The different worlds of inequality: Psychological determinants and implications of economic inequality

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Dipl. Soz. Tim Steiniger

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Waldbröl

Referent:	Prof. Dr. Detlef Fetchenhauer
Korreferent:	Prof. Dr. Erik Hölzl
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Acknowledgments

At the end of fourth grade my primary school teacher asked me about my “dream profession”. I could not help but notice the surprise on his face when I told him that I wanted to become a researcher. I never really fell for these typical boyhood dreams of being a fireman, police officer, or pilot. Instead, I was and hopefully always will be excited about discovering and learning something new. Of course, back in fourth grade I did not plan to become a researcher in the field of psychology. In fact, I told my primary school teacher that I wanted to study what in German is called “Jura” to become a researcher. Probably this statement accounted for most of his surprise. Little did I know that “Jura” is not associated to the prehistoric Jurassic age but rather refers to the study of law. Thus, as a boy, I actually wanted to become a paleontologist and discover dinosaurs, which is probably not that unusual after all.

Although for various reasons I later decided not to pursue a career in paleontology, I did have the privilege of being a researcher. For this and all the other opportunities you provided me with, I want to sincerely thank you, Detlef.

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1 Introduction

> *"Any city, however small, is in fact divided into two, one the city of the poor, the other of the rich; these are at war with one another"*
>
> Plato (trans. 1973, p. 111)

This quotation by the ancient Greek philosopher Plato reveals that social and economic inequalities have been a concern in human societies throughout history. In the last millennia since, social inequality has not lost any of its significance. In recent years, "The Spirit Level" by Richard Wilkinson and Kate Pickett (2009), "The Price of Inequality" by Joseph Stiglitz (2012), and Thomas Piketty's (2014) "Capital in the Twenty-First Century" have become international bestsellers and have received extensive media coverage. The ample academic and popular attention that these books received signals the importance of wealth and income inequality in current public, political, and scientific debate. The mentioned books paint a picture of a world with increasing inequality, which is associated with manifold social and economic problems in societies.

The present thesis seeks to contribute to the inequality debate by regarding economic inequality from a psychological point of view. In particular, inequality will be experimentally investigated and discussed from different perspectives associated to it. Two of these perspectives are mentioned in the opening quotation – the rich and the poor. How is inequality perceived by those who benefit (i.e., the rich) and those that suffer (i.e., the poor) from it? What are the consequences of inequality for individuals and for society?

In particular, I will investigate how inequality is connected to perceptions of justice and what this association suggests with regard to people's feelings (i.e., affect and emotions) and their preferred level of inequality. To investigate the preferred level of inequality, we focus on a democratic decision-making and explore the consequences of these decisions for cooperation.

In the following parts of the introduction, I will first provide a short overview of the development of income and wealth inequality from the early twentieth century until recent years. I will primarily focus on the Western world and conclude by illustrating the status quo. The next section will review the literature on the association between inequality and justice perceptions. After that, I will briefly review previous research on the potential consequences of inequality and I will then introduce the empirical research underlying this thesis.

1.1 The development of income and wealth inequality

In the present thesis, "*inequality*" refers to the economic component of social inequality, denoting the unequal distribution of income and the unequal distribution of wealth. Wealth and income define two related, but distinct concepts. Income generally captures the earnings of an individual or a household from various sources over a certain period, while wealth captures the fortune—usually measured at the household level—possessed at a certain point in time (Keister, 2014).

Most of today's scholars seem to agree that income inequality, especially in the Western world, has risen in recent years. The Organisation for Economic Co-operation and Development (OECD) reported that, over the past three decades, income inequality, measured by the Gini coefficient—a popular measure of inequality—showed an average overall increase, increasing in 17 of 22 OECD countries for which corresponding information existed. During that period, particularly large increases in income inequality were witnessed in countries such as New Zealand and the United States of America (US) (Cingano, 2014).

In Anglo-Saxon countries, the development of income inequality during the twentieth century was found to represent a stylized U-shaped curve. Income inequality decreased during and shortly after the Second World War and saw a period of stabilization during the 1960s and 1970s. Finally, starting in the early 1980s, an increase caused income inequality to return to its pre-war levels (Alvaredo, Atkinson, Piketty, & Saez, 2013; Atkinson, Piketty, & Saez, 2011; Piketty & Saez,

2003, 2006). In 2010, 44% of the total income in the US was earned by the top 10 percent of US earners with the top one percent receiving 17% of total income (Keister, 2014). Since then, the already high shares of income obtained by top earners seem to have risen further, as indicated by data from Saez (2015), which shows that the top 10 percent in the US income distribution received 47% of that year's total income in 2014. Put differently, those at the very top of the income distribution (the top 0.01 percent) earned about 489 times the average income.

However, the phenomenon of increasing income inequality is not limited to the Anglo-Saxon world. Although research has indicated that income inequality in central Europe, for instance, has been more stable than in countries such as the US since the end of World War II (Alvardo et al., 2013; Atkinson et al., 2011; Piketty & Saez, 2006), even countries with comparatively egalitarian backgrounds, such as Sweden or Germany, have also witnessed increasing income inequality over the past three decades (Bach, Corneo, & Steiner, 2009; Cingano, 2014). Bach and colleagues (2009) reported a six percent increase in the German Gini coefficient between 1992 and 2003. This increase in income inequality was found to result from income changes for the top German earners. During this period, the real mean incomes of the top 0.001 percent of German earners rose by 46.6%, however, overall real incomes did not change. Therefore, the top 0.001 percent of German earners earned about 819 times the average German income in 2003. Furthermore, the authors reported that 41% of the total income was earned by the top 10 percent of German earners in the same year (Bach et al., 2009). Hence, the presented results indicate a recent rise of income inequality not only in the US but also in large parts of the world and illustrate the widening gap between those at the top of the income distribution and everyone else.

The development of wealth inequality in the twentieth century differed from the previously described development of income inequality. After the top 1% of US wealth holders lost severe shares of the total wealth from the early 1930s to the late 1940s, the distribution of wealth

remained relatively stable until 2000 (Kopzuk & Saez, 2004). Since then, wealth inequality has either risen or remained stable depending on its operationalization. For instance, Keister (2014) reported that between 2001 and 2010 the net worth (e.g. assets minus debts) Gini coefficient for US households increased significantly. However, the share of wealth owned by the wealthiest one percent of US citizens has remained relatively stable, slightly increasing from 32% in 2001 to 34% in 2010. Nevertheless, in general, wealth seemed to be highly concentrated with the top 10 percent of the wealthiest US citizens owning 74% of total wealth in 2010 (Keister, 2014). This statistics illustrate a robust finding in the research on wealth and income inequality; wealth is even more unequally distributed than income. With regard to the wealth disparities outside of the US, Davies, Sandström, Shorrocks, and Wolff (2009) estimated the worldwide distribution of wealth for the year 2000. Based on wealth data covering 59% of the world's population, the authors assumed that the world's wealthiest 10% held 71% of the worldwide wealth.

In summary, the reviewed literature suggests the distribution of wealth and the distribution of income to be highly unequal. In large parts of the developed world income inequality seems to have significantly risen in recent decades, and wealth inequality has at least stabilized at a high level.

1.2 Inequality, justice, and democracy

These high and even rising levels of inequality in the Western world may appear astonishing if we recall that the prevailing political system in these nations is democracy. By definition, democracy is "a system of government in which all the people of a state [...] are involved in making decisions about its affairs, typically by voting to elect representatives to a parliament or similar assembly" (Democracy, n., 2015). As mentioned above, inequality is frequently and controversially debated in politics and is thus likely to be one of the crucial topics that people consider when they are deciding for whom to vote to represent them. Therefore,

the level of inequality in a given democratic system should actually be decided on by the people concerned, for example, by empowering representatives because of their agenda for redistribution policies.

However, in contrast to the recent increases in inequality, research findings have indicated that people commonly hold egalitarian preferences (e.g., Dawes, Fowler, Johnson, McElreath, & Smirnov, 2007) and act in inequality-averse ways (e.g., Fehr & Schmidt, 1999; Bolton & Ockenfels, 2000) with regard to the distribution of economic resources (e.g., income and wealth). Among others, Fehr and Schmidt (1999) have argued that this preference for equal distributions and behavioral tendency towards establishing economic equality is possibly based on justice concerns.

Indeed, research has shown that people rely on certain principles of justice to distribute resources such as income and wealth (Adams, 1965; Deutsch, 1975). In this context, social psychology usually distinguishes between three justice principles. According to these principles, distributions can be considered just when they reflect the efforts of the concerned parties (the equity principle), when they concern the necessities of those in need (the need principle), or when they distribute the available resources in equally large shares (the equality principle) (Adams, 1965; Deutsch, 1975; Homans, 1961). Among these justice principles, the equality principle plays a special role, as it is the principle that demands the least amount of information to be considered applicable.

When people evaluate how fairly societal wealth and income are distributed, objective information about the relative performance and neediness of the concerned parties is likely to be scarce at best, which might lead to the application of the equality principle. In accordance with this line of thought, recent research has found a remarkably widespread consensus on the just distribution of wealth (Norton & Ariely, 2011). People tend to consider a low degree of inequality more just and in generally preferable to a high degree of inequality (Lotz & Fetchenhauer, 2012; Norton & Ariely, 2011). However, as previously

depicted, inequality in democratic societies has been increasing in recent decades.

To understand how these seemingly contradictory findings are compatible, it seems rewarding to investigate whether and for whom justice perceptions actually affect decisions that impact the societal level of inequality. For instance, if a potential beneficiary of high inequality perceives inequality to be unjust, what determines whether he will favor high inequality in his own self-interest or low inequality for the sake of justice? In Chapter 3, we experimentally investigated the democratic implementation of inequality and its association with justice concerns to obtain new insights into this relationship.

1.3 Inequality and its consequences

In the previous introductory sections, we illustrated that the world continues to witness notable, presumably increasing inequality, although many people tend to be inequality-averse and perceive inequality to be unjust. Hence, a question arises about the consequences of this paradox.

In the opening quotation Plato metaphorically described the consequence of inequality as *war* between the rich and the poor (Plato, trans. 1973). If we believe scholars who criticize inequality, the devastating effects of inequality in numerous areas of society may justify this drastic comparison. Research from various scientific fields and backgrounds has associated wealth and income inequality with a growing number of societal problems (for an overview, see Wilkinson & Pickett, 2009b). For example, high inequality has been linked to high levels of crime (Kaplan, Pamuk, Lynch, Cohen, & Balfour, 1996; Pickett, Mookherjee, & Wilkinson, 2005; Wilkinson & Pickett, 2007); poor education (Kaplan et al., 1996; Wilkinson & Pickett, 2007); diminished physical, mental, and emotional well-being (Dawes et al., 2007; Kondo, Sembajwe, Kawachi, Dam, & Subramanian, 2009; Layte, 2012; Oishi, Kesebir, & Diener, 2011; Subramanian & Kawachi, 2004); and low trust, decreased societal cooperation, and reduced economic growth (Knack & Keefer, 1997;

Zak & Knack, 2001). However, it has to be mentioned that the depicted relationships are not universally agreed upon and their actual existence has been questioned (e.g., Forbes, 2000; Goldthorpe, 2010; Saunders, 2010).

Therefore, as part of the present thesis, I will focus on experimentally investigating the affective, emotional, and cooperative consequences of inequality, as these constructs arguably possess high importance in the research areas of psychology and economics.

Affect and emotions will be differentiated in detail in Chapter 2.1.3. However, affect generally relates to broad conditions of feelings (Watson & Clark, 1999), which are usually distinguished by their valence (i.e., positive affect and negative affect), while emotions are more specific and are subsumed by affect (Watson, Clark, & Tellegen, 1988).

In the present research, affect and emotions are of particular interest because they motivate and thereby strongly influence human behavior (for a recent meta-analysis, see Colquitt et al., 2013). Furthermore, emotions have been argued to mediate the effect of inequality on other societal problems, such as physical and mental well-being (Layte, 2012; Wilkinson & Pickett, 2009b). Therefore, the affective and emotional consequences of inequality play a crucial role in the current inequality debate.

With regard to the emotional consequences of inequality, high inequality has been linked to low levels of happiness. Using data from 1972 to 2008, Oishi and colleagues (2011) found that Americans were happier when national income inequality was relatively low. In addition, Dawes and associates (2007) reported that inequality causes negative emotions to be directed towards its beneficiaries and argued that these negative emotions motivate inequality-averse behavior. However, the specific affective and emotional consequences of inequality to some extent remain unclear. As will be regarded in detail in Chapter 2, particularly affective and emotional differences between the advantaged and disadvantaged of inequality seem underresearched.

Furthermore, the present research will focus on the association between inequality and cooperation. Cooperation might be one of the most extensively researched concepts in social science and there is no dispute about its vital contribution to the prosperity of a society. Through its close ties to social capital, cooperation has been a crucial part of the inequality debate over the last decades (e.g., Putnam, 2000). For instance, scholars have previously argued that high inequality is associated with low levels of trust resulting in reduced cooperation with severe economic consequences, such as diminished economic growth (Knack & Keefer, 1997; Zak & Knack, 2001).

However, experimental findings concerning the impact of inequality on cooperation have been contradictory, showing inequality to either harm, foster, or not affect cooperation (Anderson, Mellor, & Milyo, 2008; Chan, Mestelman, Moir, & Muller, 1996; Haile, Sadrieh, & Verbon, 2008). Recent research has indicated that these incoherent results may partially be explained by considering the origin of inequality to be the determinant for its consequences (e.g., Greiner, Ockenfels, & Werner, 2012; Haile et al., 2008). Thus, in the context of the potential consequences of rising inequality in the Western world, the association between inequality resulting from a democratic decision-making process and cooperation seems to be particularly interesting and is investigated in detail in Chapter 4.

