methods, data, analyses | Vol. 9(1), 2015, pp. 57-86 DOI: 10.12758/mda.2015.002

How Much Inequality of Earnings Do People Perceive as Just? The Effect of Interviewer Presence and Monetary Incentives on Inequality Preferences

Stefan Liebig[1], *Meike May*[1], *Carsten Sauer*[1], *Simone Schneider*[2] & *Peter Valet*[1]

1 *Bielefeld University*
2 *Trinity College Dublin*

Abstract

This paper describes two studies designed to test how two structural conditions of an interview situation – the presence of an interviewer and use of incentives – influence respondents' preferences regarding inequality. According to goal-framing theory and findings from empirical justice research, different goal frames are activated in different types of relationships, producing different distributional preferences: Cooperative situations induce a normative goal frame resulting in a stronger preference for equality whereas competitive situations induce a gain frame in which individuals have stronger preferences for inequality. Assuming the former type of relationship is established by the presence of an interviewer and the latter type by incentivizing, we conducted two studies to test our hypotheses. The results suggest that building a cooperative relationship through interviewer presence and cooperation priming leads to a preference for equality, while use of incentives leads to a clear preference for inequality.

Keywords: justice attitudes, inequality preferences, interviewer presence, incentives, priming, survey methodology

© The Author(s) 2015. This is an Open Access article distributed under the terms of the Creative Commons Attribution 3.0 License. Any further distribution of this work must maintain attribution to the author(s) and the title of the work, journal citation and DOI.

1 Introduction

Research on survey methodology shows that the mode of data collection affects respondents' willingness to participate and to provide information. Although survey errors such as coverage error, non-response error, and measurement error are not constant across survey modes, there are "typical" survey errors that are related to individual survey modes (Groves, 1989; Lindhjem & Navrud, 2011; Vannieuwenhuyze, Loosveldt, & Molenberghs, 2010). Some general findings indicate that certain topics, issues, and items are more likely to produce higher rates of survey errors; however, theories remain to be formulated that can predict response behaviors under certain structural interview conditions accurately. This inability to anticipate responses is especially relevant when it comes to understanding how different interview settings affect inequality preferences.

In order to identify measurement errors and to choose appropriate adjustment methods, it is essential to understand how certain structural conditions of an interview situation evoke different response sets. This is particularly important in public opinion and attitude research where aggregate measures are used to draw substantial conclusions about a society's sentiments and opinions regarding political and societal issues.

Drawing on the "logic of justice" and goal-framing theory (GFT) (Lindenberg, 2006), this paper attempts to explain how certain structural features of interview situations affect respondents' inequality preferences. We focus on two crucial interview conditions that are found in most large-scale population surveys: interviewer presence and conditional incentives. The logic of justice suggests that different principles of justice are associated with specific types of social relations (Tyler, Boeckmann, Smith, & Huo, 1997); accordingly, goods should be distributed equally in cooperative relationships and equitably in competitive relationships, and should correspond to individual needs in family and kinship relationships. If we apply these findings to large-scale survey research, inequality preferences should be affected by the kind of relationship respondents share in the situation in which they are completing the questionnaire.

Direct correspondence to
Stefan Liebig, Universität Bielefeld, Postfach 100131, 33501 Bielefeld
E-mail: stefan.liebig@uni-bielefeld.de

Acknowledgment: This article is an outcome of the research project "The Legitimation of Inequalities – Structural Conditions of Justice Attitudes over the Lifespan" which is funded by the German Research Foundation (DFG) within the Collaborative Research Center (Sonderforschungsbereich 882) "From Heterogeneities to Inequalities" at Bielefeld University, Germany. We thank two anonymous reviewers for helpful comments, critiques, and suggestions, and William White and René Reinholz for language editing.

By coupling the logic of justice with GFT, we argue that interviewer presence and use of conditional incentives establish different types of social relationships in an interview setting. These types of relationships activate certain cognitive frames which in turn lead to individual preferences for more or less inequality. The first assumption is that interviewers try to establish a cooperative situation with the respondent in order to increase response rates. The second assumption is that the use of conditional incentives as a way of increasing response rates establishes an (economic) exchange situation that has the same character as a competitive social relationship. Therefore, we hypothesize that respondents will prefer a lower degree of inequality (i.e., more equality) in the presence of an interviewer and a higher degree of inequality (i.e., less equality) if they are given a conditional incentive for completing the questionnaire.

To test these predictions, we conducted two experiments involving undergraduate students at a German university ($N_{Study1} = 145$; $N_{Study2} = 210$). We varied the interview situations experimentally by having an experimenter in the room, by displaying stylized eyes on the computer screen (see Figure A1 in Appendix), by introducing priming techniques, and by offering monetary incentives. In order to lower the risk of social-desirability bias, individual preferences for inequality were measured indirectly through the use of a vignette module that focused on fair earnings.

This paper is organized as follows: First, the concept of the logic of justice is introduced with reference to empirical justice research. We then report findings concerning the situational vulnerability of justice behavior and attitudes. The next section presents the theoretical model we used, which was based on GFT and our hypotheses concerning the situational dependence of (in)equality preferences. In the methods section, we describe the experimental design, measurement of variables, and sample issues. The paper concludes with a presentation and discussion of the findings.

2 Theoretical Background

2.1 The Logic of Justice

Because most of the resources we value in our lives are scarce, conflicts arise about the allocation and distribution of such goods. To solve this kind of conflict, several norms and principles have emerged during human cultural evolution (Krebs, 2008; Miller, 1999). As psychological justice research has shown, four principles are fundamental (Deutsch, 1975; Konow, 2001; Miller, 1999): *equality* (everybody should receive the same), *equity* (benefits and burdens should be distributed proportionally according to individual investments), *need* (everybody should get

enough to cover basic needs), and *entitlement* (people should receive either benefits or burdens based on their ascribed or achieved status characteristics, such as gender, education, occupation, or origin). One key empirical finding is that there is a homology between types of social relationships and the application of these justice principles. In very close long-term relationships, the principles of equality and need are preferred, whereas in competitive short-term relationships, the equity principle dominates, and in hierarchical relationships, entitlement is important (Törnblom, 1992). The stronger the subjects' social involvement in decisions concerning allocation (e.g., through direct personal contact with other subjects or the experimenter), the sooner subjects will base their decisions on the principles of equality or need (Konow, 2001). This applies even when respondents are asked to consider what would be a fair distribution of income in a society (Traub, Seidl, & Schmidt, 2009). In the early 1980s, researchers found that the type of social relationship determines which principle of justice is selected, but that there is also a reverse effect: the validity and application of the relevant principle of justice also has an impact on the nature of the social relationship. Equality and need-based rules strengthen close and long-term relationships, whereas rules based on the equity principle lead to the development of competitive short-term relationships (Schwinger, 1981).

The logic of justice evident in the homology between types of social relationship and the respective justice principles can be further differentiated by using a typology introduced by Alan P. Fiske (1991; this paragraph is based on Liebig & Sauer 2013, 2015). Fiske assumes that there are four ideal types of social relationships (Figure 1). The first type is driven by strong ties and long-term relationships between individuals. Here the individual is integrated into a community (*Gemeinschaft*; see Tönnies, 1887) in which all members share the same origin and identity. These communities define themselves as solidary communities in which helping one another is a given and will assure the survival of one's group or family and – from an evolutionary perspective – the survival of one's descendants and one's genes. Classic examples are families and clans based on kinship relations. In such relationships, the distribution rule that would be considered "just" is the need principle: all individuals get as much as they need to survive. The second type is characterized by hierarchical relationships. Examples include pre-modern hierarchical societies (*Ständegesellschaften*) and bureaucratic organizations with different hierarchical levels in which each level has authority over the subordinate levels. In these contexts, the responsibility of higher-ranking individuals is to give instructions to lower-ranking individuals. Higher-ranking individuals have the power to sanction subordinates should they not follow the instructions, and they take responsibility for the lower-ranking individuals, who recognize their superiors' authority in return. The corresponding principle of justice in these situations is entitlement. All individuals get what they are entitled to according to their position in the hierarchical structure. The third type is marked by an absence of rank differ-

Type 1 Solidary communities: *Need*	Type 2 Hierarchical relationships: *Entitlement*
Type 3 Social-exchange relationships: *Equality*	Type 4 Economic-exchange relationships: *Equity*

Figure 1 The logic of justice: homology between types of social relationship and justice principles

ences. Examples include non-hierarchical networks, peer groups, and cooperatives. Members treat each other as equal despite individual differences, and everyone has the same rights and duties. Relationships are characterized primarily by mutual exchange in which – following strict reciprocity – the rewards and inputs between individuals are balanced. The dominant justice principle in this type of social relationship is equality. The fourth type is defined by short-term relationships between strangers and is typical of market relations. These are economic-exchange relationships in which individual actors offer goods and services for maximum personal benefit. The related justice principle here is equity.

