data set**

	Item / subscale	LINOS-1				ALLBUS 2014				SOEP IS 2012			
		M	SD	Min	Max	M	SD	Min	Max	M	SD	Min	Max
Equality	C	3.30	1.30	1	5	3.34	1.27	1	5	4.60	2.03	1	7
	K	2.26	1.26	1	5	2.41	1.31	1	5	2.91	1.91	1	7
	Subscale	2.78	1.09	1	5	2.88	1.07	1	5	3.75	1.60	1	7
Need	E	4.56	0.64	1	5	4.66	0.60	1	5	6.20	1.17	1	7
	J	4.60	0.63	1	5	4.75	0.50	1	5	6.29	1.04	1	7
	Subscale	4.58	0.50	1	5	4.71	0.44	2.5	5	6.24	0.91	1	7
Equity	B	4.48	0.74	1	5	4.59	0.72	1	5	6.20	1.20	1	7
	I	3.57	1.17	1	5	3.69	1.14	1	5	5.21	1.72	1	7
	Subscale	4.03	0.76	1	5	4.14	0.71	1	5	5.70	1.13	1	7
Entitlement	D	1.62	0.92	1	5	1.65	0.90	1	5	2.06	1.48	1	7
	L	2.29	1.16	1	5	2.34	1.22	1	5	2.87	1.75	1	7
	Subscale	1.95	0.85	1	5	2.00	0.86	1	5	2.47	1.31	1	7

Notes: M = mean; SD = standard deviation; Min = minimum; Max = maximum; listwise deletion in all cases; all respondents; LINOS-1: inverted scale ranging from (1) “strongly disagree” to (5) “strongly agree,” N = 4,509; ALLBUS: inverted scale ranging from (1) “strongly disagree” to (5) “strongly agree,” N = 1,682; SOEP-IS 2012: (1) “strongly disagree” to (5) “strongly agree,” N = 1,557.

**Appendix D. Reference values of the short BSJO scale by socio-demographic characteristics and data set****Table D1. Reference values of the short BSJO scale by socio-demographic characteristics—LINOS-1**

	N	Equality		Need		Equity		Entitlement	
		M	SD	M	SD	M	SD	M	SD
<i>Region</i>									
West	3,588	2.73	1.08	4.60	0.50	3.99	0.75	1.96	0.86
East	875	2.83	1.13	4.59	0.49	4.11	0.75	1.92	0.82
<i>Sex</i>									
Male	2,151	2.63	1.08	4.58	0.52	4.07	0.73	2.04	0.86
Female	2,312	2.88	1.09	4.62	0.47	3.96	0.78	1.86	0.82
<i>Age</i>									
< 29 years	1,874	2.77	1.06	4.54	0.51	4.08	0.72	1.95	0.83
30–44 years	1,398	2.73	1.09	4.59	0.49	3.96	0.75	2.00	0.86
≥ 45 years	1,191	2.76	1.10	4.63	0.50	4.03	0.77	1.92	0.85
<i>Education</i>									
Low	610	3.07	1.12	4.63	0.51	4.23	0.70	2.03	0.92
Medium	2,712	2.81	1.07	4.59	0.49	4.08	0.72	1.95	0.83
High	1,141	2.42	1.03	4.58	0.52	3.74	0.79	1.92	0.84
<i>Net income<sup>a</sup></i>									
< Median	1,570	2.97	1.12	4.63	0.47	4.03	0.77	1.89	0.86
≥ Median	1,605	2.55	1.03	4.57	0.52	3.99	0.75	1.98	0.84
<i>Net household income<sup>a</sup></i>									
< Median	1,816	2.96	1.12	4.63	0.47	4.03	0.79	1.93	0.84
≥ Median	1,871	2.57	1.03	4.58	0.52	3.98	0.73	1.95	0.85
<b>Total</b>	<b>4,463</b>	<b>2.75</b>	<b>1.09</b>	<b>4.59</b>	<b>0.50</b>	<b>4.02</b>	<b>0.75</b>	<b>1.95</b>	<b>0.85</b>

Notes: N = sample size; M = mean; SD = standard deviation; data: LINOS-1; all respondents; listwise deletion; N = 4,463; weighted values; inverted scale ranging from (1) “Strongly disagree” to (5) “Strongly agree.”

<sup>a</sup>: Missing values integrated into the analysis as dummy variables: net income (N = 1,288), net household income: (N = 776).

**Table D2. Reference values of the short BSJO scale by socio-demographic characteristic—SOEP-IS 2012**

	N	Equality		Need		Equity		Entitlement	
		M	SD	M	SD	M	SD	M	SD
<i>Region</i>									
West	1,255	3.84	1.62	6.22	0.92	5.66	1.17	2.53	1.35
East	263	3.80	1.70	6.30	0.83	5.82	1.02	2.25	1.25
<i>Sex</i>									
Male	734	3.70	1.67	6.18	0.92	5.71	1.11	2.52	1.32
Female	784	3.95	1.59	6.29	0.89	5.66	1.18	2.44	1.35
<i>Age</i>									
≤ 29 years	225	4.23	1.55	6.06	0.89	5.57	1.13	2.45	1.35
30–44 years	304	3.90	1.69	6.19	0.93	5.51	1.17	2.52	1.39
≥ 45 years	989	3.68	1.62	6.31	0.90	5.79	1.13	2.47	1.31
<i>Education</i>									
Low	601	4.17	1.61	6.32	0.89	5.91	1.09	2.59	1.45
Medium	637	3.79	1.59	6.21	0.90	5.66	1.10	2.33	1.22
High	280	3.15	1.56	6.10	0.94	5.25	1.25	2.59	1.32
<i>Net income<sup>a</sup></i>									
< Median	370	4.03	1.58	6.21	0.89	5.61	1.13	2.34	1.27
≥ Median	419	3.55	1.57	6.15	0.92	5.56	1.18	2.45	1.27
<i>Net household income<sup>a</sup></i>									
< Median	750	3.97	1.66	6.24	0.92	5.70	1.11	2.47	1.37
≥ Median	768	3.67	1.59	6.23	0.90	5.67	1.19	2.49	1.29
<b>Total</b>	<b>1,518</b>	<b>3.83</b>	<b>1.63</b>	<b>6.23</b>	<b>0.91</b>	<b>5.69</b>	<b>1.15</b>	<b>2.48</b>	<b>1.34</b>