1.4 Overview of the empirical research

Together with Detlef Fetchenhauer, Thomas Schlösser, and Daniel Ehlebracht, I experimentally investigated the psychological determinants and consequences of economic inequality in three different studies. Of the many aspects that inequality comprises, we particularly focused on the association between inequality and justice (Chapter 2 and Chapter 3) as well as its consequences for affects, emotions, and cooperation (Chapter 2 and Chapter 4).

In this context, inequality as conceived in Chapter 2 might be most comparable to income inequality because it emerges as a consequence

of individuals' performance in a working task. Inequality as conceived in Chapter 3 and Chapter 4 might be most comparable to wealth inequality because it is the result of a random assignment to an advantageous or disadvantageous societal position, as is inheritance. Nevertheless, all inequalities examined within this research project are closely related, as they share an economic or monetary basis.

In Chapter 2, we experimentally explored the emotional and affective consequences of inequality and their association to justice perceptions. In particular, our participants had to solve effort-based tasks and were assigned to compensation systems referred to as tournament system and equality system. Whereas tournament systems evoked high outcome disparities, equality systems, as they were applied, caused equal outcome distributions. In accordance with prior research (e.g., Schlösser & Fetchenhauer, 2015), we found that the equality system was perceived to be more just than the tournament system. Yet, the effect of the system's justice on affect and emotions was found to be small and both appeared, instead, to be crucially determined by the income and the status of a participant within a given system. For instance, those that benefited from the unequal tournament system perceived the system to be unjust but reported the highest positive affect and the lowest negative affect, anger, and guilt. A possible explanation might be that—within our research paradigm—beneficiaries cannot be hold accountable for the negative consequences of the exogenously determined compensation systems which might detach their justice perceptions and affects as well as emotions.

In Chapter 3, we investigated whether a person's personal sensitivity towards justice (i.e., justice sensitivity) predicts equality preferences in democratic systems. As previously stated, unequal distributions are likely to be perceived as unjust (e.g., Deutsch, 1975), hence, we assumed that persons who are truly concerned about the just treatment of others (i.e., other-sensitive persons) hold a genuine preference for equal distributions and low inequality. Persons who show the tendency to predominantly care about a just treatment for themselves (i.e., vic-

tim-sensitive persons) were instead assumed to hold no genuine distributional preferences, but rather prefer the degree of inequality within their monetary self-interest. With the help of a so-called welfare state game (e.g., Biniossek & Fetchenhauer, 2007; Lotz & Fetchenhauer, 2012), we measured equality preferences in a democratic decision-making process. Indeed, other-sensitive persons displayed a general preference for low inequality irrespective of whether they financially gained or lost out on that decision. In contrast, victim-sensitive persons preferred either low inequality or high inequality depending on whether the one or the other was in their financial interest.

In Chapter 4, we finally investigated the relationship between democratically determined economic inequality and cooperation. Based on previous research which found that in particular endogenously induced inequality harms preconditions for cooperative behavior, such as trust (e.g., Greiner et al., 2012), we assumed that democratically induced inequality hampers cooperation. In accordance with this assumption, we found that groups which previously implemented high inequality through a majority choice displayed relatively low levels of cooperation compared to groups which previously implemented low inequality. In addition, we found that the mechanism driving this effect is likely based on motivated reasoning rather than based on self-selection, similarity, risk, or inequality aversion. These findings suggest that high degrees of inequality harm cooperation in democratic systems.

Chapter 5 provides an integrative discussion of the presented empirical research findings, while Chapter 6 suggests possible paths for future research.

1.5 Coauthors' contributions

The manuscript underlying Chapter 2 is an article published in the journal *Wirtschaftspsychologie* and authored by myself and my coauthors Thomas Schlösser and Detlef Fetchenhauer (2015a). Thomas Schlösser gave advice concerning the experimental design, the analysis of the data, and the preparation of the manuscript. Detlef Fetchenhauer

gave advice concerning the experimental design and the preparation of the manuscript.

The manuscript underlying Chapter 3 is prepared for submission to the journal *Social Justice Research* and coauthored by Thomas Schlösser, Daniel Ehlebracht, and Detlef Fetchenhauer. All three coauthors contributed ideas for the experimental design used to investigate the research target and commented on various drafts of the manuscript.

The manuscript underlying Chapter 4 is prepared for submission to *The Journal of Behavioral and Experimental Economics* and coauthored by Thomas Schlösser, Daniel Ehlebracht, and Detlef Fetchenhauer. Thomas Schlösser contributed ideas for the experimental execution of the research question, gave advice concerning data analysis, and commented on various drafts of the manuscript. Daniel Ehlebracht and Detlef Fetchenhauer also contributed ideas for the experimental implementation of the research question and commented on various drafts of the manuscript. Due to the guidelines of the targeted journal the style of writing in Chapter 4 slightly differs from remaining text. For instance, tenses are used differently and alternative rules for capitalization are applied.

2 It's a shame, but I'm not to blame: Perceived justice, affect, and emotions in (un)equal compensation systems

2.1 Introduction

"The winner takes it all, the loser's standing small" - These lyrics from a famous pop song by ABBA are also valid for several of the numerous compensation systems in today's working environment. Although some approaches to compensation pay co-workers nearly alike, others treat them as competitors for high salaries, which may result in highly unequal incomes.

An interesting but insufficiently explored question is how such compensation systems make people feel. Affect and emotions might depend on whether a worker earns €400 or €4000, but they might also be affected if he or she learns that co-workers earn €500 more. Different incomes can result in status differences, which are assumed to elicit various emotions (Marmot, 2004; Wilkinson & Pickett, 2009a). Additionally, if income differences between co-workers are high, such differences may be perceived as unjust. Hence, compensation systems that cause a high degree of income inequality may be perceived as unjust with possible consequences for affective states and emotions (Barclay & Kiefer, 2014; Cohen-Charash & Spector, 2001; Colquitt et al., 2013; Cropanzano, Stein, & Nadisic, 2011; Hillebrandt & Barclay, 2013). In this context, it might be important if persons feel accountable for experienced injustice (Festinger, 1957).

After long being neglected as a determinant of organizational behavior (Grandey, 2000; Muchinsky, 2000), affective states and emotions, such as anger and guilt, have been shown to influence people's workplace behavior in both positive and negative ways (Barclay & Kiefer, 2014; Lee & Allen, 2002; Miner & Glomb, 2010; Staw, Sutton, & Pelled, 1994). Hence, in times when economic inequality is controversially discussed (Wilkinson & Pickett, 2009a; Piketty, 2014), it seems especially interesting to explore the affective and emotional consequences of unequal payments. Therefore, we conducted an experimental

study comparing affective states, the emotions of anger and guilt, and their relation to perceived justice in compensation systems with equal and unequal payment distributions.

2.1.1 Differences in compensation systems

Compensation systems fundamentally differ in terms of wage distribution and income inequality. The compensation system of German state employees, for example, includes different pay levels; however, within these levels, people are compensated based on the principle of equality (Lerner, 1947). Such equality systems create little group inequality but possess no rewards based on individual performance. The compensation of German teachers, for example, is not dependent on factors that heavily affect their workload, such as the subjects they teach or the number of exams they grade. The idea of equality-based payment is widespread. Such systems are not only commonly applied to approximately 4.6 million German state employees (Statistisches Bundesamt, 2013) but also are the basis of collective pay agreements with unions, affecting nearly every second German employee (IAB, 2013).

In contrast, other compensation systems are heavily performance-based. In such tournament systems, performance relative to co-workers is more important for a person's wage than the absolute performance (Becker & Huselid, 1992; Connelly, Tihanyi, Crook, & Gangloff, 2014; Knoebler & Tsoulouhas, 2013; Lazear & Rosen, 1981). Co-workers are set in the role of competitors, and the best workers receive high earnings; the others get comparatively small amounts or even nothing. Hence, tournament systems lead to very unequal payment distributions and divide tournament members into two subgroups—the profiting *tournament winners* and the non-profiting *tournament losers*.

Tournament compensation systems can predominantly be found in markets where people compete for a few positions that are compensated with high amounts of money, such as professional sports (Bothner, Kang, & Stuart, 2007; Frank & Cook, 1996). In 2013, the

Wimbledon champion received £1.600.000, whereas first-round losers received only £23.500. Therefore, 50% of all Wimbledon players combined received £1.504.000, which was less than the champion received alone (The All England Lawn Tennis Club, 2013). However, tournament compensation systems are not restricted to professional sports, but they are also apparent in the payment structures of most organizations. In the Western world, promotion systems can be seen as the most prominent organizational tournaments (Backes-Gellner & Pull, 2013; Chlosta, Pull, & Futagami, 2014). In academics, for example, postdocs compete for tenure professorships and in companies employees compete for CEO compensations (Connelly et al., 2014).

The most extreme form of tournament compensation is the winner-take-all tournament in which the tournament losers receive no compensation at all (Backes-Gellner & Pull, 2013; Frank & Cook, 1996; Vandergrift, Yavas, & Brown, 2007). These are most common in bonus systems, such as “employee of the year” awards (Backes-Gellner & Pull, 2013; Chlosta et al., 2014) but can also be the primary compensation system. In the insurance business some companies (Company A) do not employ their own front-desk salespeople but use those of a partner (Company B). Hence, employees of Company B do not receive wages from Company A. However, Company A incentivizes the front-desk supervisors by awarding them expensive travel packages if their team sells more insurances of Company A than a certain percentage of the other teams (Backes-Gellner & Pull, 2013).

Because we wanted to investigate the affective and emotional consequences of payment inequality, we decided to compare winner-take-all tournaments (in the following: tournament systems) and equality systems; to our knowledge, we are the first to do so. Both systems were chosen for the sake of clarity, knowing well that payment inequality in other applied compensation systems mostly falls somewhere in-between these extremes.

2.1.2 The justice of the system

Research on organizational justice usually distinguishes four different dimensions of justice – distributive justice, procedural justice, interpersonal justice and informational justice (Colquitt, 2013; Ambrose & Schminke, 2008). To evaluate the justice of a compensation system distributive justice, meaning the perceived justice of outcomes (Adams, 1965), and procedural justice, meaning the perceived justice of allocative procedures (Leventhal, 1980), seem particularly important.

Generally, justice perceptions are not universal but differ between individuals and situations (Bediou, Sacharin, Hill, Sander, & Scherer, 2012). For example, imagine two workers who both work an eight hours shift but produce different amounts of output. Some people might perceive it to be just when payments are distributed evenly between these two (equality-principle), while others might perceive it to be just when individual rewards reflect individual performance (equity-principle) (Deutsch, 1975; see also Fischer & Wiswede, 2009). However, people who favor a payment distribution following the equity-principle at work may prefer the equality-principle for distributing the family income. Furthermore, some people may perceive a compensation system based on cooperation to be just as it reflects their ethical values, whereas others may perceive a compensation system based on competition to be just as it allows for more control over their own wage (see Leventhal, 1980 for rules of procedural justice).

In this study participants were asked about the perceived justice of a compensation system, capturing both distributive and procedural justice aspects. This was done because specific justice dimensions only capture a small part of justice perceptions, while people's final justice perception incorporates all relevant dimensions of justice (Ambrose & Schminke, 2009; Barclay & Kiefer, 2014). Equality systems distribute payments evenly among their members and are therefore based on cooperation and the equality-principle. Tournament systems stimulate competition between co-workers, but might be perceived as unjust because they do not fulfill the equity- or equality-principle. Instead, tour-

nament winners may be overcompensated with respect to their individual performance, and losers may be undercompensated.

Additionally, researchers have argued that people are inequality averse as a result of perceiving inequality to be unjust (Fehr & Schmidt, 1999; Lotz & Fetchenhauer, 2012). Lotz and Fetchenhauer (2012) assigned participants to different social classes and made them choose between two fictive societies; an equal society and an unequal, but richer one. The equal society was not only preferred by unaffected third parties and by those who benefited monetarily, but also by substantial numbers of those who lost out. Furthermore, their results showed that the equal society was perceived to be more just than the unequal society. Inequality aversion has been reported across different cultures and among children, suggesting that this trait might be universal (Almas, Cappelen, Sorensen, & Tungodden, 2010; Fehr, Bernhard, & Rockenbach, 2008; Henrich et al., 2006).

Nevertheless, it is further known that justice perceptions are influenced by an egocentric bias stating that profiteers from a distributional system judge the system to be more just than would non-profiteers (Greenberg, 1983). Thus, justice perceptions might differ between tournament winners and tournament losers. However, the latter suggestion was not supported by Schlösser and Fetchenhauer (2015), who compared perceived justice in five different compensation systems and showed that equality members indeed perceived their system to be more just than tournament members did. Contrary to predictions deduced from the existence of an egocentric bias (Greenberg, 1985), the authors found no difference in justice ratings between tournament winners and losers. For these reasons, the perceived justice of the equality system should exceed the perceived justice of the tournament system.

2.1.3 Differentiating affects and emotions

When researchers explore people's feelings, they often evaluate affects and/or specific emotions (Cameron, Lindquist, & Gray, 2015). Affect represents a general condition of feeling (Watson & Clark, 1999)

which in this paper is specified as state affect, meaning affect at a certain point of time (Colquitt et al., 2013). Further, affect is usually divided into positive affect and negative affect with positive affect comprising pleasantness and high arousal and negative affect comprising unpleasantness and low arousal (Watson, Clark, & Tellegen, 1988).

In comparison to affect, emotions are more complex and differentiated (Cameron et al., 2015). Generally, they are caused by an external or internal stimulus event which must possess a certain level of relevance. Additionally, emotions are limited in time, differ in valence and arousal and often influence an individual's behavior (Fischer & Wiswede, 2009; Scherer, 2005). Because positive affect subsumes emotions with a positive valence (e.g., joy, pride) and negative affect subsumes emotions with a negative valence (e.g., anger, guilt), affect and emotions are closely related (Colquitt et al., 2013; Watson et al., 1988).