The conclusion from this model is, first, that the meaning of justice is not based on any single principle that is superior to any other competing principle. Individuals can regard different distributive principles as just, applying each of them to different situations. Second, for each "ideal type" of social relationship there is a corresponding justice principle that constitutes what may be called the logic of justice. Therefore, the normative expectation is that goods will be distributed equally in social-exchange relations but equitably in economic-exchange situations. For our purposes, the crucial point is that within an interview situation, either type of social relationship may be established. If a respondent is offered a (conditional) incentive for filling out the questionnaire, an *economic-exchange situation* between the interviewer and the interviewee is established. Once there is no monetary or non-monetary (conditional) incentive, a *social-exchange relation* is established – respondents may invest their time in filling out a questionnaire because they think, for example, that it is their duty as a citizen, they see a chance to express their views, they want to get social approval from the interviewer, or they simply want to attract the interviewer. According to the logic of justice, different justice principles will be appropriate in both situations. In Section 2.2, we discuss research providing empirical evidence that the situational conditions of an experiment or an interview influence respondents' preferences regarding how goods should be distributed.

2.2 Research on the Situational Conditions of Justice Behavior and Attitudes

Studies in behavioral economics and social psychology have shown that the structural conditions of an interview situation affect the inequality preferences of respondents. These structural conditions are (1) framing with regard to the type of social relationship, (2) anonymity, and (3) incentivizing.

(1) *Framing of a situation:* In determining moves in an Iterated Prisoner's Dilemma game, Liberman, Samuels, and Ross (2004) framed the dilemma as either a competitive or a cooperative situation by labeling it "Wall Street Game" or "Community Game." Participants in the condition with the "Community Game" label were significantly more willing to cooperate with the other participants. Hertel and Fiedler (1994) primed their subjects by using evaluative and emotional priming with positive and negative connotations of cooperation and competition. As expected, the positive connotations of cooperation led the participants to cooperate more. Hole (2011) tested how priming would influence the decisions of dictators during the distribution phase by using a communication phase on fairness before a one-shot Dictator Game. Participants in the treatment group were asked during this communication phase what they thought might be a fair distribution. This resulted in significantly higher offers of the framed subjects (for an overview with precise descriptions of the games applied, see Fehr & Schmidt, 2006). This finding was supported by Liebig (2001) with regard to justice attitudes. Subjects who were given a detailed description of how philosophers understand justice and how justice attitudes must rely on moral judgment to overcome self-interest showed an attitude pattern on the justice of taxes that was less affected by self-interest. In sum, research shows the relational framing of a situation has an effect on the distributional decision-making process.

(2) *Anonymity:* Hoffman et al. (1994, 1996) varied the anonymity between participants in a Dictator Game. The more anonymous the situation was for the dictators, the less they were willing to give. Gächter and Fehr (1999) show similar results for investments in a public-good game. Communication between participants also led them to invest more in a trust game (Ellingsen & Johannesson, 2004) or to give the recipient more money in a Dictator Game (Xiao & Houser, 2009). Findings were similar when the family names of the players were revealed to the others (Charness & Gneezy, 2008) or the anonymity between subject and experimenter was varied (Bolton & Zwick, 1995).

There is some evidence that simply placing visual cues of eyes on a computer screen alters behavior and inequality preferences (Bateson, Nettle, & Roberts, 2006; Burnham & Hare, 2007; Haley & Fessler, 2005; Rigdon, Ishii, Watabe, & Kitayama, 2009). In dictator games, images of eyes presented to the dictator led to higher-than-average monetary gifts for the recipient (Haley & Fessler, 2005; Rig-

don et al., 2009). Similar results were found by Burnham and Hare (2007) in a public-goods game displaying the image of a robot with human eyes on the computer screen. Subjects in the "eyes" condition contributed significantly more (29% more) to the public good than did subjects in the control condition (Burnham & Hare, 2007). Bateson et al. (2006) displayed an image of a pair of eyes above an honesty box in a university coffee area and observed that people paid more for their coffee when they were "watched" by these eyes than in a control condition with neutral images. Their explanation of this finding is that cues of eyes subconsciously activate those brain regions responsible for detecting human faces, including gaze and facial expression. People are subconsciously aware of "being watched" or "being observed." Aside from these findings, a more recent study did not find any effects of an image or cues of eyes on altruistic or equality-oriented behavior (Vogt, Efferson, Berger, & Fehr, 2014).

(3) *Incentivizing:* In laboratory experiments, incentivizing is used in two ways: first as a "show-up" fee for participants and second as performance-related incentives incorporated into the experimental design. Average performance is not changed substantively by increased incentives, although the variance of responses often decreases (for a review, see Camerer & Hogarth, 1999, p. 9). Although increases in stakes in the dictator game apparently do not have a strong effect on the amount offered (Fehr & Schmidt, 2006, p. 625), people are less generous in allocation decisions when the stakes are real as opposed to hypothetical (Hertwig & Ortmann, 2001).

In survey research, the positive effect of incentives on willingness to participate and data quality is well documented (Becker & Mehlkop, 2011; Singer, Van Hoewyk, & Maher, 2000; Toepoel, 2012). However, the results for response bias are mixed. Most studies were not able to confirm incentive effects on responses (Becker & Mehlkop, 2011; James & Bolstein, 1990), but some found significant differences, at least for some attitudinal measures (James & Bolstein, 1990; Singer et al., 2000).[1] However, we know little about the effects of incentives on inequality preferences in surveys.

To summarize, research suggests that (1) inequality preferences and distributive behavior are influenced by the framing of a situation, (2) inequality preferences depend on the social relationship established between actors, and (3) incentives shift behavior and inequality preferences to more selfish allocation strategies and higher-inequality preferences. Although each of the studies we referred to provides some theoretical reasons for the empirical results reported, there is no theoretical model that allows one to deduce testable assumptions as to which situational conditions we may expect to result in which inequality preferences. One theory

1 James and Bolstein (1990) found that with larger monetary incentives, respondents expended greater effort in completing the questionnaire and made more favorable comments about the survey sponsor.

that could potentially serve as such a general theoretical model is Lindenberg's GFT because it clarifies the theoretical link between the situational conditions and inequality preferences and helps to formulate specific hypotheses regarding the structural conditions in which people prefer more or less inequality in society.

2.3 Using GFT to Explain Inequality Preferences

Following the seminal work of Kahneman and Tversky (1984, 2000) the literature on framing processes shows that when people make decisions they pay selective attention to situational cues. They retain cues that give them the information they need to pursue their current motivational goal while suppressing other information. At the same time, certain situational cues will activate specific information and knowledge in an individual's memory. Both selective attention and the activation process are governed by a cognitive-motivational – or "framing" – process. This process includes the mechanism by which motivational goals influence the cognitive processes of actors and their mental models of a given situation. A mental model is particularly relevant in social relationships because it contains information about the prototype of a relationship and the behavioral rules, expectations, and social norms it involves. Therefore, it helps to know what kind of behavior is appropriate or expected in a specific situation. Actors use situational cues in order to define the kind of situation or relationship they are confronting and to act appropriately and efficiently according to their goals.

As part of a general theory of human action (Lindenberg, 1990, 2001, 2006), GFT distinguishes three types of "master goal frames" and forms the core motivation for behavior: a *normative frame*, the goal being "to act appropriately"; a *gain frame*, the goal being "to increase one's resources"; and a *hedonic frame*, the goal being "to feel better" (Lindenberg, 2006). Each of the three frames has a different a priori strength to govern behavior. The hedonic frame is considered the strongest because it is closest to the psychological self and to emotions. The gain frame is considered second in strength, and the normative frame is the weakest because it depends largely on the support of other motivational goals that require the same behavior.