Notes: N = sample size; M = mean; SD = standard deviation; data: SOEP-IS 2012; all respondents, listwise deletion; N = 4,463; weighted values; inverted scale ranging from (1) “strongly disagree” to (7) “strongly agree.”

<sup>a</sup>: Missing values for net income (N = 729) integrated into the analysis as dummy variables.

**Table D3. Reference values of the short BSJO scale by socio-demographic characteristics—ALLBUS 2014**

	N	Equality		Need		Equity		Entitlement	
		M	SD	M	SD	M	SD	M	SD
<i>Region</i>									
West	1,120	2.80	1.05	4.70	0.45	4.10	0.70	2.07	0.87
East	549	3.03	1.11	4.73	0.42	4.22	0.73	1.85	0.82
<i>Sex</i>									
Male	849	2.80	1.05	4.69	0.44	4.15	0.71	2.12	0.89
Female	820	2.89	1.08	4.71	0.45	4.10	0.71	1.94	0.84
<i>Age</i>									
≤ 29 years	274	2.96	1.02	4.62	0.48	4.08	0.72	2.06	0.87
30–44 years	368	2.93	1.08	4.70	0.43	3.95	0.74	2.06	0.83
≥ 45 years	1,027	2.78	1.07	4.73	0.44	4.20	0.68	2.01	0.88
<i>Education</i>									
Low	159	3.10	1.12	4.64	0.54	4.24	0.70	2.02	0.96
Medium	897	2.93	1.06	4.72	0.43	4.18	0.69	2.01	0.88
High	613	2.65	1.02	4.70	0.45	4.01	0.72	2.07	0.82
<i>Net income<sup>a</sup></i>									
< Median	736	3.01	1.10	4.72	0.44	4.11	0.74	1.93	0.88
≥ Median	748	2.73	1.01	4.70	0.44	4.13	0.70	2.13	0.85
<i>Net household income<sup>a</sup></i>									
< Median	722	3.01	1.10	4.71	0.46	4.15	0.74	2.03	0.92
≥ Median	759	2.72	1.03	4.71	0.42	4.09	0.69	2.05	0.83
<b>Total</b>	<b>1,669</b>	<b>2.84</b>	<b>1.06</b>	<b>4.70</b>	<b>0.45</b>	<b>4.13</b>	<b>0.71</b>	<b>2.03</b>	<b>0.87</b>

Notes: N = sample size; M = mean; SD = standard deviation; data: ALLBUS 2014; all respondents, listwise deletion; N = 1,669; weighted values; inverted scale ranging from (1) “strongly disagree” to (5) “strongly agree.”

<sup>a</sup>. Missing values integrated into the analysis as dummy variables: net income (N = 185), net household income: (N = 188).

## Appendix E. Results of a multiple correspondence analysis

### . mca equality equity need entitlement party , dim(2) method(burt) normalize(principal)

Multiple/Joint correspondence analysis      Number of obs      =      4002  
    Total inertia      =      .0087369  
 Method: Burt/adjusted inertias              Number of axes      =      2

Dimension	principal inertia	percent	cumul percent
dim 1	.0044265	50.66	50.66
dim 2	.0012101	13.85	64.52
dim 3	.0001469	1.68	66.20
dim 4	1.34e-06	0.02	66.21
Total	.0087369	100.00	

Statistics for column categories in principal normalization

Categories	overall			dimension_1			dimension_2		
	mass	quality	%inert	coord	sqcorr	contrib	coord	sqcorr	contrib
equality									
equality d	0.161	0.574	0.031	0.017	0.178	0.011	0.026	0.396	0.088
equality a	0.039	0.574	0.126	-0.071	0.178	0.044	-0.105	0.396	0.361
equity									
equity d	0.063	0.673	0.186	-0.128	0.636	0.234	0.031	0.038	0.051
equity a	0.137	0.673	0.085	0.059	0.636	0.107	-0.014	0.038	0.023
need									
need d	0.010	0.665	0.033	0.089	0.271	0.018	0.107	0.394	0.094
need a	0.190	0.665	0.002	-0.005	0.271	0.001	-0.006	0.394	0.005
entitlement									
entitlement d	0.192	0.729	0.004	-0.011	0.649	0.005	0.004	0.080	0.002
entitlement a	0.008	0.729	0.093	0.258	0.649	0.120	-0.091	0.080	0.054
Party									
CDU/CSU	0.077	0.615	0.114	0.087	0.580	0.130	0.021	0.035	0.029
SPD	0.057	0.792	0.010	0.003	0.007	0.000	-0.034	0.785	0.054
FDP	0.007	0.578	0.056	0.199	0.577	0.064	0.010	0.001	0.001
DIE GRUENEN	0.043	0.669	0.169	-0.144	0.607	0.202	0.046	0.062	0.076
DIE LINKE	0.016	0.604	0.091	-0.135	0.357	0.064	-0.112	0.248	0.162