2.1.4 The affective and emotional consequences of (un)equal and (un)just compensation

Theories of justice have long been associated with affect and emotions (Adams, 1965; Hillebrandt & Barclay, 2013; Homans, 1961; Walster, Berscheid, & Walster 1976). In a recent meta-analytical study, Colquitt and colleagues (2013) reviewed the literature on the links between justice and affect. From appraisal theories of emotion (e.g., Lazarus, 1991; Weiss & Cropanzano, 1996), they deduced that positive affect should be positively associated with justice, whereas negative affect and justice should be negatively associated. Moderate correlations between justice and positive and negative affect supported these predictions. Hence, the authors go even so far to claim that "justice seems to make people feel good to the same degree that injustice makes them feel bad" (Colquitt et al., 2013, p. 216).

But why should injustice lead to negative affect among its victims and its profiteers? An important role in this context was assigned to the specific emotions of anger and guilt. While people who perceive themselves as undercompensated (non-profiteers) should feel angry, over-

compensated people (profiteers) should feel guilty (Homans, 1961; Walster et al., 1976). This suggestion was supported by experimental results, showing that individuals experienced the most guilt when positive outcomes resulted from a procedure that is perceived to be unjust (Weiss, Suckow, and Cropanzano, 1999). Further research found that unjust procedures combined with unfavorable outcomes lead to negative emotions, such as anger and frustration, whereas unjust procedures combined with favorable outcomes lead to negative emotions, such as guilt and anxiety (Krehbiel & Cropanzano, 2000). In summary, studies on justice, affect, and emotions show that both tournament losers and winners are expected to experience negative affect and varying negative emotions, whereas equality members should experience predominantly positive affect.

However, after a careful reading of cognitive dissonance theory (Festinger, 1957), it also appears plausible that justice perceptions will only have a minor influence on affects and emotions in respect to compensation systems. Consider tournament winners who have earned a respectable amount of money but perceive the system to be unjust. These winners want to enjoy their achievement, but at the same time, they realize that justice norms were violated. Cognitive dissonance theory holds that the conflict between a person's behaviors/cognitions (e.g., enjoying the win) and values that build their self-concept (e.g., justice norms) creates dissonance, leading to distress. This dissonance has been suggested as a reason for guilt among overcompensated people (Walster et al., 1976). At first sight, cognitive dissonance theory would predict tournament winners to experience negative affect and guilt; however, closer examination casts doubt on this assumption.

Tournament winners might ask themselves a crucial question before feeling guilty: Am I to blame for the system's injustice? The answer will most likely be no if the winner was not accountable for the system personally and could have shown no behavior that would have prevented injustice. Therefore, necessary preconditions for experiencing dissonance might not be fulfilled (for an overview, see Fischer & Wiswede,

2009). Consequently, tournament winners will probably not experience dissonance nor suffer from negative affect and guilt.

Indirect evidence for non-existing dissonance in tournament systems can be deduced from the finding that winners and losers perceived the system's justice in similar ways (Schlösser & Fetchenhauer, 2015). If dissonance had emerged, tournament winners would be expected to feel the need to reduce it; for example, by adjusting their values to their behavior (Festinger, 1957). Because this adjustment would have changed their concept of justice, the winners should have perceived the system to be more just than the tournament losers did. However, justice ratings were apparently unaffected by dissonance, indicating that dissonance may not have occurred (Schlösser & Fetchenhauer, 2015).

In this case, emotions in compensation systems might predominantly be influenced by the evaluation of personal outcome and status. Positive outcomes were shown to make people happy and proud, thereby promoting positive affect, whereas negative outcomes were found to cause disappointment and anger, thereby promoting negative affect (Krehbiel & Cropanzano, 2000). Because of the strong relation between respect and status (Anderson, Srivastava, Beer, Spataro, & Chatman, 2006), one might think of tournament winners as high-status individuals who feel respected due to their high performance, whereas tournament losers might be thought of as low-status individuals due to their low performance. High status has been associated with positive emotions, such as pride (Tiedens, Ellsworth, & Mesquita, 2000), whereas low status has been associated with experiencing negative emotions, such as anxiety and hostility (Gallo & Matthews, 2003). Hence, tournament losers should suffer from negative outcomes and low status, whereas winners should enjoy positive outcomes and high status.

2.1.5 Study purpose

This study aims to investigate affects, emotions, and their relation to justice perceptions in tournament and equality systems. Consistent with previous experimental findings (Lotz & Fetchenhauer, 2012;

Schlösser & Fetchenhauer, 2015), we assume that perceived justice is higher in the equality system than in the tournament system and does not differ between tournament winners and tournament losers.

The investigation of affective states and emotions in the regarded compensation systems is to some extent explorative, which is why we refrain from postulating classical hypotheses. However, generally speaking we believe to observe one out of two patterns.

We might find that justice perceptions are crucially important for affect and emotions in compensation systems. On that condition, equality members should experience most positive affect, whereas tournament winners and tournament losers should both experience negative affect. More precisely, tournament winners should experience high levels of guilt, whereas tournament losers should experience high levels of anger.

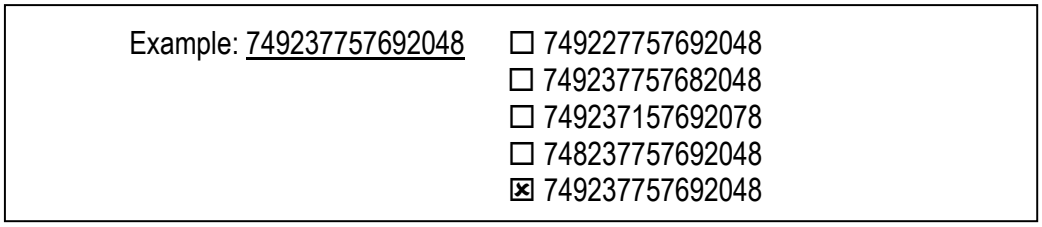
On the contrary, we might find that justice perceptions are of minor importance for affect and emotions in compensation systems, because mostly these systems are externally imposed on people, who therefore, might not feel accountable for their consequences. On that condition, affect and emotions should be elicited by a person's amount of payment and his or her status. Consequently, and in contrast to the first scenario, tournament winners should experience most positive affect and do not feel guilty, whereas tournament losers should still experience most negative affect and feel particularly angry.

2.2 Method

2.2.1 Sample

After being approached at the campus of a large German university, 448 persons made an appointment for their participation in an experimental study. Ten participants (two tournament winners; eight tournament losers) had to be excluded from the analysis because of experimenter mistakes, wrong answered sample questions, or incomplete questionnaires. Therefore, 438 persons (92 equality members; 86 tournament winners; 260 tournament losers) remained in the adjusted

Figure 1: Example of an effort-based task given to the participants



Note. Participants had to find the 15-digit code given on the left side among those given on the right.

sample. Of these participants, 253 (57.8%) were females and 185 (42.2%) were males; the participants were aged between 17 and 37 years (M = 23.16; SD = 3.16).

2.2.2 Participants and procedure

The study consisted of three phases. After random placing, all participants received instructions stating that they have been assigned to a randomly chosen group of four and were assured of their anonymity. Further, it was explained that in Phase 2 effort-based tasks (for an example see Figure 1), each worth €0.20, should be solved within 12 minutes and that their individual wage would depend on the number of tasks solved correctly by themselves and their fellow group members. Effort-based tasks were chosen as effort proved to be highly relevant for job performance in everyday life, regardless of whether the focus is on regular workers or highly skilled experts (Ackerman, 2014).

In the following instructions, participants were informed about the respective compensation system applied in their group. In the equality system, individual wages were calculated by counting the number of tasks correctly solved by all group members, multiplying that number by €0.20 and distributing the amount equally. Members of this group were analyzed as a single homogenous group (individually termed equality members) because emotions and justice perceptions did not differ between those performing better than average and the others. In the tournament system, the group member with the highest amount of correct answers received the payment for the correct answers provided by all group members, and the others received no pay. In the results

section, the participants of this system are divided into tournament winners and tournament losers.

Because people interacted in groups of four, every tournament system generated one tournament winner and three tournament losers. Hence, to keep the design economically efficient we decided to level the number of tournament winners and equality members by assigning 20% of participants to the equality system and 80% of participants to the tournament system.

To ensure that every participant understood the applied compensation system, participants had to answer two sample questions. The instructions were then collected by the experimenter, who handed out the tasks for Phase 2 and started the 12-minute working period. At the end of this period, participants handed back their sheets, and wages were calculated.

Next, Phase 3 was conducted by distributing a questionnaire, which first provided information about the results of the group task. Participants learned the number of tasks that their group solved correctly, the total amount of money earned by the group, and the individual wages of all group members, including the participants' own payment. This information was followed by a question about the perceived justice of the applied compensation system (*Irrespective of your own pay-off, how just do you principally judge the system of payment to be?*) which was adopted from Schlösser and Fetchenhauer (2015). Anchors ranged from 1(*not at all just*) to 7 (*very just*). Low ratings indicated perceived injustice and high ratings indicated perceived justice.

Questions asking about the participants' current emotional state followed. These questions were adopted from the German version (Grühn, Kotter-Grühn, & Röcke, 2010) of the *Positive and Negative Affect Schedule – Expanded Form* (PANAS-X) (Watson & Clark, 1999) containing scales for affective states and various specific emotions. The scales for positive affect (10 items; a = .84), negative affect (10 items; a = .87), and guilt (6 items; a = .79) were used to assess the corresponding affective and emotional states. As the PANAS-X contains no explicit

anger scale, we used its hostility scale (6 items; a = .86) as a substitute measure. This scale includes the item anger and has been shown to be moderately to strongly correlated with other frequently applied anger measures, for example, the *State-Trait Anger Scale* of Spielberger et al. (1983) (Watson & Clark, 1999). Although we were primarily interested in the four mentioned scales, we included all items of the PANAS-X except for those which were only related to the fatigue scale. This was done for explorative reasons and to account for experimenter demand effects. Hence, participants had to answer 56 items. Sample items are *excited* and *proud* (positive affect), *afraid* and *upset* (negative affect), *angry* and *hostile* (anger), and *guilty* and *blameworthy* (guilt). Anchors ranged from 1(*not at all*) to 5 (*very strongly*). Emotion- and affect-scales were z-standardized on the group level before analysis to illustrate positive and negative influences of a certain group affiliation (*equality member; tournament winner; tournament loser*) more clearly. Participants ended the questionnaire by providing socio-demographic information.

2.3 Results

How just do people perceive the given compensation systems, and how do they experience them affectively and emotionally? First answers to these questions are determined based on a MANOVA with group membership (equality member, tournament loser, tournament winner) as the independent variable and perceived system justice, negative affect, positive affect, anger, and guilt as dependent variables; F [10, 862] = 19.87, p < .001, partial η^2 = .19. Because groups sizes were unequal and Levene's test indicated unequal variances for negative affect (F (2, 435) = 8.12, p < .001), guilt (F (2, 435) = 3.65, p = .03), and anger (F (2, 435) = 18.70, p < .001), we used a stratified bootstrapping procedure based on 3000 samples and group membership as stratification criterion to compute the MANOVA and the follow-up ANOVAs. Additionally, post-hoc testing was conducted via Dunnett's T3 test, which accounts for unequal sample sizes and unequal variances (Dunnett, 1980). Please note that similar results were obtained by applying several other meth-

Table 1: Means and standard deviations for equality members, tournament winners, and tournament losers

	Equality		Winner		Loser	
	M	*SD*	*M*	*SD*	*M*	*SD*
Justice	4.42	1.74	2.88	1.68	2.52	1.59
Positive Affect	.18	.96	.74	1.05	-.31	.85
Negative Affect	-.12	.93	-.34	.81	.16	1.05
Anger	-.15	.78	-.41	.59	.19	1.12
Guilt	-.19	1.00	-.37	.84	.19	1.01

Note. Equality = Equality members, Winner = Tournament winner, Loser = Tournament loser; *z*-scores are presented for positive affect, negative affect, anger, and guilt

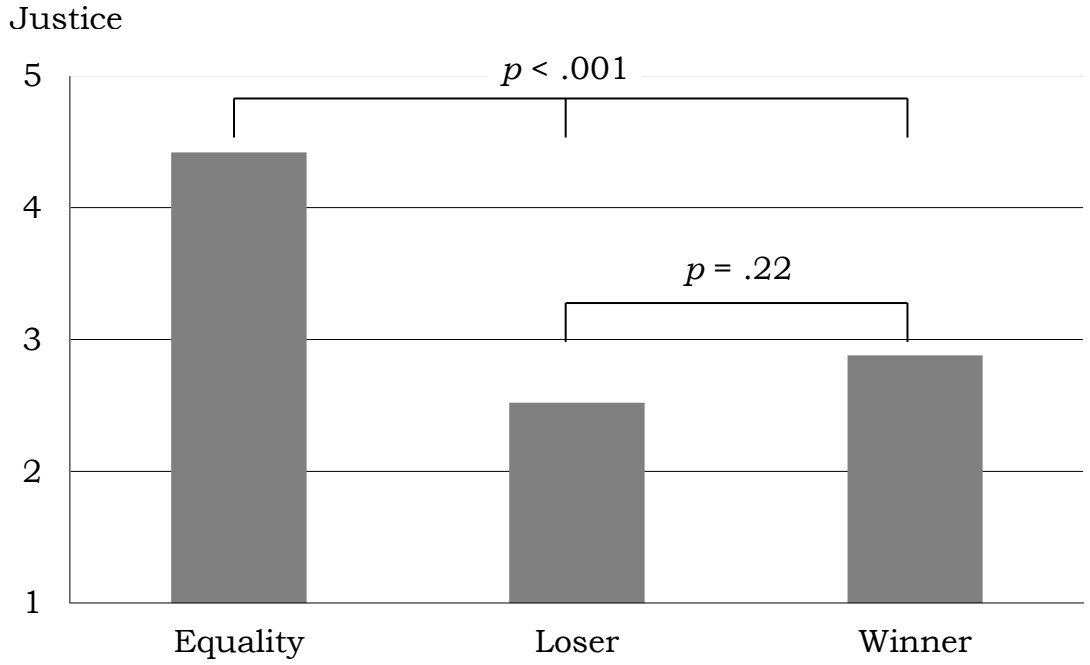
ods, such as Welch's t-tests and Scheffé tests, which underline the robustness of our findings. Significance levels of the more familiar Scheffé test were included for comparison. Group means and standard deviations are reported in Table 1.