In a given situation, the master frame and mental model that are active depend on the structural conditions of that situation, an individual's cultural knowledge (e.g., what rules exist for solving distributional conflicts), and, according to the more general theory of social production functions (Ormel, Lindenberg, Steverink, & Verbrugge, 1999), the actual level of physical and social well-being. We assume that the two basic structural conditions within an interview or experiment – i.e., the presence of an interviewer and use of incentives – will determine which of the master goal frames will be activated. Once a goal frame is activated, it is part of an individual's "cultural" knowledge to know the "right" mental model for behav-

ing appropriately. Here, the findings from justice research come into play: the corresponding mental model is the logic of justice in which an ideal type of social relationship connects with one of the four general justice principles.

In order to derive empirical assumptions about how the structural conditions of an interview situation result in "biases" in inequality preferences, we must (1) consider what type of social relationship is established within a survey interview and (2) ask what kind of expected behavior or attitude is related to it (Lindenberg, 2006). In a non-incentivized survey or experiment, respondents receive no money for participating yet they bear costs in terms of time and answering cognitively demanding or personal questions. Assuming that other motivations to participate – curiosity, entertainment, or sympathy of the interviewer – cannot fully explain the response rates, non-incentivized surveys or experiments basically rely on the willingness of the participant to cooperate in order to produce a public good. Such cooperation is supported by interviewers in that they often try to motivate respondents to participate by asking for "help" or "support." Under these conditions, GFT assumes that the normative goal frame will be activated and a respondent's goal is to act appropriately. The behavior associated with a normative goal frame is prosocial behavior, in which a person is prepared to bear costs to benefit others because it is appropriate to do so.[2] According to the logic of justice, the dominant norm of allocating or distributing resources within a cooperative relationship is the equality principle. Under the condition of an activated normative goal frame, we expect respondents, when asked to evaluate inequalities, to formulate their judgments in light of the equality principle. Hence, respondents should reveal greater preferences for equal distribution in non-incentivized interview situations. The presence of an interviewer will confirm this equality orientation because the interviewer tries actively to establish a cooperative relationship; the interviewer will also be perceived as an agency controlling whether or not respondents are acting appropriately.

Incentivizing participation in a survey establishes a social relationship in which respondents would be oriented more toward their self-interest. Giving money *conditionally* for completing the questionnaire establishes an economic-exchange relationship, that is, respondents are rewarded with a certain amount of money for investing their time and effort. Under these conditions, GFT assumes that respondents frame the situation according to their personal gain. Following the logic of justice, the principle required to solve distributional conflicts within economic-exchange situations is the equity principle; individuals receive a distribution according to their individual contributions. Hence, we would expect respondents with an activated gain frame to assess inequalities on the basis of the equity principle, which leads to greater inequality preferences.

2 Prosocial behavior can also be observed in the gain or hedonic frame, but the motivation is a different one. In the gain frame, people act prosocially when it is an efficient means to increase gain, and they do so in the hedonic frame when it feels good.

Our baseline assumption is that the type of social relationship established in an interview setting will determine the activation of a specific cognitive frame that in turn will influence the response behavior (in this case, inequality preferences). In particular, we assume a cooperative relationship to activate a normative frame that induces preferences for equal distributions, whereas an economic-exchange situation or a competitive relationship (in contrast to a cooperative relationship) is likely to activate the gain frame, which induces greater inequality preferences. These structural conditions may cause biases in response behavior in survey research, especially regarding attitudes toward just distributions. We therefore expect two situational cues to be of specific importance: (a) the presence of others (e.g., an interviewer) and (b) use of incentives. Four hypotheses are derived from the theoretical reasoning outlined above. The first two are more general assumptions related to the logic of justice and the stated correlation between type of social relationship and inequality preference:

- (H_1) In *cooperative* situations, the equality principle is the predominant justice norm, and therefore a more *equal* distribution of resources will be preferred.
- (H_2) In *competitive* situations, the equity principle is the predominant justice norm, and therefore a more *unequal* distribution of resources will be preferred.

From these two hypotheses follow two more specific hypotheses about the influence of the structural conditions within an interview situation and the normative preferences:

- (H_3) In *interviewer-assisted* situations, the *equality* orientation is stronger compared to situations in which the interviewer is not present.
- (H_4) In *incentivized* interview situations, the *inequality* orientation is stronger compared to situations that are not incentivized.

3 Empirical Design

In order to test our hypotheses, we needed an appropriate research design and an accurate measure of inequality preferences. We opted for a laboratory experiment (Study 1) and an experimental survey study (Study 2). The laboratory experiment had several advantages, one of which was that it allowed us to test the direct effect of a factor on the dependent variable in an artificial situation in which we were able to control for other factors. Furthermore, the random assignment of subjects to either the control group or the treatment group ensured that no external traits of the subjects would influence the measured effect (see also Webster & Sell, 2007, p. 12). In addressing our research question, the experiment provided the opportunity to control the interview situation in terms of presence of other individuals and interviewer behavior. The second study was an experimental survey study. Respondents

were randomly assigned to treatments. In both studies, we chose from among three possible experimental conditions: (a) the activation of a specific mindset (cooperation vs. neutrality, and cooperation vs. competition) through *priming* techniques (H_1, H_2), (b) the *presence of another person* while a self-administered questionnaire was completed (H_3), and (c) use of conditional *incentives* for participation (H_4).

Priming: In order to activate the normative or gain goal frame subliminally, we used the scrambled-sentence test as a priming technique. Originally introduced by Srull and Wyer (1979), this test appeared to be the most appropriate technique for our study. Before being presented with the actual questionnaire, respondents were asked to participate in a cognitive language test (which we called a *Sprachfertigkeitsübung*). They had to build logical sentences out of a given number of word sets. We expected to activate either a "cooperative" or a "competitive" mindset through the use of specific words associated with the two mindsets evoked. We varied the priming conditions in the two experiments and tested cooperation priming versus a neutral control group in Study 1 and cooperation priming versus competition priming in Study 2.

Presence of others: We used two different experimental setups to measure the influence of interviewer presence on inequality preferences: (a) the presence or absence of another person in the room (i.e. the laboratory) where the respondent filled out the questionnaire on a computer (simulating interviewer presence or absence) in Study 1, and (b) the presence or absence of an image of eyes on the computer screen while the participants filled out the online questionnaire in Study 2 (see Figure A1 in the Appendix). In Study 1, the control group filled out the questionnaire without another person in the room; in Study 2, the control group completed the online questionnaire on a computer screen that did not show images of eyes.

Incentives: In Study 2, we tested the effect of incentives on inequality preferences. We randomly selected two groups of study subjects: the first group was asked to participate in our online survey without any incentive, whereas the second group was offered a payment of €5, to be paid *after* they had completed the questionnaire (conditional incentive), for participating in the study. Table 1 presents an overview of the research design for both studies.

Inequality preference: One-item measures of attitudes toward earnings inequality are problematic because they produce virtually no variation in the responses regarding inequality preferences. Social desirability among other aspects may be a reason. Therefore, use of a factorial survey design (see Jasso, 2006; Rossi & Anderson, 1982; Wallander, 2009) appeared to be advisable because it allows the indirect measurement of specific preferences regarding earnings inequality by asking respondents to evaluate the justice of earnings on the basis of several descriptions of fictitious employees (vignettes). These multiple evaluations of just earnings

Table 1 Research design of Study 1 and Study 2, according to the four study hypotheses

Study	Priming (H1, H2)	Presence of others (H3)	Incentives (H4)
1	Cooperation vs. neutral	Experimenter present: yes/no	No treatment: Every participant received €10 as a conditional "show-up fee" (paid after completing the questionnaire)
2	Cooperation vs. competition	Eyes on screen: yes/no	Participants received either no incentive or €5 (paid after completing the questionnaire)

can be used to reconstruct the individual inequality preference measured by an individual Gini coefficient.[3]

For our study, we used vignettes that described full-time employees (working 40 hours per week) who differ in ascribed and labor market–related characteristics and who earn a specific monthly gross income (see Table A1 in the Appendix).[4] The selection of these dimensions was based on theoretical considerations grounded in previous studies (Alves, 1982; Jasso & Rossi, 1977; Jasso & Webster, 1997; Sauer, Auspurg, Hinz, & Liebig, 2011; Sauer et al., 2009; Struck et al., 2006). The vignettes were presented on a computer screen using the same layout in all experimental settings (see Figure 1A in the Appendix). The following is an example of the wording used:

> A 55-year-old woman with no vocational training has three children and works as a clerk.
>
> She works in a company with a stable economic situation. Her performance is above-average.
>
> Her monthly gross earnings (before tax and other deductions) are €1,500.