First, how did the participants perceive the justice of the compensation systems? In general, the results supported our assumptions. Figure 2 shows that the equality system was perceived to be more just than the tournament system; F [2, 435] = 46.21, $p < .001$, partial η^2 = .18. In particular, post-hoc testing indicated that justice ratings of equality members exceeded those of tournament winners (T3 $p < .001$, Scheffé $p < .001$, $d = .90$) and tournament losers (T3 $p < .001$, Scheffé $p < .001$, $d = 1.14$), whereas the winners and losers did not differ from each other, T3 $p = .22$, Scheffé $p = .20$, $d = .22$.

Justice perceptions thus differed between the systems, but did participants' affects and emotions also differ? Generally this question can be answered in the affirmative; all regarded affects and emotions were to some extent experienced differently between the three groups ($9.03 < F$ [2, 435] < 45.14, $p < .001$) with partial η^2 ranging from .04 (negative affect) over .06 (anger; guilt) to .17 (positive affect). But how did they differ specifically?

Which participants experienced the most positive affect, those perceiving more justice in the equality system or those enjoying high incomes in the tournament system? Figure 3 shows that tournament winners did. Post-hoc tests revealed statistically significant differences

Figure 2: The system's perceived justice for equality members, tournament winners, and tournament losers



Note. p = Significance level; Equality = Equality member; Loser = Tournament loser, Winner = Tournament winner.

between all three groups. Tournament winners felt more positive affect than the equality members (T3 p = .001, Scheffé p < .001, d = .56) and the tournament losers (T3 p < .001, Scheffé p < .001, d = .1.10), whereas equality members reported significantly higher positive affect than the tournament losers, T3 p < .001, Scheffé p < .001, d = .54.

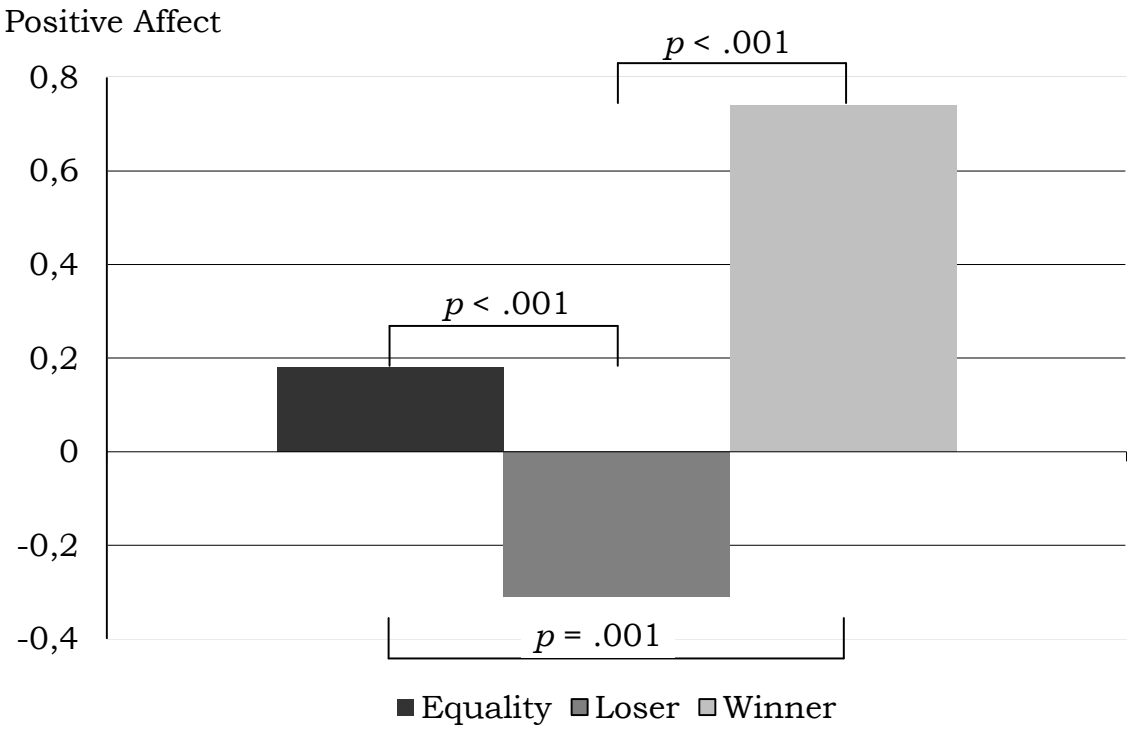
Which participants felt the most negative affect? Did both, tournament losers and winners experience negative affect as assumed by justice theories? Figure 4 reveals that losers felt the highest negative affect followed by equality members and tournament winners. Differences between tournament losers and winners were significant (T3 p < .001, Scheffé p < .001, d = .53), whereas equality members did not differ significantly either from tournament losers (T3 p = .06, Scheffé p = .07, d = -.28) or from tournament winners (T3 p = .27, Scheffé p = .34, d = .25). Hence, significant differences in negative affect between tournament winners and tournament losers, who perceived the system's justice similarly, foster the impression that the justice of a system is of minor importance for affective experiences; however, is there evidence for a rela-

tionship between a system's justice and the emotions of anger and guilt?

Did tournament losers feel angry as generally assumed? The results show that tournament losers indeed felt most angry (see Figure 5). More precisely, post-hoc tests revealed that their anger levels were significantly higher than those of tournament winners (T3 $p < .001$, Scheffé $p < .001$, $d = .67$) and those of equality members (T3 $p = .01$, Scheffé $p = .02$, $d = .35$), whereas tournament winners experienced less anger than equality members, T3 $p = .04$, Scheffé $p = .21$, $d = -.38$. Thus, tournament winners experienced the least anger of the regarded groups.

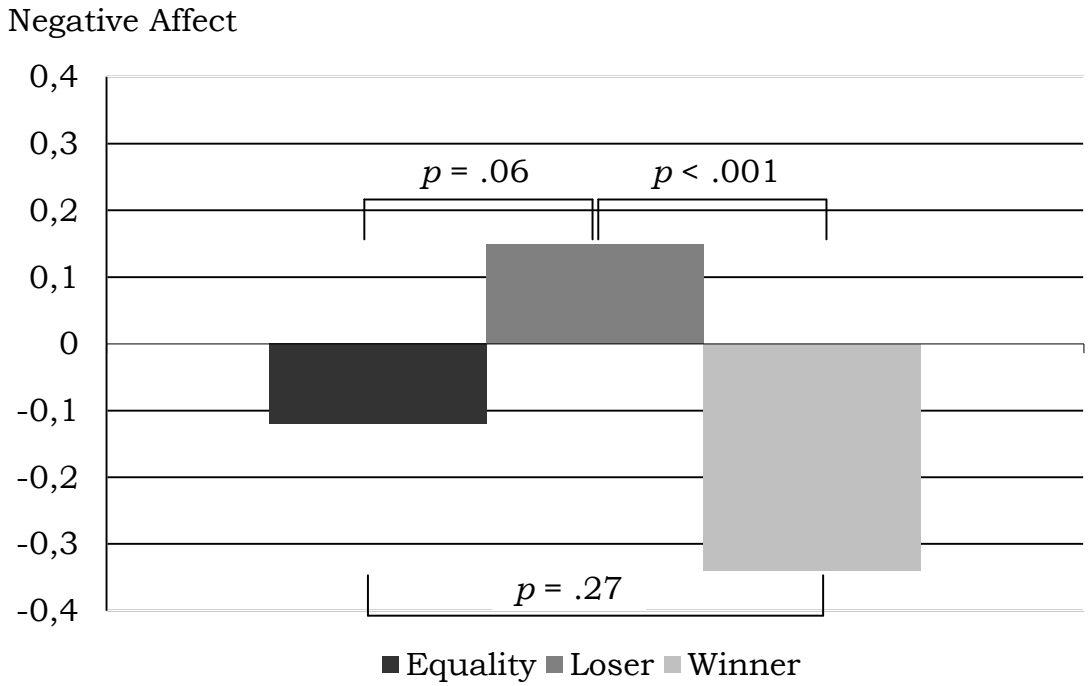
Did tournament winners, as profiteers of an unjust system feel guilty? Interestingly, Figure 6 shows that tournament losers rather than winners reported the most guilt. Tournament losers felt more guilty than both tournament winners (T3 $p < .001$, Scheffé $p < .001$, $d = .60$) and equality members (T3 $p = .01$, Scheffé $p = .01$, $d = .38$). Feelings of guilt by tournament winners and equality members did not differ significantly, T3 $p = .45$, Scheffé $p = .45$, $d = -.20$. Therefore, results were inconsistent with the predicted relationship between justice and guilt. Instead, this finding favors the assumption that tournament winners do not experience negative feelings because they do not feel accountable for the injustice of their system.

Figure 3: Level of positive affect for equality members, tournament winners, and tournament losers



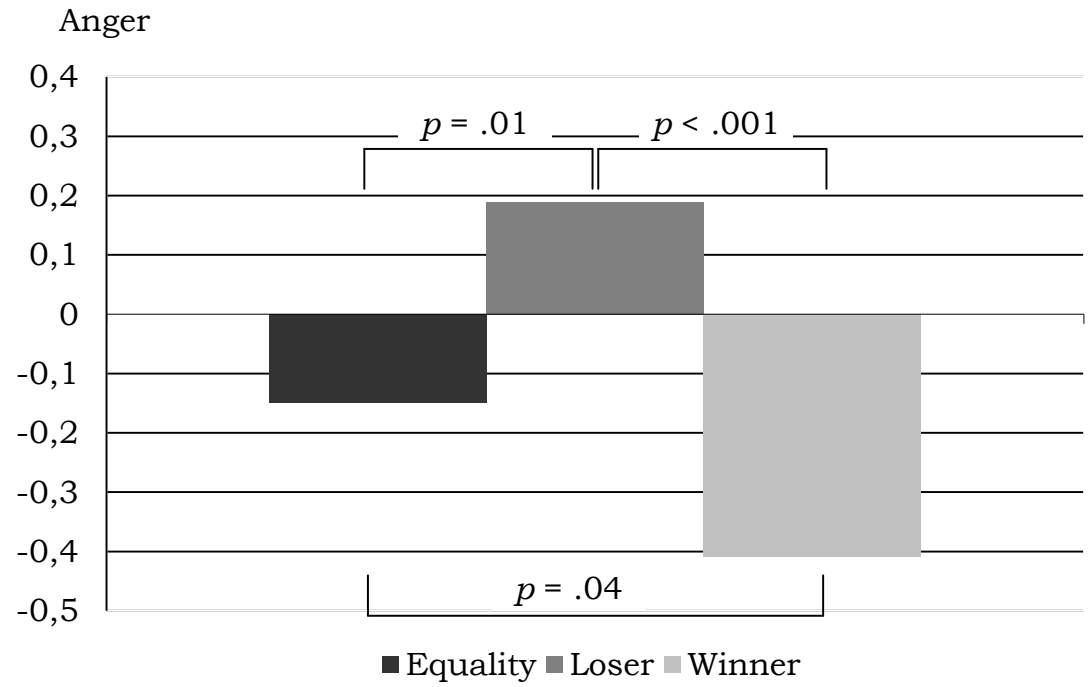
Note. *p* = Significance level; Equality = Equality member; Loser = Tournament loser, Winner = Tournament winner.

Figure 4: Level of negative affect for equality members, tournament winners, and tournament losers



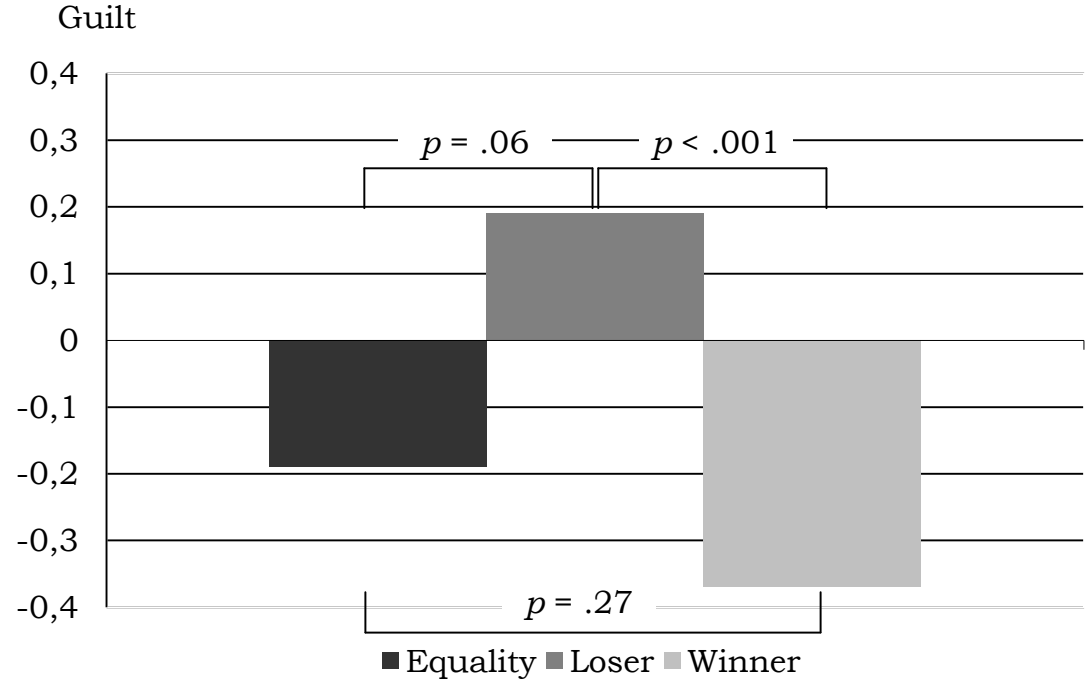
Note. *p* = Significance level; Equality = Equality member; Loser = Tournament loser, Winner = Tournament winner.

Figure 5: Level of anger for equality members, tournament winners, and tournament losers



Note. *p* = Significance level; Equality = Equality member; Loser = Tournament loser, Winner = Tournament winner.

Figure 6: Level of guilt for equality members, tournament winners, and tournament losers



Note. *p* = Significance level; Equality = Equality member; Loser = Tournament loser, Winner = Tournament winner.

If perceived justice is of minor importance, winning the tournament should make people experience high positive affect, low negative affect, plus low levels of anger, and guilt, because personal income and status may primarily influence their affects and emotions. To test this prediction, we conducted separate heteroscedasticity-consistent regression analyses (Hayes & Cai, 2007) for all examined affects and emotions with tournament losers as reference group and the independent variables, being a tournament winner (dummy-variable), being an equality member (dummy-variable), the system's perceived justice, and interaction effects between the dummy-variables and the system's perceived justice.

Does being a tournament winner thus influence positive affect more strongly than the system's perceived justice? Yes; perceived justice does not influence positive affect (Table 2). Being a tournament winner (b = 1.05; p < .001) or an equality member (b = .46; p < .001) was positively associated with positive affect, whereas the system's perceived justice was a non-significant predictor. Further, we found no moderating effects of group membership on the influence of a system's perceived justice. Hence, participants who saw the system as just did not experience more or less positive affect than those who did not, but winners enjoyed winning.

A system's perceived justice may thus be unimportant for positive affect, but how is it related to negative affect? Participants who perceived a system to be just reported less negative affect, but winning the tournament lowered negative affect even more strongly (Table 2). Negative affect was negatively related to perceived justice (b = -.07; p = .03) and being a tournament winner (b = -.47; p < .001), whereas no moderations for the system's perceived justice were evident. Therefore, participants who perceived justice to be low reported higher negative affect, but winning the tournament overcompensated for these consequences of injustice.

Table 2: Regressions for positive affect and negative affect with and without interaction effects

Variable	Positive Affect		Negative Affect	
	Model 1 *b (SE)*	Model 2 *b (SE)*	Model 1 *b (SE)*	Model 2 *b (SE)*
Constant	-.33*** (.07)	-.32*** (.07)	.25** (.08)	.30** (.08)
Winner	1.05*** (.13)	.97*** (.20)	-.47*** (.11)	-.69*** (.17)
Equality	.46*** (.12)	.51* (.23)	-.15 (.13)	-.15 (.28)
Justice	.01 (.03)	.01 (.04)	-.07* (.03)	-.09* (.04)
JusticexWinner		.04 (.08)		.12 (.07)
JusticexEquality		-.01 (.07)		.02 (.08)
R^2	.17	.17	.05	.06
ΔR^2	.17	.00	.05	.01
	$F(3,434)$ = 26.22, $p < .001$	$F(2,432)$ = .18, $p = .83$	$F(3,434)$ = 8.65, $p < .001$	$F(2,432)$ = 1.50, $p = .23$

Note. ***p<.001; **p<.01;*p<.05 *b* = Regression coefficients; *SE* = Heteroscedasticity-consistent standard error; Reference group = Tournament loser; Winner = Dummy-variable for tournament winner; Equality = Dummy-variable for equality member.

Similar patterns were found for anger. Low levels of anger were associated with high levels of perceived justice (b = -.14; p < .001) and being a tournament winner (b = -.78; p < .001) (Table 3). Furthermore, a significantly positive tournament winner x perceived justice interaction (b = -.12; p = .05) indicated that the negative effect of a system's perceived justice on anger was not valid for tournament winners. This might explain why winners reported on average the lowest anger levels. Especially for tournament winners, it now appears interesting to determine whether guilt was also related to a system's perceived justice and winning the tournament.

As observed for positive affect, no relation was found between guilt and the system's perceived justice (Table 3). More specifically, significant negative relationships between guilt and tournament winners (b = -.56; p < .001), and guilt and equality members (b = -.37; p = .01) were revealed. Being a member of these groups led to lower feelings of guilt, whereas the system's perceived justice and its interactions with both group memberships were not significant.

Table 3: Regressions for anger and guilt with and without interaction effects

Variable	Anger		Guilt	
	Model 1 *b (SE)*	Model 2 *b (SE)*	Model 1 *b (SE)*	Model 2 *b (SE)*
Constant	.35*** (.09)	.41*** (.11)	.20* (.08)	.24*** (.09)
Winner	-.56*** (.09)	-.78*** (.15)	-.56*** (.11)	-.70*** (.16)
Equality	-.14 (.12)	-.24 (.25)	-.37** (13)	-.49* (.28)
Justice	-.11*** (.03)	-.14*** (.04)	-.01 (.03)	-.04 (.04)
JusticexWinner		.12* (.06)		.09 (.07)
JusticexEquality		.05 (.07)		.09 (.08)
R^2	.09	.10	.06	.06
ΔR^2	.09	.01	.06	.00
	$F(3,434)$ = 15.50, $p < .001$	$F(2,432)$ = 1.98, $p = .14$	$F(3,434)$ = 8.53, $p < .001$	$F(2,432)$ = .69, $p = .50$

Note. ***p<.001; **p<.01;*p<.05 *b* = Regression coefficients; *SE* = Heteroscedasticity-consistent standard error; Reference group = Tournament loser; Winner = Dummy-variable for tournament winner; Equality = Dummy-variable for equality member.

2.4 Discussion

We argued that perceived justice, outcomes, and income inequality—all crucial factors of compensation systems—potentially influence people's affects and emotions (Colquitt et al., 2013; Gallo & Matthews, 2003; Krehbiel & Cropanzano, 2000). Therefore, we compared compensation systems that fundamentally differed in these factors. The tournament system led to very high or no payments, creating substantial inequality, whereas the equality system led to moderate but equal payments.

Based on theoretical and empirical evidence (Lotz & Fetchenhauer, 2012; Schlösser & Fetchenhauer, 2015), we assumed that the equality system would be perceived as more just than the tournament system, which was supported by our results. Additionally, we found further evidence indicating that justice perceptions in the implemented tournament system are not influenced by egocentric bias (Greenberg, 1983) because justice ratings were equally low for winners and losers.

Regarding the affective and emotional consequences of compensation systems, we refrained from postulating classical hypotheses. Instead, we decided to construct and present two competing scenarios. At first sight, this approach might seem unusual, but we believed that research and theory provided good reasons for both scenarios—a minor and a major influence of justice perceptions on affective and emotional experiences. Hence, empirics should decide which scenario should be preferred.

In general, our results supported the view that affective experiences were only slightly influenced by justice perceptions. For instance, tournament winners experienced the most positive affect among all participants, regardless of the system's perceived justice, whereas most negative affect was felt among tournament losers. Losers reported significantly more negative affect than winners and differed from the equality members in the assumed direction. How bad tournament losers really felt is revealed by examining anger and guilt. As assumed, tournament losers reported the highest level of anger among the participants; however, interestingly, they also felt the guiltiest. Of the considered affects and emotions, only negative affect and anger were related to a system's perceived justice with lower justice leading to higher negative emotions in general and more anger in particular. However, on average, tournament winners showed the least negative affect of all participants, formed an exception from the relationship between a system's perceived justice and anger, and apparently saw no reason to feel guilty or blame themselves for the negative consequences of the system.

In sum, the three analyzed groups differed in every regarded affect and emotion to some extent. Focusing on affective and emotional experiences, differences appeared to be largest for positive affect. Focusing on groups, differences were largest between tournament winners and losers. Therefore, the fact that both groups perceived the tournament system to be unjust had little influence on their affects and emotions.

Particular attention should be paid to the reported findings for guilt. At first, it appears surprising that tournament losers felt guiltier

than winners; however, one possible explanation may be provided by the relation between status and perceived accountability. It was found that high-status individuals are likely to feel accountable for positive events, whereas low-status individuals feel accountable for negative events (Tiedens et al., 2000). This may cause different emotional responses to the same incident, and guilt may occur when a person is confronted with a negative outcome he or she feels accountable for (Ellsworth & Smith, 1988; Smith & Ellsworth, 1985). Consequently, low-status individuals facing negative outcomes presumably feel guilty (Tiedens, Ellsworth, & Moskowitz, 1998, as cited in Tiedens et al., 2000). Hence, low-status tournament losers may blame themselves for their negative outcome and feel guilty, while high-status tournament winners might emotionally ignore injustice as they do not feel accountable for the systems negative consequences (Festinger, 1957). In summary, our results support the view that in compensation systems which are not self-chosen, the system's perceived justice only negligibly affects affective experiences because of missing cognitive dissonance.

However, justice might affect emotions in compensation systems in another way. Hegtvedt and Killian (1999) examined fairness judgments (fairness and justice used interchangeably) concerning negotiations and discovered that perceived fairness to the self (the fairness evaluation of their own outcome) is crucial for people's emotions. Interestingly, Schlösser and Fetchenhauer (2015) found that tournament winners perceived their own outcome as just right independent of the fact that they perceived their system to be unjust. Hence, the emotions of tournament winners might be affected by positive justice evaluation of their personal outcome.

2.4.1 Practical implications

This study yields insights into the affective consequences of compensation and bonus systems. Compared to tournament systems, equality systems appear to have neither a strong positive nor a strong negative effect on people's emotions. Equality members experienced

more positive affect than tournament losers but not as much as tournament winners. Furthermore, equality members did not differ from tournament winners with respect to negative affect and guilt. Therefore, equal compensation as explored in our experiment might be considered neutral regarding its emotional consequences. However, one has to be cautious in generalizing this result. If performance is easily observable for all involved parties, one might think of above-average performers in the equality system as the system's losers and of below-average performers as the system's winners. As a consequence, perceptions of the system's justice might decrease plus the system's effect on affective and emotional experiences might change.

The applied tournament system appears to strongly influence its members' emotions. Generally, organizations should benefit from the positive affect of tournament winners because positive affect and the associated positive emotions are related to desirable workplace behavior (Miner & Glomb, 2010; Staw et al., 1994). Additionally, affect and emotion are said to be crucial for motivated behavior. Positive affect and especially pride should motivate people to repeat the high performance that was necessary to achieve it (Weiner, 2014; Weiss & Cropanzano, 1996).

Nevertheless, by their nature, tournament systems regularly create more losers than winners. Hence, these systems may leave most members with negative affect, anger, and guilt. From a motivational perspective, this could either motivate people to try harder if they think that they did not try hard enough the first time or to resign if they got the impression that additional effort will not change the outcome (Weiner, 2014). Further, especially anger was shown to foster unwanted behavior, such as workplace deviance (Lee & Allen, 2002). Additionally, we found that tournament-like structures were perceived as unjust by all concerned persons and applied science has shown that injustice was associated with negative consequences, such as counterproductive workplace behavior (Cohen-Charash & Spector, 2001).

2.4.2 Limitations and future research

This study has some noteworthy limitations. First, one may criticize that we did not apply prospective power testing to determine the sample size for our experiment. However, to assure sufficient statistical power, we planned to investigate a relatively large sample (originally 448 participants) as statistical power increases with sample size. Furthermore, we decided against observed power analysis as its additional benefit has been questioned in recent years (Sun, Pan, & Wang, 2011).

Second, one may be concerned about the external validity of the conducted laboratory experiment and student sample. However, this setting gave us the opportunity to randomly assign our participants to the compensation systems, ruling out alternative explanations for our findings. Additionally, it enabled us to control for various possible confounding variables and allowed us to work without first surveying baseline emotions. Laboratory experiments are commonly applied in organizational justice research (Cohen-Charash & Spector, 2001; Colquitt et al., 2013) and were argued to be especially useful to answer questions about the antecedents and consequences of organizational justice (Van den Bos, 2001). Future research should nevertheless explore emotional and affective reactions to compensation in more applied settings and field studies.

Third, especially winner-take-all tournament compensation in its pure form might be rarely applied by companies. The compensation systems compared in this study were chosen because they represent the extremes of equal and unequal compensation and are therefore believed to be well-suitable for a first comparison of affective and emotional experiences in such compensation systems. Arguably other compensations systems may influence perceived justice, affect, and emotions differently. Hence, other types of compensation, such as equity, bonus, or minimum wage systems, should be considered by future research as well.

Fourth, we assumed accountability to be a key factor for emotions and consequently for affective states in compensation systems but did

not directly measure it. However, we deliberately designed the experiment in a way that people were not accountable for the applied compensation systems, because we believe this circumstance to be consistent with reality. University professors, investment bankers, head physicians and many others might be seen as profiteers of a compensation system they did not create themselves, just like the tournament winners in the reported experiment. Our results seem to fit the cited literature on the consequences of existing and non-existing accountability very well, which is why we are confident about the pictured relationship. Nevertheless, future research should test whether accountability really is the crucial concept that we assumed it to be.

2.4.3 Conclusion

Our results suggest that equal compensation is viewed as more just than tournament compensation; however, the influence of a system's perceived justice on people's emotions is small. A likely explanation for the irrelevance of justice judgments in compensation systems shown here is that people do not experience cognitive dissonance because they do not feel accountable for the negative consequences of an implemented compensation system. Hence, people who profit from systems, such as the tournament system, and who are aware of its injustice may claim the right to feel good by thinking; *"It's a shame, but I'm not to blame"*.