A sample of 20 vignettes was drawn randomly from the vignette universe and presented to the subjects, meaning that each participant was asked to rate exactly

3 The individual Gini coefficient measures the inequality preference of respondents. The coefficient reflects the inequality among values of a frequency distribution. Perfect equality is expressed by Gini=0, maximal inequality is expressed by Gini=1.

4 For an overview for the use of vignette studies in justice research, see Liebig et al. 2015.

the same vignettes.[5] The purpose of this evaluation task was to decide whether or not the specific amount of gross earnings was just for the person described in the vignette and, if not, what a just amount of gross earnings would be in local currency (euros).[6] The just earnings provided by the participants were then used to calculate the Gini coefficient. This inequality measure is the outcome variable for all the following analyses.

4 Description and Results of Study 1

Study 1 was designed to test the effects of two experimental conditions on individual inequality preferences: (1) the effect of a cooperation frame (induced by a priming instrument) (H_1) and (2) the presence of others (presence or absence of the experimenter) (H_3). The experiment was conducted at a German university during the winter term of 2011/12. All of the participants were undergraduate students who had responded to handouts containing basic information about the study (time, place, duration, and compensation) that were distributed in the main building of the university.

The sample consisted of 145 participants. These were randomly assigned to the different experimental treatments, as shown in Table 2: 65 participants (45%) completed the survey in the presence of another person, while 80 participants (55%) filled out the questionnaire with no other person present in the room; 79 (54%) of all participants were primed on cooperation, while 66 (46%) were given neutral primes.

5 In other research designs, it is useful to draw several decks to collect ratings of as many vignettes as possible. Furthermore, sophisticated sampling techniques are recommended in order to arrive at efficient estimations of the coefficients (Atzmüller & Steiner, 2010; Dülmer, 2007). However, this was not necessary in the setup described because we were investigating differences using different experimental settings.

6 To avoid response heuristics that would make it easier to state a preference for the earnings described in the vignette by simply checking a box instead of typing in a value, participants had to insert a specific amount of money even if they thought the earnings stated were just. In the latter case, subjects had to type into the blank field the same value as was given in the vignette description. In the factorial survey literature, this is known as the "direct approach," that is, an approach in which respondents use an open scale to insert a value, as opposed to the "indirect approach," in which respondents do not provide a specific monetary value but instead use a justice scale to evaluate whether the value is just (sometimes by means of a rating scale but also with the use of open scales) and, subsequently, the researcher estimates the just earnings by means of individual regression techniques (for details, see Jasso, 2006; Jasso & Wegener, 1997). As discussed in the literature, the direct answers may lead to anchor effects – i.e., respondents adjusting their ratings to the income provided in the vignette – but this effect was not a problem in our study because only the differences between experimental groups were analyzed.

Table 2 Number of respondents per experimental condition in absolute values

	Cooperation-primed group	Control group	N
No other person present	44	36	80
Another person present	35	30	65
N	79	66	145

Data: "Experiment on the influence of cooperative relationships on justice evaluations." (doi: 10.4119/unibi/sfb882.2012.1).

The experiments were conducted in two laboratories equipped with a computer screen on a table, along with a chair for the participant, as well as a table and chair for the experimenter when called for. Participants were asked to take the scrambled-sentence test and later to fill out a questionnaire regarding issues of social justice (including the vignette study on inequality preferences), personal background, and other questions used to control for side effects (e.g., using a social-desirability scale).[7] On average, the questionnaire took 35 minutes to complete.

4.1 Measurement

Inequality preferences were measured by the factorial survey design described in Section 3.[8]

Priming: Participants were given 20 sets of four or five words in a scrambled order and were asked to construct grammatically correct sentences. The cooperative mindset should be activated by words closely related to "cooperation" such as "together," "help," "cooperation," "fair," "trust," and "sharing." In total, 10 out of 20 sentences (50%) included primed wordings. The priming instrument was developed on the basis of previous studies on cooperation priming (Bargh, Gollwitzer, Lee-Chai, Barndollar, & Trötschel, 2001; Bry, Meyer, Oberlé, & Gherson, 2009; Drouvelis, Metcalfe, & Powdthavee, 2010; Kay & Ross, 2003). The control group received neutral sentences.[9]

7 The questionnaire was programed using the web survey software Unipark.

8 For descriptive statistics of the variables, see Table A2 in the Appendix.

9 Four participants reported that they were aware of being primed. To avoid contrast effects, we excluded these participants from the analyses. Another respondent was excluded because that participant failed to provide information on age and gender. The final analysis was thus based on 140 participants.

Presence of others: All participants were welcomed by an experimenter[10] who introduced them to the setup of the study. If the participant was randomly assigned to the experimental group, the experimenter stayed in the laboratory while the participant filled out the questionnaire at the computer. The experimenter was asked to remain quiet, without watching the computer screen during the task. The experimenter paid the show-up fee to the participants after they completed the questionnaire. Participants in the control group were shown to the room by a secretary and filled out the questionnaire with no other person present in the room. These participants were paid the show-up fee in cash by the secretary after they completed the questionnaire.

Incentives: All participants received a show-up fee of €10 in cash after completing the questionnaire. Because we did not vary incentivizing in this study, we are not able to test the effect of incentives.

Social desirability: To ensure that our results would not be biased by social desirability, we used three items from the impression management scale, which is based on the work of Paulhus (1984, 1991) and which was empirically tested by Winkler, Kroh and Spiess (2006).

4.2 Results

A comparison of the means of the individual Gini coefficients of participants with and without the presence of an experimenter revealed no significant difference in inequality preferences ($Gini_{w/o} = 0.29$; $Gini_{w/} = 0.31$; $t = -1.16$; $p(T>t) = 0.88$). The same applied to the priming condition: participants who received cooperation priming did not deviate significantly in their reports on inequality preferences from those in the neutral priming condition ($Gini_{coop.} = 0.29$; $Gini_{neutral} = 0.30$; $t = 0.37$; $p(T>t) = 0.36$). It would appear that neither presence of others nor cognitive priming on cooperation is a sufficient condition for activating a normative goal frame that would influence inequality preferences.

To filter the true effects of the two experimental conditions from effects induced by characteristics of the respondents, we performed an ordinary least squares (OLS) regression, controlling for social desirability by including the impression management scale and the respondents' gender and age. In a second model, we extended this basic model by adding interactional effects between the two experimental conditions to determine whether priming would have an effect on inequality preference depending on the absence or presence of an experimenter.

10 We recruited graduate students from a class on social stratification (master's degree level) to work as experimenters (N = 14; 50% female).

Table 3 Preference for earnings inequality (Gini) regressed on two experimental conditions (cooperative priming and experimenter presence)

	Preference for earnings inequality (Gini)			
	Model 1		Model 2	
Treatments variables				
Priming (cooperative = 1)	-0.001	(0.013)	0.018	(0.017)
Experimenter (present = 1)	0.009	(0.012)	0.032*	(0.018)
Priming * experimenter			-0.043*	(0.024)
Control variables				
Social desirability	-0.004	(0.008)	-0.003	(0.008)
Gender (female = 1)	-0.022+	(0.013)	-0.023*	(0.013)
Age (in years)	-0.005***	(0.001)	-0.005***	(0.001)
Constant	0.470***	(0.034)	0.464***	(0.034)
N	140		140	
R^2	0.154		0.172	

Notes: OLS regression coefficients, robust standard errors in parentheses, one-sided t-tests, +p<.10, * p<.05, ** p<.01, *** p<.001, doi:10.4119/unibi/sfb882.2012.1.

Table 3 shows the findings of both OLS regression models. The first model reports the main effects of the two experimental conditions while controlling for personal characteristics (social desirability, gender, and age); the second includes the interactional effects. Even when controlling for personal characteristics, we found that our two experimental conditions had no main effects on the preference for earnings inequality (Model 1). Testing for interaction effects (Model 2) revealed that the cooperation priming condition was effective only if the experimenter was present in the room. Participants primed on cooperation preferred less inequality only in the presence of another person. If no one else was in the room, respondents in the two priming conditions showed the same response pattern regarding earnings inequality. Contrary to our prediction, presence of another person in the neutral priming condition was related to a preference for greater inequality.

Of the control variables, only age and gender showed significant effects: older students and female students preferred a lower earnings inequality than did the younger students and male students. The scale for detecting a response bias toward social desirability had no effect.

4.3 Summary

As all respondents were paid for completing the questionnaire we induced an economic exchange situation for all participants. Following our theory this results in an activation of the gain frame. Accordingly we expected a higher level of inequality preference for all respondents. Evidence is provided by comparing the constant of the regression models in Table 3 and Table 5 (Table 5 reports results from an experiment were payment is experimentally varied). While under the general payment condition of Study 1 the mean Gini the respondents considered as fair is .470 (Model 1) resp. .464 (Model 2), the general level of preferred inequality in gross income in Study 2 is substantial lower (Model 1: .315, Model 2: .334). Seemingly, in Study 1 all respondents regardless the experimental treatment start with a higher level of income inequality as "economic exchange" is the default definition of the interview situation. The results for the experimental treatments indicate that only the combination of presence of the experimenter in the room and cooperation priming (activating a cooperative mindset) reduced individual inequality preferences significantly. Therefore, H_1 and H_3 are only partly confirmed: only when a cooperative relationship was established by the presence of an experimenter *and* an induced cooperative mindset, respondents showed a stronger equality orientation. What is quite unclear, however, is why priming on cooperation had no significant main effect. In accordance with GFT, single activation of a normative frame should be enough to alter the behavior of individuals. There are at least three possible explanations for this finding: (1) the priming was too weak and the difference between the two priming conditions was not distinct enough; (2) the priming instrument was filled out more seriously by the respondents when an experimenter was present and thus worked well only under this condition; and/or (3) participants knew that they would receive money for completing the interview, the gain frame was activated and the presence of another person was perceived as a "control mechanism" for checking how respondents behaved and to make sure they completed the questionnaire properly. In the last-mentioned case, the structural situational cues (incentive, person present) were stronger than the "psychological" cues of priming. The results on the condition "neutral priming, experimenter present" show that the presence of the experimenter may be interpreted as a control mechanism enforcing the structural induced framing. To better understand how incentivizing affects the response behavior on inequality preferences, we conducted a second study.

5 Description and Results of Study 2

Study 2 was designed as a follow-up study to test the effects of three experimental conditions on individual inequality preferences: (1) the differing effects of priming (cooperation vs. competition) (H_1, H_2), (2) the presence of others as simulated by eyes on the computer screen (eyes vs. no eyes) (H_3), and (3) the influence of incentives (incentivized vs. voluntary participation) (H_4). The study was conducted during the summer term of 2012 at the same German university. Respondents were recruited from an undergraduate course. Students received an email inviting them to participate in an online survey on inequality of earnings. Out of the 724 students invited to participate, 210 completed the questionnaire (response rates: 41% with incentive and 20% without incentive) (see Table 4). All participants were randomly selected; first, they had a 27.6 percent chance of being selected to the incentive sample; second, all participants had a 50 percent chance of being selected for the experimental conditions (priming and presence of eyes on the computer screen).

5.1 Measurement

Inequality preferences were measured using the factorial survey design described in Section 3.[11]

Priming for cooperation versus competition: We induced two mindsets: cooperation and competition. To improve the scrambled-sentence test we used in Study 1, we reduced the number of word sets to 12 and increased the number of primed words sets to 9. For the most part, the "cooperation" primes resembled the words chosen for the first priming condition in Study 1. The "competition" primes were developed based on examples from the recent literature (Bargh et al., 2001; Bry et al., 2009; Kay & Ross, 2003). Words such as "competition," "comparison," "arguing," "power," "assertion," "provocation," "winning," and "inconsiderate behavior" were used to induce a competitive mindset. To ensure comparability of the two experimental conditions, the sentences differed only in the specific priming but not in their structure.[12]

Presence of others: We chose to simulate the presence of others by displaying eyes on the computer screen while the respondent answered the questions. We used natural-looking eyes in the top right-hand corner of the screen (see Figure A1 in the Appendix). The eyes were not meant to be too prominent because we wanted to induce a feeling of someone being present at a subconscious level. Questions

11 For descriptive statistics of the variables, see Table A2 in the Appendix.

12 To avoid any contrast effects, we excluded 3 of the 210 participants from our analyses because they showed signs that they were aware of being primed, and 11 participants because they failed to provide complete information on just earnings in the vignettes, gender, or age. The analysis is thus based on 191 respondents.

Table 4 Number of respondents per experimental condition in absolute values

	No incentive		Incentive		
	No eyes	Eyes	No eyes	Eyes	N
Priming on cooperation	32	31	23	19	105
Priming on competition	35	31	19	20	105
N	67	62	42	39	210

Source: "Experiment on the influence of interviewer presence and incentivizing on justice evaluations." (doi: 10.4119/unibi/sfb882.2012.2).

concerning awareness and interpretation of the eyes were asked at the end of the questionnaire. In the control group, participants answered the same questionnaire, but the eyes were not present on the screen.

Social desirability: Again, we used the three items on social desirability, that is, impression management (see Winkler et al., 2006).

5.2 Results

When we compared the means of the individual Gini coefficients for participants with and for those without the presence of eyes on the computer screen, we found no difference in inequality preferences ($Gini_{w/o} = 0.28$; $Gini_{w/} = 0.28$; $t = -0.01$; $p(T<t) = 0.49$). The priming condition also showed no significant differences in inequality preferences; although there is a tendency that participants who received cooperation priming preferred less inequality than did participants who received competition priming ($Gini_{coop.} = 0.27$; $Gini_{comp} = 0.29$; $t = 1.55$; $p(T>t) = 0.06$). The difference between the incentive and non-incentive condition was significant ($Gini_{payment} = 0.29$; $Gini_{nonpay.} = 0.27$; $t = -2.01$; $p(T<t) = 0.02$). To test whether these results were sensitive to the contextual setting and whether they were biased due to social desirability, we performed the following analysis using OLS regression.

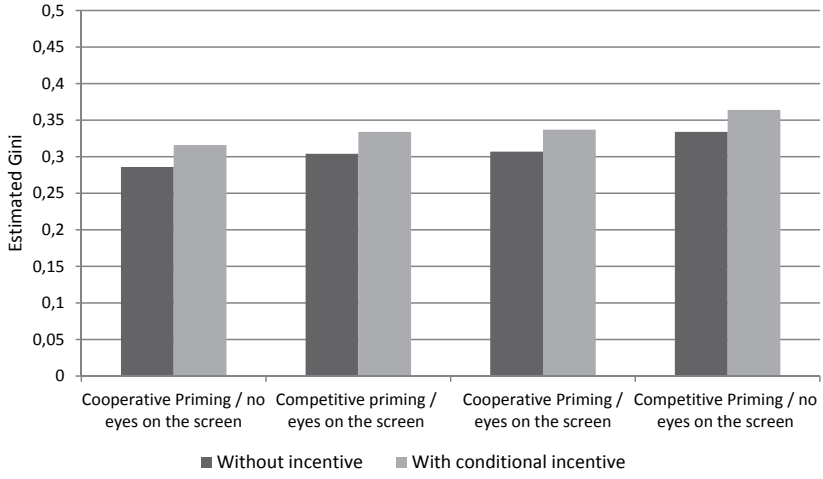
Again, we estimated two models, one testing only for the main effects of the three experimental conditions (Model 1) and the other including an interaction term for the priming condition and the "eyes on the screen" condition (Model 2) (Table 5). In both models we controlled for gender, age, and response bias (social desirability). We also added two variables to control for the interview situation: (1) if respondents were aware of the eyes on the screen and (2) if they completed the questionnaire while someone was in the room. The second question was asked to control for the presence of other people while the respondents filled out the online questionnaire.

Table 5 Preference for earnings inequality (Gini coefficient) regressed on three experimental conditions – competition, control (eyes), and payment)

	Preference for earnings inequality (Gini)			
	Model 1		Model 2	
Treatments				
Incentive (yes = 1)	0.030**	(0.012)	0.030**	(0.012)
Priming (Cooperation = 1, competition = 0)	-0.021*	(0.012)	-0.048**	(0.016)
Eyes on screen (eyes = 1, no eyes = 0)	-0.005	(0.012)	-0.030*	(0.017)
Cooperation priming with eyes on the screen			0.051**	(0.024)
Control variables				
Social desirability	-0.005	(0.007)	-0.007	(0.008)
Awareness of eyes on screen (yes = 1)	-0.025	(0.026)	-0.027	(0.026)
Any person present during completion of questionnaire (yes = 1)	0.009	(0.012)	0.009	(0.012)
Gender (female = 1)	0.003	(0.013)	0.004	(0.013)
Age (in years)	-0.001*	(0.001)	-0.001*	(0.001)
Constant	0.315***	(0.037)	0.334***	(0.026)
N	191		191	
R^2	0.021		0.088	

Notes: N = 191, OLS regression coefficients; robust standard errors in parentheses, one-sided t-tests. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. doi:10.4119/unibi/sfb882.2012.1.