3 How justice sensitivity predicts equality preferences in simulated democratic systems

3.1 Introduction

The past three decades witnessed rising levels of income and wealth inequality (hereafter economic inequality) in various democratic societies (e.g., Alvardo et al., 2013; Atkinson et al., 2013; Cingano, 2014; Davies et al., 2009; Keister, 2014). This development might be surprising because in democracies the people, who were revealed to have the tendency to prefer low inequality (e.g., Dawes et al., 2007; Lotz & Fetchenhauer, 2012; Norton & Ariely, 2011), ultimately determine the society's level of inequality. Scholars have argued that these equality preferences might be based on justice concerns, as equality is positively linked to justice perceptions, which greatly influence human decision-making (Bolton & Ockenfels, 1999; Deutsch, 1975; Fehr & Schmidt, 2000; Norton & Ariely, 2011).

However, especially with regard to the distribution of income and wealth, choosing the seemingly just option may not be consistent with a person's self-interest. If and how justice issues eventually influence decisions given such a personal dilemma may depend on a person's sensitivity towards violations of justice (Lovas & Wolt, 2002). This justice sensitivity (JS) has been found to be a stable human trait that captures individual differences in how easily violations of justice are perceived and how strong reactions to such violations are (Schmitt, Baumert, Gollwitzer, & Maes, 2010). The degree of JS has been found to affect political participation (Rothmund, Baumert, & Zinkernagel, 2014), to predict prosocial behavior (Fetchenhauer & Huang, 2004; Gollwitzer, Schmitt, Schalke, Maes, & Baer, 2005; Lotz, Baumert, Schlösser, Gresser, & Fetchenhauer, 2011), and to mitigate the influence of self-interest on people's behavior (Lotz, Schlösser, Cain, & Fetchenhauer, 2013).

Based on these findings, this paper, to the best of our knowledge, is the first to experimentally investigate the association between JS and

people's preferences with regard to economic disparities in democratic decision-making processes. Because justice concerns were assumed to influence equality preferences and the intensity and consequences of justice perceptions depend on a person's individual level of JS, we assume that JS is able to explain individual differences in equality preferences.

3.1.1 Attitudes towards social inequality

In democracies, citizens—either directly or through representatives—decide on distributional policy that affects and eventually determines economic inequality. However, to decide on the (re)distribution of resources people—and thus voters—do not only rely on self-interest but also apply certain principles of justice (Adams, 1965; Deutsch, 1975). Although people choose the justice principle with which they actually evaluate a distribution depending on situational factors (Bediou et al., 2012) and personal preferences (Cappelen, Hole, Sorensen, & Tungodden, 2007), recent research has shown remarkable consensus regarding the just distribution of societal wealth. Without knowing about their position in a hypothetical society's social hierarchy, people, irrespective of socio-demographical factors (e.g., wealth and political preferences) were found to prefer a low level of wealth inequality, which is seemingly perceived as more just (Norton & Ariely, 2011).

However, not knowing about their position in a societal hierarchy removes self-interest from the decision-making process and thus lacks external validity with regard to political decisions on wealth distribution. The welfare state game, which aims to reproduce the functionality of a welfare state in an experimental setting, addresses this shortcoming (Biniossek & Fetchenhauer, 2007; Lotz & Fetchenhauer, 2012). In this behavioral paradigm, participants are randomly labeled Person A, Person B, or Person C in a simulated society. Their task is to decide democratically or via random dictatorship between two alternative wealth distributions, thus determining their final monetary outcomes. Alternative 1 presents a relatively equal distribution and, for example,

entitles Person A to receive an outcome slightly above the outcome of Person B, who in turn is entitled to receive an outcome slightly above that of Person C. Alternative 2 presents a relatively unequal distribution, though more societal wealth overall and entitles Person A and Person B to better outcomes than Alternative 1. However, Person C receives even less money in Alternative 2 than in Alternative 1.

When compared to those in regular welfare states, Persons A resemble the society's upper class (hereafter upper-class participants), which, irrespective of the eventually chosen alternative, is better off than the others but remains financially interested in high inequality. Persons B resemble the middle class (hereafter middle-class participants), which always receives the intermediate outcome and holds some financial interest in high inequality. Persons C resemble the lower class (hereafter lower-class participants), which receives the worst outcomes and is financially interested in low inequality. Finally, the difference in total societal wealth between Alternative 1 and Alternative 2 accounts for efficiency losses via redistribution in welfare states that foster high levels of equality (Biniossek & Fetchenhauer, 2007; Lotz & Fetchenhauer, 2012).

The results obtained from the welfare state game indicated that low inequality is commonly considered the just choice (Lotz & Fetchenhauer, 2012), yet the participants' preferred degrees of inequality depended on their societal position. Lower-class participants almost exclusively opted for low inequality (Biniossek & Fetchenhauer, 2007; Lotz & Fetchenhauer, 2012), whereas in prior research majorities (Biniossek & Fetchenhauer, 2007), respectively one-half of upper- and middle-class participants (Lotz & Fetchenhauer, 2012), opted for high inequality.

Nevertheless, in total, participants predominantly voted for the implementation of a low-inequality society and substantial proportions of upper- and middle-class participants were willing to forgo a potentially higher payoff to do so (Biniossek & Fetchenhauer, 2007; Lotz & Fetchenhauer, 2012). Additionally, persons who were not affected by

the distributional alternatives were found to show the same behavioral pattern as lower-class participants, thus further supporting the notion that low inequality is commonly considered fairer than and preferred to high inequality (Lotz & Fetchenhauer, 2012). Similar preferences for low degrees of economic inequality were found in a variety of game theory paradigms (see for example Camerer, 2003) and justice concerns were argued to influence these preferences (Bolton & Ockenfels, 2000; Fehr & Schmidt, 1999).

In summary, these results support the notion that low inequality is perceived as more just and is preferred to high inequality. However, particularly the reported behavior of upper- and middle-class participants in the welfare state game illustrates the potential dilemma that people face when they have to decide between justice and self-interest. In this conflict, the crucial determinant of a person's eventual decision to promote an equal or unequal societal wealth distribution is likely to be the degree to which justice matters to him or her on a personal level.

3.1.2 The other-oriented and self-oriented side of JS

JS is a personality trait that captures individual differences in how easily a violation of justice is perceived and how strong the reactions to such violations are (Huseman, Hatfiled, & Miles, 1987; Lovas & Wolt, 2002). Thus, JS considers that every justice violation can be perceived from different perspectives and differentiates between injustices from the perspective of the victim (JS_{victim}), from the perspective of the active perpetrator ($JS_{perpetrator}$), from the perspective of the passive beneficiary ($JS_{beneficiary}$), and from the perspective of the unaffected observer ($JS_{observer}$) (Mikula, Petri, & Tanzer, 1990; Schmitt, Gollwitzer, Maes, & Arbach, 2005; Schmitt et al., 2010). These perspectives are related to one another and believed to share a general concern for justice (Baumert et al., 2014; Schmitt et al., 2005; Schmitt et al., 2010). However, JS_{victim} seems to be in clear contrast to the other perspectives.

JS and other-related justice concerns. $JS_{perpetrator}$, $JS_{beneficiary}$, and $JS_{observer}$ are usually highly correlated with one another (Baumert et al.,

2014; Fetchenhauer & Huang, 2004; Schmitt et al., 1997; Schmitt et al., 2010), which is why previous research has regularly combined them into a single JS perspective (Edele, Dziobek, & Keller, 2013; Fetchenhauer & Huang, 2004; Lotz et al., 2011; Lotz et al., 2013). The combined perspective is referred to as others-related sensitivity (JS_{others}) because the common denominator of these perspectives is argued to capture justice concerns related to other people. For instance, $JS_{observer}$ and $JS_{beneficiary}$[1] are positively correlated with personality traits that express other-related concerns, such as role taking, empathy, and social responsibility (Schmitt et al., 2005). Moreover, $JS_{beneficiary}$ was found to positively relate to existential guilt, social responsibility, and solidarity towards a victim of injustice (Gollwitzer et al., 2005); all three perspectives positively relate to modesty and tender-mindedness as facets of agreeableness (Schmitt et al., 2010).

However, persons scoring high on $JS_{perpetrator}$, $JS_{beneficiary}$, and $JS_{observer}$ not only care about the injustices that befall others, but also show behavior indicating that they are willing to indemnify or prevent these injustices. For instance, people who score high on $JS_{observer}$ and $JS_{beneficiary}$ are more willing to help others at their own costs (Schmitt, 1998), and observer-sensitive persons show more political engagement for the common good (Rothmund et al., 2014).

Recently, research employing economic games found that $JS_{perpetrator}$, $JS_{beneficiary}$, $JS_{observer}$, and JS_{others} promoted cooperation (Fetchenhauer & Huang, 2004; Gollwitzer et al., 2009) and linked JS_{others} to altruistic behavior (Edele et al., 2013; Lotz et al., 2011; Lotz et al., 2013). For instance, Lotz and colleagues (2013) applied JS_{others} to distinguish between reluctant and stable altruists. The authors designed an experiment based on three variations of the dictator game, which differed in terms of the difficulty of behaving selfishly. They found that participants who scored high on JS_{others} displayed stable altruism in all dictator game variations. By contrast, among the participants who obtained low JS_{others}' scores, other-regarding preferences depended on

[1] Early studies refer to $JS_{beneficiary}$ as $JS_{perpetrator}$

the difficulty of selfish behavior. Hence, JS_{others} presumably mitigates the impact of self-interest in the context of prosocial behavior.

In summary, the reviewed literature strongly emphasizes the assumption that $JS_{perpetrator}$, $JS_{beneficiary}$, $JS_{observer}$, and JS_{others} capture concerns for the just treatment of others and that they are related to prosocial behavior that aims to assure global justice and to prevent and compensate for injustices.

JS and self-related justice concerns. By contrast, JS_{victim} appears to primarily capture justice concerns for oneself. Early studies found that JS_{victim} relates to the experience of anger and decreased well-being due to unjust treatment (Mohiyeddini & Schmitt, 1997; Schmitt & Dörfel, 1999). However, these emotional reactions seem to be limited to injustices that affect victim-sensitive persons themselves.

People with high JS_{victim} scores seem to care about justice but also hold the general belief that the world is an unjust place (Schmitt et al., 2005). Consequently, they show egoistic and selfish tendencies to try to minimize their own risk of being exploited by others (Gollwitzer et al., 2005; Gollwitzer & Rothmund, 2009; Gollwitzer & Rothmund, 2011; Gollwitzer, Rothmund, Pfeiffer, & Ensbach, 2009; Gollwitzer, Rothmund, & Süßenbach, 2013). This assumption is supported by research findings that indicate that JS_{victim} is negatively related to interpersonal trust and positively related to personality traits that express self-related concerns, such as vengeance and jealousy (Schmitt et al., 2005).

In line with these findings, behavioral research has found that victim-sensitive persons do not feel responsible for helping others overcome unjust disadvantages (Gollwitzer et al., 2005; Schmitt, 1998); they even show a willingness to disregard norms if such disregard will benefit them personally (Gollwitzer et al., 2005). In economic games victim-sensitive persons were found to behave less cooperatively, even exploiting others if the opportunity arose (Fetchenhauer & Huang, 2004; Gollwitzer et al., 2009; Lotz et al., 2013). In summary, the presented results indicate that victim-sensitive persons primarily care about not

becoming disadvantaged themselves and show selfish, antisocial behavior towards others.

3.1.3 Hypotheses

In this paper, we experimentally investigate the association between JS and equality preferences in a democratic context. Therefore, we employ a version of the previously introduced welfare state game to evaluate our participants' equality preferences. The participants *democratically* decided to implement either a low or a high degree of inequality, where upper- and middle-class participants could be assumed to have a financial interest in a high inequality system and lower-class participants could be assumed to have a financial interest in a low inequality system. With regard to JS, the present study focuses on JS_{victim} and JS_{others}. From the reviewed literature, we derive the following hypotheses:

Hypothesis 1 (H1): Most of our participants prefer a society with a low degree of inequality to a society with a high degree of inequality.

Hypothesis 2 (H2): The preferred degree of inequality depends on a participant's position in the society's social hierarchy. The vast majority of lower-class participants vote for low inequality, whereas smaller shares of upper- and middle-class participants vote for low inequality.

Hypothesis 3 (H3): The participants with high JS_{others} scores hold genuine justice concerns that are to a certain degree immune against self-interest. Hence, the higher participants' JS_{others} scores, the less likely they are to vote for the implementation of a high degree of inequality.

Hypothesis 4 (H4): The participants with high JS_{victim} scores are more likely to pursue their self-interests than participants with low $JS_{victim'}$ scores. Hence, upper- and middle-class participants with high JS_{victim} scores are more likely to vote for a high degree of wealth inequality, whereas lower-class participants with high JS_{victim} scores are less likely to vote for a high degree of income inequality.

3.2 Method

3.2.1 Sample

Our participants were recruited on the campus of a large German university. Altogether, 342 completed all parts of the experiment. Subsequently, 18 participants were excluded from the analysis because of the experimenters' mistakes (n = 11), incorrectly answered control questions (n = 3), or missing values in one of our dependent or independent variables (n = 4), leaving an adjusted sample of 324 participants (60% females). All participants were informed that the study would take approximately 40 minutes in total and that the decisions in the second part would have real monetary consequences.

3.2.2 Procedure

Part 1. As soon as participants agreed to join the study, they were provided with a paper-and-pencil questionnaire. After generating a personal password, which enabled us to anonymously merge the data from Part 1 and Part 2, the questionnaire focused on measuring JS.

JS_{others} and JS_{victim} were surveyed with the 8-item measure from Baumert and colleagues (2014). JS_{victim} (α = .62, M = 4.23, SD = 1.28) was measured using a two-item scale (e.g., *"It makes me angry when others are undeservingly better off than me"*), whereas JS_{others} (α = .68, M = 4.65, SD = 1.05) was computed by merging the scales for $JS_{beneficiary}$ (α = .81), $JS_{perpetrator}$ (α = .71), and $JS_{observer}$ (α = .67) (e.g., Lotz et al., 2013), all three of which consisted of two items (e.g. "*I feel guilty when I am better off than others for no reason*"). All items ranged from 1 (*absolutely disagree*) to 7 (*absolutely agree*). After providing socio-demographic information, the participants finished the first part of the study and scheduled an appointment for their participation in the second part which usually took place one week later.