Two of our experimental conditions influenced the preferred earnings inequality. Respondents who were paid after they completed the questionnaire preferred greater earnings inequality than did those who participated in the study without payment. Priming also had a significant effect: those with cooperation priming (normative goal frame) preferred lower earnings inequality as compared with those with competition priming (gain frame). This is in line with our Hypotheses 3 and 4. Contrary to our prediction, there was no significant main effect of "eyes on the screen," although the regression coefficient showed the expected direction: those with eyes on their computer screen had slightly smaller Gini coefficients, which indicates that they preferred lower earnings inequality. Of our control variables, only the age of a respondent had a significant effect: older students – mostly from the social sciences – preferred less inequality. The results showed no bias for social



Note: Based on Model 2 (Table 5) only considering the constant and the coefficients of incentive, priming, eyes on the screen and the interaction of the two latter main effects.

Figure 2 Estimated levels of preferred inequality (Gini) for the combination of two experimental treatments

desirability whether respondents became aware of the eyes on the screen or they were not alone while completing the questionnaire.

In Model 2, we tested our previous finding that in the presence of an experimenter or an interviewer, respondents who underwent cooperation priming endorsed less earnings inequality. Although the main effects of the two conditions "incentive" and "priming" remained more or less the same, the main effect of eyes on the screen was now significant. But, contrary to our predictions and to the findings from Study 1, the interaction effect with priming was positive, meaning that those with a cooperative mindset and eyes on the screen preferred greater earnings inequality when compared with those in the experimental condition "cooperation priming with no eyes on the screen" ($p_F = .106$, one sided F-test). These results showed no biases for the control variables social desirability, awareness of eyes, and people present while the questionnaire was being filled out. As for Study 1 we provide the estimated Gini level for the eight experimental combinations in Figure 2. Again, it can be seen that cooperative primed respondents without incentive (and without eyes on the screen) showed the lowest level of estimated Gini (0.286), while competitive primed respondents with incentive the highest level (0.364).

5.3 Summary

Study 2 provided evidence that respondents who received a payment for completing the questionnaire showed a significantly greater preference for inequality than did those who completed the questionnaire voluntarily. Together with the findings from Study 1 – where all participants received an incentive and we observed a general higher level of inequality preference (constant in Study 1 regression: .470/.464 vs. constant in Study 2 regression: .315/.334) – these results support Hypothesis 4. The finding holds independently of any priming effect. Our explanation is that by using conditional incentives, an economic-exchange relation is established and the respondents will act according to their gain frame. However, the results on type of relationship (relational mindsets) and presence of an interviewer only partly confirmed our other three hypotheses (H_1, H_2, and H_3): only in the no-eyes condition did respondents who had a cooperative mindset prefer more equality and who received competition priming more inequality. The presence of eyes on the screen revealed no clear effects: respondents with a competitive mindset showed slightly lower inequality preferences, whereas those with a cooperative mindset preferred slightly greater inequality (differences are on the third decimal place). These findings leave room for speculation as to whether the condition "eyes on the screen" can truly function as a substitute for the presence of another person, as we had assumed at the outset. Eyes on the screen may not necessarily induce cooperation but may be perceived as situational cues for social control and anticipated sanctions for norm-violating behavior as we already assumed in Study 1. Because recent studies have reported heterogeneous and contradictory results when investigating whether the presence of eyes on the computer screen would affect altruistic or egoistic behavior (see Vogt et al., 2014), we suspect that this instrument might not be valid as a substitute for the presence of an interviewer.

6 Discussion

Large-scale population surveys are predominantly based on interviewer-assisted data collection, and incentivizing is becoming a more common practice in survey research. In this study, we investigated whether these structural conditions of interview situations influence individual inequality preferences. In keeping with GFT and empirical justice research, the main argument was that in both structural conditions – presence of an interviewer and use of incentives – different types of social relationships are established and either a normative frame or a gain frame is activated in the respondent. The consequence of different framing is that respondents will apply different distributive principles when evaluating earnings inequality according to the "logic of justice." In normative framing, the equality principle

is dominant, whereas in gain framing, the equity principle is the appropriate distributive principle. Therefore, in a survey setting, having another person present in the interview room in addition to establishing a cooperative relationship by means of priming was expected to influence respondents' preferences in favor of a more equal distribution of earnings. In contrast, when respondents are paid for participating and a competitive relationship is established through priming, their preference will be for less equal distributions.

The results of two experiments we conducted involving students at a German university showed that establishing a competitive relationship by incentivizing respondents led to a response bias toward greater earnings inequality. The results concerning the presence of an interviewer were not as straightforward: the combination of interviewer presence and the inducing of a cooperative relationship led to an equality bias. Hence, the mere presence of an interviewer was not sufficient to trigger a normative framing of the interview situation. The use of styled eyes on the computer screen while respondents filled out the online questionnaire was intended to serve as a substitute for interviewer presence, but the results of this test were heterogeneous and in fact contradictory. Instead, the respondents appeared to feel watched or controlled by the eyes on the screen, which undermined the perception of a cooperative relationship and failed to activate a normative goal frame.

In general, our results raise the concern that measures of inequality preferences are affected by situational conditions and cues. The effects of paying respondents for completing a questionnaire were the most robust, incentives induced preferences for higher inequality. But, since we used student samples and interviewer settings that are not strictly comparable with those used in large population surveys, our results cannot be generalized and simply transferred to the "survey reality." Our assumptions must therefore be tested under more appropriate conditions. Nevertheless, we were able to show that certain effects of the study design must be controlled for because they can influence the substantive findings of surveys on inequality preferences.

Overall, our results suggest that population surveys on attitudes toward social inequality or social justice should not rely on one mode of data collection alone. Each mode is characterized by different structural conditions and produces certain situational cues that affect respondents' behavior systematically. If our experimental data on the effects of the presence of experimenter in combination with a cooperative mindset reflect a general phenomenon of framing and adapting of inequality preferences to situational cues, survey data using interviewer-assisted modes may overestimate the equality orientation within a population. This might be the case when interviewers establish a cooperative relationship with their respondents within the interview situation and by doing so strengthen a normative, equality oriented framing. Interviewers from a recent German employee-survey on the perceptions and evaluations of social inequality (LINOS1, DOI: 10.4119/unibi/sfb882.2014.9,

CAPI-split, N = 1007) report for 59 percent of the completed interviews that the interview situation was characterized by a cooperative and trustful mindset of the respondent. If respondents of this survey show the same response pattern under the conditions of a collaborative mindset and present of interviewer, we expect a substantial equality oriented response bias.

As effects of conditional incentivizing on inequality preferences were observed in both studies, our results contribute to the ongoing discussion about whether large-scale population surveys should use incentives to increase respondents' willingness to participate. Aside from the question of whether payment really contributes to higher-quality data by increasing the response rates in population surveys, our study showed that paying for participation is relevant not only for methodological purposes but also for substantive issues. If other respondents behave towards incentives the same way as our student sample did, we may observe a very different picture of the inequality preferences within a society. Therefore, the question to be addressed in future research is which attitudes are relevant to political or other types of behavior – those resulting from a normative frame or those resulting from a gain frame.

7 References

Alves, W. M. (1982). Modeling Distributive Justice Judgments. In P. H. Rossi & S. L. Nock (Eds.), *Measuring Social Judgments: The Factorial Survey Approach* (pp. 205-234). Beverly Hills: Sage.