Part 2. The second part of our experiment consisted of a version of the presented welfare state game, which we employed to evaluate the participants' distributional preferences. In each session for Part 2, be-

tween 6 and 15 participants[2] were welcomed to our laboratory, randomly seated, and informed that they would anonymously interact in randomly chosen groups of three throughout the entire experiment.

Each group represented a fictive society, and participants were randomly assigned to the role of an upper-, middle-, or lower-class participant (neutrally labeled Person A, B, or C). After learning about their actual position in this simulated society, our participants had to determine their society's level of inequality by democratically electing one of two alternatives (Alternative 1 and Alternative 2).

Alternative 1 represented a society with a relatively low degree of inequality (A = €5; B = €4; C = €3), which might be compared to societal conditions in the Nordic countries (Gini Alternative 1 = .273; Gini Finland in 2012 = .278). Alternative 2 represented a society with a relatively high degree of inequality (A = €10; B = €6; C = €1) but higher overall societal wealth; therefore, it might be compared to the US (Gini Alternative 2 = .427; Gini US in 2013 = .411). Please note that the relative overall wealth differences between the two alternatives are also comparable to gross domestic product per capita (GDP) differences between Finland and the US, as both differ by approximately 40% (OECD, 2015; World Bank, 2015).

Before the participants were informed about their assignments as Person A, B, or C, control questions were asked to detect those who did not fully understand the paradigm. Finally, the participants opted for their preferred degree of inequality by voting for either Alternative 1 or Alternative 2. An experimenter collected the three votes and shortly thereafter distributed another questionnaire that contained the group's democratic decision (the majority vote determined the applied alternative), the consequent payoff for the participant, and some final sociodemographic questions.

[2] Please note that the number of participants participating in a session did not influence voting, χ^2 (3, N = 324) = .79, p = .85.

Table 4: Voting behavior of the participants

Vote	Total	Upper class	Middle class	Lower class
Low inequality	57%	41%	42%	89%
High inequality	43%	59%	59%	11%

Notes. Percentages are based on 324 participants with 108 upper class participants, 106 middle class participants and 110 lower class participants.

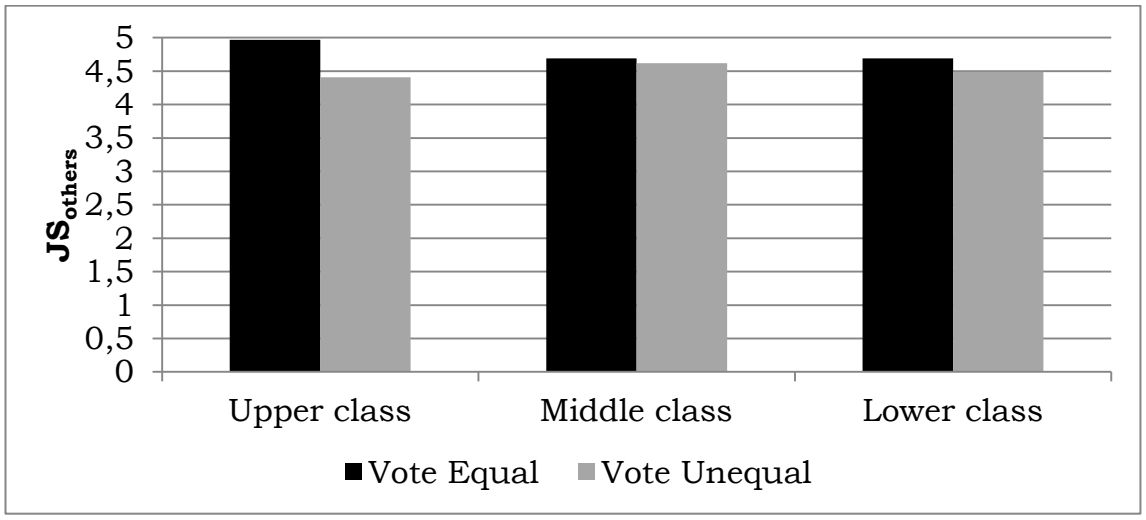
3.3 Results

In the first part of our results section, we determine the participants' equality preferences by investigating the results of the welfare state game. In our first hypothesis, we expected an overall preference for a low degree of inequality in a society. Our results support this assumption. Table 4 reports the percentages of participants who voted for low inequality and high inequality. A binomial test indicated that a majority (57%) of the participants voted for low inequality (p = .009, two-sided). Hence, we find that most of our participants preferred the lower degree of inequality. However, did a participant's societal class influence these distributional preferences?

In our second hypothesis, we assumed that lower-class participants would show stronger preferences for a low degree of inequality than upper- and middle-class participants. Our findings also support this assumption. Columns 2–4 of Table 4 show that a participant's position within his or her society affected his or her vote, χ^2 (2, N = 324) = 68.39, p < .001. Although notable proportions of the upper- (41%) and middle-class (42%) participants opted for low inequality, most upper- and middle-class participants decided to vote for a high degree of inequality. By contrast, high inequality was only voted for by a minority (11%) of lower-class participants, who almost exclusively opted for the low inequality alternative. Hence, we find clear support for our second hypothesis.

As a result of the majority vote, 61% of the participants were ultimately compensated based on the low inequality alternative, and 39% were compensated based on the high inequality alternative.

Figure 7: Average JS_{others} scores for upper-class participants, middle-class participants, and lower-class participants who either voted for a low degree of inequality or a high degree of inequality



Note. Vote equal = vote for a low degree of inequality, vote unequal = vote for a high degree of inequality.

In the second part of our results section, we investigate the main research interest of this study, i.e., the connection between distributional preferences and JS, in two steps. In the first step, we investigate the connection between JS_{others} and equality preferences, followed by a similar investigation of the connection between JS_{victim} and equality preferences. In these analyses we controlled for JS_{victim} respectively JS_{others}, which were positively correlated with each other, $r = .22$, $p < .001$. The presented findings result from binary logistic regression models calculated with a bootstrapping mechanism employing 3000 resamples and bias-corrected and accelerated standard errors, with the vote (0 = vote for a low degree of inequality; 1 = vote for a high degree of inequality) as dependent variable.

In our third hypothesis, we assumed other-sensitive persons in all classes to prefer a low degree of inequality. More specifically, other-sensitive participants would be less likely to vote for the high inequality alternative in the welfare state game. Our first results suggest that this hypothesis holds. Figure 7 shows that, in all classes, the participants who voted for a low degree of inequality had higher JS_{others} scores than

those who voted for a high degree of inequality. This pattern is underlined by the results of the logistic regression models reported in Table 5. Models 1–4 find that the higher the participants' JS_{others} scores, the less likely they were to vote for a high degree of inequality, irrespective of whether we did (Models 2-4) or did not (Model 1) control for a participant's class affiliation.

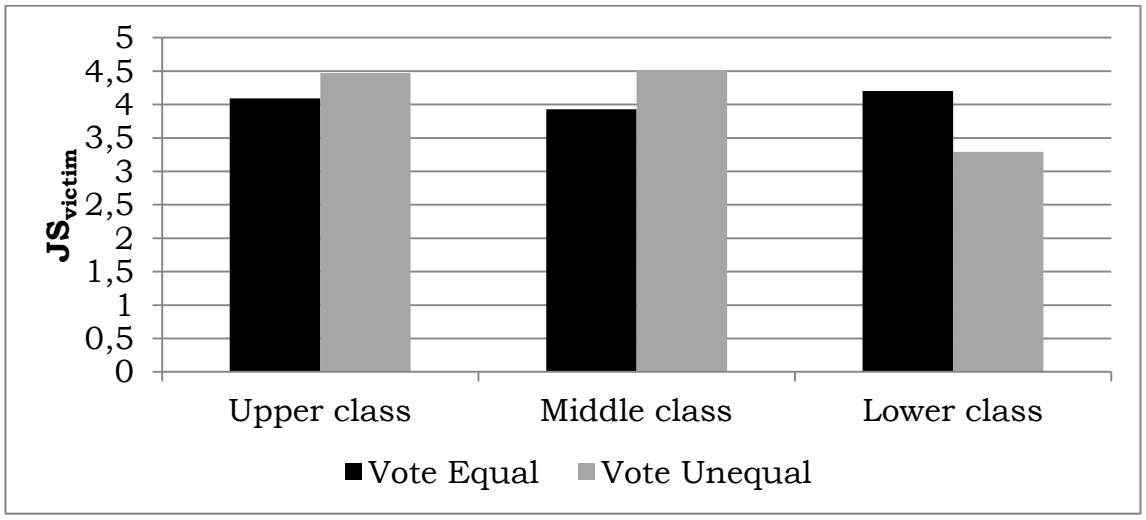
Although Figure 7 appears to suggest that the effect of JS_{others} on distributional preferences is stronger for upper-class participants, further analysis reveals the effect of JS_{others} to be similar in all the classes. Models 5-7 in Table 5 show that no interaction effects emerged between JS_{others} and class affiliation and that including such interactions did not improve the models, χ^2 (2, N = 324) = 3.27, p = .20. Hence, in support of our third hypothesis, we find that the higher our participants' JS_{others} scores, the less likely they were to vote for high inequality, irrespective of their position in society.

Table 5: OLS regression models for the influence of JS_{others} and class affiliation on voting controlling for JS_{victim}

	Model1	Model2	Model3	Model4	Model5	Model6	Model7
	b (*SE*)	*b* (*SE*)	*b* (*SE*)	*b* (*SE*)	*b* (*SE*)	*b* (*SE*)	*b* (*SE*)
Constant	.05	.97	.95	-1.52*	2.30*	-.01	-1.76
	(.52)	(.71)	(.75)	(.79)	(1.05)	(.89)	(1.90)
JS_{victim}	.23*	.21	.21*	.21*	.21	.21*	.21*
	(.10)	(.11)	(.11)	(.11)	(.10)	(.10)	(.11)
JS_{others}	-.29**	-.32*	-.32*	-.32*	-.60**	-.12	-.27
	(.11)	(.13)	(.14)	(.13)	(.21)	(.18)	(.41)
Upper class			.02	2.49***		2.31	4.06*
			(.29)	(.40)		(1.32)	(2.19)
Middle class		-.02		2.46***	-2.31		1.75
		(.29)		(.41)	(1.32)		(2.06)
Lower class		-2.49***	-2.46***		-4.06*	-1.75	
		(.40)	(.40)		(1.75)	(1.66)	
Upper class x JS_{others}						-.49	-.34
						(.27)	(.47)
Middle class x JS_{others}					.49		.15
					(.27)		(.44)
Lower class x JS_{others}					.34	-.15	
					(.37)	(.18)	
Nagelkerke r^2	.04**	.31***	.31***	.31***	.32***	.32***	.32***
$\Delta\,\chi^2$	10.43*	74.89***	74.89***	74.89***	3.27	3.27	3.27

Notes: Upper class, middle class, and lower class are dummy variables coded in a way that 1 represents the respective feature. *** p < .001, ** p < .01, * p < .05.

Figure 8: Average JS_{victim} scores for upper-class participants, middle-class participants, and lower-class participants who either voted for a low degree of inequality or a high degree of inequality



Note. Vote equal = vote for a low degree of inequality, vote unequal = vote for a high degree of inequality.

In our fourth and final hypothesis, we assumed that victim-sensitive participants would follow their self-interests, which would have led victim-sensitive upper- and middle-class participants to vote for high inequality and victim-sensitive lower-class participants to vote for low inequality. In line with these assumptions, Figure 8 shows that upper- and middle-class participants who voted for a high degree of inequality had, on average, higher JS_{victim} scores than their counterparts, whereas in the lower class those who voted for a low degree of inequality had higher JS_{victim} scores.

This first visual impression of the connection between JS_{victim} and equality preferences received further support from the results of our logistic regression analysis. Table 6 shows that the effect of JS_{victim} on voting depended on the class with which a participant was affiliated. Model 5 and Model 6 reveal a coherent positive effect of JS_{victim} on voting for upper- and middle-class participants indicating that the higher these participants' JS_{victim} scores, the more likely they were to vote for high inequality. This effect is found to be significant for middle-class partici-

pants (b = -.42, p = .009), whereas it is marginally significant for upper class participants, b = .31, p = .06.

By contrast, Model 7 in Table 6 reveals that JS_{victim} influences behavior among lower-class participants differently. In particular, upper- (b = .89, p = .004) and middle-class (b = 1.00, p = .001) participants who had high JS_{victim} scores were more likely to vote for a high degree of inequality than lower-class participants who had high JS_{victim} scores. In fact, lower-class participants with high JS_{victim} scores were significantly less likely to vote for the high inequality alternative, b = -.58, p = .03.

Therefore, in line with our hypotheses, the higher our participants' JS_{others} scores, the more likely they were to vote for a low degree of inequality, whereas the higher our participants' JS_{victim} scores the more likely they were to follow their self-interests.