Atzmüller, C., & Steiner, P. M. (2010). Experimental Vignette Studies in Survey Research. *Methodology: European Journal of Research Methods for the Behavioral and Social Sciences, 6*(3), 128-138. doi:10.1027/1614-2241/a000014

Bargh, J. A., Gollwitzer, P. M., Lee-Chai, A., Barndollar, K., & Trötschel, R. (2001). The Automated Will: Nonconscious Activation and Pursuit of Behavioral Goals. *Journal of Personality and Social Psychology, 81*(6), 1014-1027. doi:10.1037/0022-3514.81.6.1014

Bateson, M., Nettle, D., & Roberts, G. (2006). Cues of Being Watched Enhance Cooperation in a Real-World Setting. *Biology Letters, 2*(3), 412-414. doi:10.1098/rsbl.2006.0509

Becker, R., & Mehlkop, G. (2011). Effects of Prepaid Monetary Incentives on Mail Survey Response Rates and on Self-reporting about Delinquency – Empirical findings. *Bulletin of Sociological Methodology/Bulletin de Méthodologie Sociologique, 111*(1), 5-25. doi:10.1177/0759106311408870

Bolton, G. E., & Zwick, R. (1995). Anonymity versus Punishment in Ultimatum Bargaining. *Games and Economic Behavior, 10*(1), 95-121. doi:10.1006/game.1995.1026

Bry, C., Meyer, T., Oberlé, D., & Gherson, T. (2009). Effect of Priming Cooperation or Individualism on a Collective and Interdependent Task: Changeover Speed in the 4 × 100-meter Relay Race. *Journal of Sport and Exercise Psychology, 31*(1), 380-389.

Burnham, T., & Hare, B. (2007). Engineering Human Cooperation. *Human Nature, 18*(2), 88-108. doi:10.1007/s12110-007-9012-2

Charness, G., & Gneezy, U. (2008). What's in a Name? Anonymity and Social Distance in Dictator and Ultimatum Games. *Journal of Economic Behavior & Organization, 68*(1), 29-35. doi:10.1016/j.jebo.2008.03.001

Deutsch, M. (1975). Equity, Equality, and Need: What Determines Which Value Will Be Used as the Basis of Distributive Justice? *Journal of Social Issues, 31*(3), 137-149. doi:10.1111/j.1540-4560.1975.tb01000.x

Drouvelis, M., Metcalfe, R., & Powdthavee, N. (2010). *Priming Cooperation in Social Dilemma Games*. IZA Discussion Paper No. 4963. Bonn: Institute for the Study of Labor.

Dülmer, H. (2007). Experimental Plans in Factorial Surveys: Random or Quota Design? *Sociological Methods Research, 35*(3), 382-409. doi:10.1177/0049124106292367

Ellingsen, T., & Johannesson, M. (2004). Promises, Threats and Fairness. *The Economic Journal, 114*(495), 397-420. doi:10.1111/j.1468-0297.2004.00214.x

Fehr, E., & Schmidt, K. M. (2006). The Economics of Fairness, Reciprocity and Altruism – Experimental Evidence and New Theories. In S.-C. Kolm & J. M. Ythier (Eds.), *Handbook of the Economics of Giving, Altruism and Reciprocity, Vol. 1: Foundations* (pp. 615-691). Amsterdam: North-Holland.

Fiske, A. P. (1991). *Structures of Social Life: The Four Elementary Forms of Human Relations*. New York: Free Press.

Gächter, S., & Fehr, E. (1999). Collective Action as a Social Exchange. *Journal of Economic Behavior & Organization, 39*(4), 341-369. doi:10.1016/s0167-2681(99)00045-1

Groves, R. M. (1989). *Survey Errors and Survey Costs*. New York: Wiley.

Haley, K. J., & Fessler, D. M. T. (2005). Nobody's Watching? Subtle Cues Affect Generosity in an Anonymous Economic Game. *Evolution & Human Behavior, 26*(3), 245-256. doi:10.1016/j.evolhumbehav.2005.01.002

Hertel, G., & Fiedler, K. (1994). Affective and Cognitive Influences in Social Dilemma Game. *European Journal of Social Psychology, 24*(1), doi:131-145. 10.1002/ejsp.2420240110

Hertwig, R., & Ortmann, A. (2001). Experimental practices in economics: A methodological challenge for psychologists? *Behavioral and Brain Sciences, 24*(03), 383-403.

Hoffman, E., McCabe, K., Shachat, K., & Smith, V. L. (1994). Preferences, Property Rights, and Anonymity in Bargaining Games. *Games and Economic Behavior, 7*(3), 346-380. doi:10.1006/game.1994.1056

Hoffman, E., McCabe, K., & Smith, V. L. (1996). Social Distance and Other-Regarding Behavior in Dictator Games. *The American Economic Review, 86*(3), 653-660. doi:10.1257/aer.89.1.340

Hole, A. D. (2011). Communication and Fair Distribution. *Rationality and Society, 23*(2), 234-264. doi:10.1177/1043463110387266

James, J. M., & Bolstein, R. (1990). The Effect of Monetary Incentives and Follow-Up Mailings on the Response Rate and Response Quality in Mail Surveys. *Public Opinion Quarterly, 54*(3), 346-361. doi:10.1086/269211

Jasso, G. (2006). Factorial Survey Methods for Studying Beliefs and Judgments. *Sociological Methods & Research, 34*(3), 334-423. doi:10.1177/0049124105283121

Jasso, G., & Rossi, P. H. (1977). Distributive Justice and Earned Income. *American Sociological Review, 42*(4), 639-651. doi:10.2307/2094561

Jasso, G., & Webster, Jr., M. (1997). Double Standards in Just Earnings for Male and Female Workers. *Social Psychology Quarterly, 60*(1), 66-78. doi:10.2307/2787012

Jasso, G., & Wegener, B. (1997). Methods for Empirical Justice Analysis: Part 1: Framework, Models, and Quantities. *Social Justice Research, 10*(4), 393-430. doi:10.1007/bf02683292

Kahneman, D., & Tversky, A. (1984). Choices, Values, and Frames. *American Psychologist, 39*(4), 341-350. doi:10.1037/0003-066x.39.4.341

Kahneman, D., & Tversky, A. (Eds.). (2000). *Choices, Values and Frames*. New York: Russell Sage Foundation; Cambridge: Cambridge University Press.

Kay, A. C., & Ross, L. (2003). The Perceptual Push: The Interplay of Implicit Cues and Explicit Situational Construals on Behavioral Intentions in the Prisoner's Dilemma. *Journal of Experimental Social Psychology, 39*(6), 634-643. doi:10.1016/S0022-1031(03)00057-X

Konow, J. (2001). Fair and Square: The Four Sides of Distributive Justice. *Journal of Economic Behavior & Organization, 46*(2), 137-164. doi:10.1016/S0167-2681(01)00194-9

Krebs, D. L. (2008). The Evolution of a Sense of Justice. In J. Duntley & T. K. Shackelford (Eds.), *Evolutionary Forensic Psychology: Darwinian Foundations of Crime and Law* (pp. 230-248). Oxford: Oxford University Press.

Liberman, V., Samuels, S. M., & Ross, L. (2004). The Name of the Game: Predictive Power of Reputations versus Situational Labels in Determining Prisoner's Dilemma Game Moves. *Personality and Social Psychology Bulletin, 30*(9), 1175-1185. doi:10.1177/0146167204264004

Liebig, S. (2001). Lessons from Philosophy? Interdisciplinary Justice Research and Two Classes of Justice Judgments. *Social Justice Research, 14*(3), 265-287. doi:10.1023/a:1014367907348

Liebig, S., & Sauer, C. (2013). Soziologische Gerechtigkeitsanalyse. Überlegungen zur theoretischen Fundierung eines Forschungsfeldes. *Analyse & Kritik. Zeitschrift für Sozialtheorie*, *35*(2), 371–394

Liebig, S., & Sauer, C. (2015). Sociology of Justice. In C. Sabbagh & M. Schmitt (Eds.), *Handbook of Social Justice Theory and Research* (in press). New York: Springer.

Liebig, S., Sauer, C. & Friedhoff, S. (2015). Empirische Gerechtigkeitsforschung mit dem faktoriellen Survey. *Soziale Welt*, Sonderband 22: 315–333.

Lindenberg, S. (1990). Homo Socio-Oeconomicus: The Emergence of a General Model of Man in the Social Sciences. *Journal of Institutional and Theoretical Economics (JITE)/Zeitschrift für die gesamte Staatswissenschaft, 146*(4), 727-748.

Lindenberg, S. (2001). Social Rationality versus Rational Egoism. In J. H. Turner (Ed.), *Handbook of Sociological Theory* (pp. 635-668). New York: Kluwer Academic/Plenum.

Lindenberg, S. (2006). Prosocial Behavior, Solidarity, and Framing Processes. In D. Fetchenhauer, A. Flache, A. P. Buunk, & S. Lindenberg (Eds.), *Solidarity and Prosocial Behavior: An Integration of Sociological and Psychological Perspectives* (pp. 23-44). New York: Springer.

Lindhjem, H., & Navrud, S. (2011). Using Internet in Stated Preference Surveys: A Review and Comparison of Survey Modes. *International Review of Environmental and Resource Economics, 5*(4), 309-351. doi:10.1561/101.00000045

Miller, D. (1999). *Principles of Social Justice*. Cambridge: Harvard University Press.

Ormel, J., Lindenberg, S., Steverink, N., & Verbrugge, L. M. (1999). Subjective Well-Being and Social Production Functions. *Social Indicators Research, 46*(1), 61-90. doi:10.1023/A:1006907811502

Paulhus, D. L. (1984). Two-Component Models of Socially Desirable Responding. *Journal of Personality and Social Psychology, 46*(3), 598-609. doi:10.1037/0022-3514.46.3.598

Paulhus, D. L. (1991). Measurement and Control of Response Bias. In J. P. Robinson, P. R. Shaver & L. S. Wrightsman (Eds.), *Measures of Personality and Social Psychological Attitudes* (pp. 17-59). San Diego: Academic Press.

Rigdon, M., Ishii, K., Watabe, M., & Kitayama, S. (2009). Minimal Social Cues in the Dictator Game. *Journal of Economic Psychology, 30*(3), 358-367. doi:10.1016/j.joep.2009.02.002

Rossi, P. H., & Anderson, A. B. (1982). The Factorial Survey Approach: An Introduction. In P. H. Rossi & S. L. Nock (Eds.), *Measuring Social Judgments: The Factorial Survey Approach* (pp. 15-67). Beverly Hills: Sage.

Sauer, C., Auspurg, K., Hinz, T., & Liebig, S. (2011). The Application of Factorial Surveys in General Population Samples: The Effects of Respondent Age and Education on Response Times and Response Consistency. *Survey Research Methods, 5*(3), 89-102.

Sauer, C., Liebig, S., Auspurg, K., Hinz, T., Donaubauer, A., & Schupp, J. (2009). *A Factorial Survey on the Justice of Earnings within the SOEP-Pretest 2008*. IZA Discussion Paper No. 4663. Bonn: Institute for the Study of Labor.

Schwinger, T. (1981). Steuerung und Rechtfertigung sozialer Prozesse durch Gerechtigkeitsnormen. In W. Grunwald & H. G. Lilge (Eds.), *Kooperation und Konkurrenz in Organisationen* (pp. 97-107). Bern: Haupt.

Singer, E., Van Hoewyk, J., & Maher, M. P. (2000). Experiments with Incentives in Telephone Surveys. *Public Opinion Quarterly, 64*(2), 171-188. doi:10.1086/317761

Srull, T. K., & Wyer, R. S. (1979). The Role of Category Accessibility in the Interpretation of Information about Persons: Some Determinants and Implications. *Journal of Personality and Social Psychology, 37*(10), 1660-1672. doi:10.1037/0022-3514.37.10.1660

Struck, O., Stephan, G., Köhler, C., Klause, A., Pfeifer, C., & Sohr, T. (Eds.). (2006). *Arbeit und Gerechtigkeit: Entlassungen und Lohnkürzungen im Urteil der Bevölkerung.* Wiesbaden: VS Verlag für Sozialwissenschaften.

Toepoel, V. (2012). Effects of Incentives in Surveys. In L. Gideon (Ed.), *Handbook of Survey Methodology for the Social Sciences* (pp. 209-223). New York: Springer.

Tönnies, F. (1887). *Gemeinschaft und Gesellschaft*. Leipzig: Fues.

Törnblom, K. (1992). The Social Psychology of Distributive Justice. In K. R. Scherer (Ed.), *Justice: Interdisciplinary Perspectives* (pp. 177-236). Cambridge: Cambridge University Press.

Traub, S., Seidl, C., & Schmidt, U. (2009). An Experimental Study on Individual Choice, Social Welfare, and Social Preferences. *European Economic Review, 53*(4), 385-400. doi:10.1016/j.euroecorev.2008.04.002

Tyler, T. R., Boeckmann, R. J., Smith, H. J., & Huo, Y. J. (1997). *Social Justice in a Diverse Society.* Boulder: Westview.

Vannieuwenhuyze, J., Loosveldt, G., & Molenberghs, G. (2010). A Method for Evaluating Mode Effects in Mixed-Mode Surveys. *Public Opinion Quarterly, 74*(5), 1027-1045. doi:10.1093/poq/nfq059

Vogt, S., Efferson, C., Berger, J., & Fehr, E. (2014). Eye Spots Do Not Increase Altruism in Children. *Evolution & Human Behavior.* doi:10.1016/j.evolhumbehav.2014.11.007

Wallander, L. (2009). 25 Years of Factorial Surveys in Sociology: A Review. *Social Science Research, 38*(3), 505-520. doi:10.1016/j.ssresearch.2009.03.004

Webster, M., & Sell, J. (Eds.). (2007). *Laboratory Experiments in the Social Sciences*. London: Academic Press.

Winkler, N., Kroh, M., & Spiess, M. (2006). *Entwicklung einer deutschen Kurzskala zur zweidimensionalen Messung von sozialer Erwünschtheit*. Discussion Paper No. 579. Berlin: German Institute for Economic Research.

Xiao, E., & Houser, D. (2009). Avoiding the Sharp Tongue: Anticipated Written Messages Promote Fair Economic Exchange. *Journal of Economic Psychology, 30*(3), 393-404. doi:10.1016/j.joep.2008.12.002

Appendix

Table A1 Vignette dimensions and their levels as used in both studies

#	Dimensions	Levels
1	Age	30/40/50/60 years
2	Sex	Male/female
3	Vocational degree	Without degree/vocational degree/university degree
4	Occupation	Unskilled worker/door(wo)man/engine driver/clerk/ hairdresser/social worker/software engineer/electrical engineer/manager/medical doctor
5	Gross earnings/month	10 values, ranging from €500 to €15,000
6	Children	1 to 5 (1 = No child, 2 = one child, 3 = two children, 4 = three children, 5= four children)
7	Performance	Below-average/above-average
8	Economic situation of the firm	High profits/threatened by bankruptcy/solid

Table A2 Descriptive statistics for variables used in the models (studies 1 and 2)

	Mean	SD	Min.	Max.
Study 1 (N = 140)				
Preferred earnings inequality (Gini)	0.298	0.079	0.065	0.619
Priming (cooperation = 1, no cooperation = 0)	0.529	—	0	1
Person present (yes = 1)	0.450	—	0	1
Social desirability	0.000	0.803	-2.288	1.509
Gender (female = 1)	0.671	—	0	1
Age (in years)	24.379	5.136	18	59
Study 2 (N = 191)				
Preferred earnings inequality (Gini)	0.278	0.086	0.014	0.595
Incentive (yes = 1)	0.403	—	0	1
Priming (cooperation = 1, no cooperation = 0)	0.476	—	0	1
Eyes on screen (yes = 1)	0.518	—	0	1
Social desirability	0.000	0.838	-2.246	1.547
Awareness of eyes on screen (yes = 1)	0.094	—	0	1
Person present (yes = 1)	0.267	—	0	1
Gender (female = 1)	0.408	—	0	1
Age (in years)	22.869	4.132	19	60

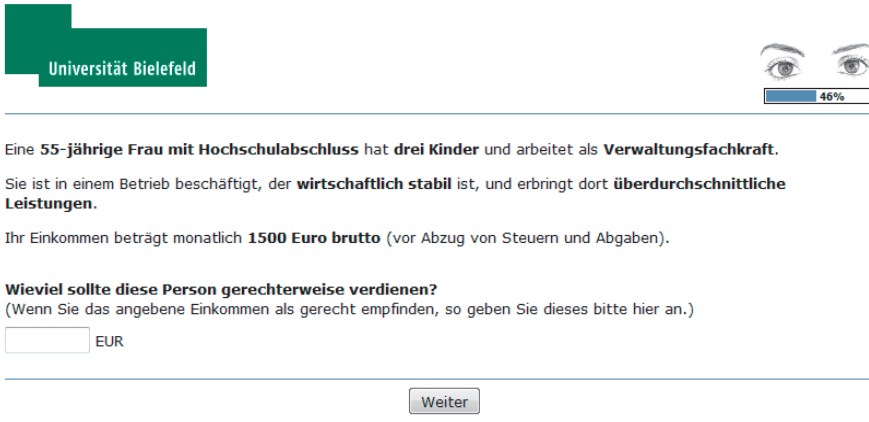


Figure A1 Image of "eyes on the screen" condition in Study 2 (cf. p. 68)