Table 6: OLS regression models for the influence of JS_{victim} and class affiliation on voting controlling for JS_{others}

	Model1	Model2	Model3	Model4	Model5	Model6	Model7
	b (*SE*)	*b* (*SE*)	*b* (*SE*)	*b* (*SE*)	*b* (*SE*)	*b* (*SE*)	*b* (*SE*)
Constant	.05	.97	.95	-1.52*	.61	.13	1.59
	(.60)	(.72)	(.76)	(.79)	(.91)	(.93)	(1.25)
JS_{others}	-.29*	-.32*	-.32*	-.32*	-.34*	-.34*	-.34*
	(.12)	(.13)	(.14)	(.13)	.(14)	(.14)	(.14)
JS_{victim}	.23*	.21*	.21*	.21*	.31	.42**	-.58*
	(.10)	(.11)	(.11)	(.11)	(.17)	(.17)	(.35)
Upper class			.02	2.49***		.48	-.97
			(.29)	(.40)		(.64)	(1.40)
Middle class		-.02		2.46***	-.48		-1.45
		(.28)		(.41)	(1.08)		(1.39)
Lower class		-2.49***	-2.46***		.97	1.45	
		(.40)	(.40)		(1.40)	(1.39)	
Upper class x JS_{victim}						-.11	.89**
						(.24)	(.39)
Middle class x JS_{victim}					.11		1.02**
					(.24)		(.38)
Lower class x JS_{victim}					-.89**	-1.00	
					(.40)	(.38)	
Nagelkerke r^2	.04**	.31***	.31***	.31***	.35***	.35***	.35***
$\Delta\chi^2$	10.43**	74.89***	74.89***	74.89***	11.51**	11.51**	11.51**

Notes: Upper class, middle class, and lower class are dummy variables coded in a way that 1 represents the respective feature. *** p < .001, ** p < .01, * p < .05.

3.4 Discussion

This research aimed to investigate whether individual differences in equality preferences can be explained by a justice-oriented personality trait—namely, justice sensitivity. In particular, we focused on the justice sensitivity perspectives of other-related sensitivity in contrast to victim sensitivity and employed the welfare state game to survey equality preferences in a democratic system.

With regard to equality preferences, the presented results provide unfettered support for our hypotheses and confirm predictions based on the reviewed literature. In line with our first hypothesis, we found that most participants voted to implement a low degree of inequality. However, voting behavior in the welfare state game strongly depended on a participant's personal position within a fictive society. In accordance with our second hypothesis, the overwhelming majority of lower-class participants voted for a low degree of inequality, whereas upper- and middle-class participants primarily voted for a higher degree of inequality.

Nevertheless, about 40% of both upper- and middle-class participants opted for the implementation of low inequality and thus against their self-interest. Therefore, the observed overall preference for a society with a relatively low degree of inequality seems to be based on the overwhelming support of lower-class participants and its general acceptance among all classes. Instead, a high degree of inequality is not an option for lower-class participants, even if it increases the society's total wealth. Hence, our first results replicate previous findings in the welfare state game (Lotz & Fetchenhauer, 2012) and provide further support for the notion of people, all other things being equal, preferring low inequality (Bolton & Ockenfels, 2000; Dawes et al., 2007; Fehr & Schmidt, 1999).

With regard to our primary research target, the association between equality preferences in the welfare state game and JS, we based our argumentation on the idea that, all other things being equal, a low-

er degree of societal inequality is considered more just than a high degree of societal inequality and thus is commonly preferred (e.g., Lotz & Fetchenhauer, 2012; Norton & Ariely, 2011). However, if the implementation of low inequality goes against one's self-interest, a conflict arises between self-interest and perceived justice, and an individual's ultimate decision depends on his or her level of JS. From this line of thought, we derived two main hypotheses, both of which were supported by our findings.

Based on research reporting that JS_{others} is linked to genuine justice concerns and hampers the influence of self-interest on prosocial decision-making, our third hypothesis assumed people with high JS_{others} scores would generally prefer low inequality. Our results supported this assumption—upper-, middle-, and lower-class participants alike were found to be more likely to vote for a low degree of inequality when they had high JS_{others} scores. This result is in line with previous findings that indicate other-sensitive people to be seemingly resistant to the temptation of self-interest (Lotz et al., 2013).

Based on research reporting JS_{victim} to be connected to selfish behavior, our fourth hypothesis assumed that victim-sensitive persons would be more likely to pursue their self-interests. In accordance with our fourth hypothesis, we found that upper- and middle-class participants who had high JS_{victim} scores were more likely to vote for a high degree of inequality, whereas lower-class participants who had high JS_{victim} scores were less likely to vote for a high degree of inequality. Hence, in line with previous research, we found victim-sensitive persons to be especially concerned about themselves (e.g., Fetchenhauer & Huang, 2004; Gollwitzer et al., 2005; Lotz et al., 2013).

Recent research has often argued that victim-sensitive persons behave in seemingly selfish ways because they think that they will fall prey to others' exploitation if they do not behave selfishly (Gollwitzer et al., 2005; Gollwitzer et al., 2009; Gollwitzer et al., 2013; Gollwitzer & Rothmund, 2009; Gollwitzer & Rothmund, 2011). Interestingly, the applied welfare state game did not really allow for the exploitation of up-

per- and middle-class participants and we still found victim-sensitive participants in these classes to be more likely to vote in accordance with their self-interest at significant (middle-class) and marginally significant (upper-class) levels. Hence, in line with previous research (e.g., Fetchenhauer & Huang, 2004), our results suggest that egoistic and antisocial behavior among victim-sensitive persons goes even beyond situations in which they are objectively vulnerable to exploitation themselves. A possible explanation might be that victim-sensitive persons experienced the world to be an unjust place in which other people do not care about justice (Schmitt et al., 2005). Consequently, they might believe that people generally pursue their self-interests without considering the consequences for others and thus deduce their entitlement to behave in the same way.

3.4.1 Limitations

The results of the present study are to some extent limited; thus, further research is needed to account for these limitations. For instance, our results were based on an experiment and might therefore possess limited external validity. However, although critical consideration of experimental results with regard to their external validity is important, laboratory experiments generally possess the advantage of controlling for unknown confounding factors. Therefore, they are particularly useful in foundational research (Van den Bos, 2001) and have been frequently used in the field of justice research (Colquitt et al., 2013). Nevertheless, future research could add to this topic by replicating the presented results in field and survey studies.

Another limitation of this study is that participants in the welfare state game had to vote for one of only two alternative degrees of inequality. Assuming that justice sensitivity really alters behavior depending on of the degree of a specific justice violation, the results may differ with varying wealth distributions. Therefore, we decided to apply wealth distributions close to those of exemplary nations in the field of inequality research (US vs. Nordic nations). Furthermore, the obtained results in

the welfare state game strongly resemble previously described behavioral patterns in related research (e.g., Biniossek & Fetchenhauer, 2007; Lotz & Fetchenhauer, 2012), which leaves us confident about the robustness of our findings for a variety of distributional patterns.

3.4.2 Conclusion

This study adds to the comprehension of equality preferences and extends the scope of research in the field of justice-oriented personality dispositions. In line with previous research, we found evidence of a justice-related human preference for low degrees of inequality in income and wealth distributions. Extending the existing literature, our results indicate an association between individuals' degrees of sensitivity towards justice and their equality preferences. We found that people who had high scores on the justice sensitivity dimension of other-related justice sensitivity generally preferred low degrees of inequality in a randomly composed fictive society, whereas people who had high scores on the victim-sensitivity dimension had no generally preferred degree of inequality. Instead, the distributional preferences of victim-sensitive persons were guided by their self-interests. Therefore, the presented study reveals that justice sensitivity plays an important role in the determination and development of societal inequality.

4 The effects of democratically determined inequality on cooperation: An experimental analysis

4.1 Introduction

In recent years, there have been controversial discussions about the possible association between wealth and income disparities and various undesirable societal phenomena (e.g., Saunders, 2010; Wilkinson & Pickett, 2009a), among them low levels of trust and cooperation, which have been argued to ultimately hamper economic growth (Knack & Keefer, 1997; Zak & Knack, 2001). Although the relationship between inequality and cooperation has been studied extensively, experimental results in this area, are at first glance, contradictory and find inequality to have a positive, negative or no effect on cooperation (see, for example Anderson et al., 2008; Chan et al., 1996; Haile et al, 2008). Recent studies might partly explain these conflicting findings by showing that the origin of inequality is crucial when determining its behavioral consequences (Greiner et al., 2012; Haile et al., 2008). Therefore, we aim to investigate a common form of societal inequality and its effect on cooperative behavior, i.e., inequality that results from a democratic process.

In this paper, we explore the relationship between democratically induced inequality and the level of cooperation in a two-stage experimental study. To access the participants' cooperativeness, our experiment incorporates a public good game. In contrast to various previous studies, inequality is not induced exogenously, instead, it is induced by employing a behavioral paradigm called the welfare state game (Biniossek & Fetchenhauer, 2007; Lotz & Fetchenhauer, 2012). In the welfare state game, participants are assigned to fictive social classes (the upper class, middle class, or lower class) and democratically decide whether payoffs are distributed according to the standards of an equal society or an unequal society (Bolton & Ockenfels, 2006; Biniossek & Fetchenhauer, 2007; Lotz & Fetchenhauer, 2012). Hence, participants determine their society's level of inequality, while they know about their position in a society's social hierarchy. With the help of this design, we

transfer the functional principle of a democratic welfare state to an experimental environment and investigate its consequences for cooperative behavior. To the best of our knowledge, we are the first to do so.

Based on theoretical and empirical evidence (Lotz & Fetchenhauer, 2012; Norton & Ariely, 2011), we predict that most of these fictive societies will opt for the more equal wealth distribution. In line with this prediction, our results reveal an overall preference for a society in which wealth is distributed relatively equally with large proportions of upper- and middle-class participants voting in favor of a low degree of inequality, even though that decision will result in financial losses to them.

With regard to the main research target, i.e., cooperative behavior, we argue that democratically induced inequality undermines cooperation, which is also supported by our results. Contributions to the public good are greater among groups of participants who previously opted for an equal society. Furthermore, we detect no evidence indicating that this behavior emerges because of a mechanism based on self-selection, similarity, risk, or inequality aversion. Comparing the participants assigned to different societal classes, we find that inequality decreases cooperation, especially among middle- and lower-class participants, which suggests that the mechanism behind this relationship may be driven by motivated reasoning.

Hereafter, this paper is structured as follows. In Chapter 4.2, we briefly review previous experimental research on the inequality-cooperation relationship and people's preferences concerning wealth distributions. In Chapter 4.3, we deduce our behavioral predictions and suggest mechanism potentially underlying the inequality-cooperation association. Chapter 4.4 presents the experimental design that we used to collect the data, which are analyzed in Chapter 4.5. The final section discusses our findings and presents our conclusions.

4.2 Previous findings

4.2.1 Inequality and cooperation

Previous experimental studies that target the association between inequality, on the one hand, and cooperation, on the other hand, indicate a complex relationship by reporting inconsistent results. While some studies find positive effects of inequality on cooperative behavior (e.g., Chan et al., 1996), others find negative effects (e.g., Anderson et al., 2008) or no effect at all (e.g., Sadrieh & Verbon, 2006). These varying results might be partly explained by recent research suggesting that the origin of inequality is especially important when determining its eventual effect on cooperation (Greiner et al., 2012; Haile et al., 2008).

By conducting an experiment based on a repeated trust game[3], Greiner and colleagues (2012) find different behavioral patterns for exogenously and endogenously induced inequality. The authors report that trust is initially low, though relatively stable, in an exogenous inequality condition, thus eventually exceeding trust in an endogenous condition. They ascribe the latter part of this result to the different informational value of endogenous and exogenous inequality. In their experiment, endogenous inequality is necessarily a consequence of previous untrustworthy behavior because all participants initially receive the same endowment and can only generate higher earnings than others by exploiting their trust. By contrast, exogenous inequality cannot be used to make the same deduction because the participants' initial endowments already differ, which, after a few rounds, makes it impossible to tell whether a participant's considerable wealth results from a high initial endowment or untrustworthy behavior. Hence, their results suggest that people use the level of endogenous inequality to deduce previous behaviors and reduce their risk by using these insights in their decisions to trust. Because trust is closely related to cooperation and has

[3] The trust game is a behavioral paradigm created by Berg, Dickhaut, and McCabe (1995), which is also called investment game. It is mainly used as a behavioral measure of trust and trustworthiness. However, as a certain amount of trust is essential for cooperation, inferences about cooperative behavior might be deduced from its results as well.

even previously been called “the expectation of cooperation” (Pruitt & Kimmel, 1977: 375), it can be assumed that decreasing levels of trust ultimately also lead to diminishing cooperation.

Indeed, in a related experiment Haile et al. (2008) find that endogenously implemented inequality (but not exogenously implemented inequality) affects cooperation in a version of the public good game. In their experiment, inequality either is implemented randomly or results from the choice of a dictator who personally benefits from higher inequality, as it eventually increases his or her outcome. The experimental findings show that inequality only influences public good contributions if it results from the choice of the dictator. In this case, higher inequality decreases contributions to the public good. Hence, the two presented studies indicate that the source of inequality is crucial in determining its consequences and suggest that particularly endogenous inequality hampers cooperation.

Because the origin of inequality seems to be critical for its eventual effect on cooperation, it is surprising that a common method of policy-making and an important source of inequality has been mostly neglected in experimental research, i.e., majority choices. Previous research investigated the impact of democratically chosen institutions, such as sanctioning and rewarding mechanisms, on cooperation (see Balafoutas, Kocher, Putterman, & Sutter, 2013; Dal Bó, Foster, & Putterman, 2010; Kosfeld, Okada, & Riedl, 2009; Putterman, Tyran, & Kamei, 2011; Sutter, Haigner, & Kocher, 2010; Walker, Gardner, Herr, & Ostrom, 2000); however, to the best of our knowledge, the impact of a democratically chosen wealth distribution on cooperative behavior has yet to be explored.

4.2.2 Democratic determination of inequality

In democratic welfare states, policies and redistribution are ultimately the result of majority decisions. For instance, voters empower parties that promote a flat or a progressive taxation system and thus select different degrees of redistribution, leading to different degrees of

inequality. Hence, a society's level of inequality might be thought of as the result of a democratic vote.

One factor that people are likely to consider when they decide on the level of inequality is their personal position in the society's social hierarchy. From a merely rational perspective, it can be argued that people should always favor distributions that financially benefit their class and, in turn, themselves the most. Hence, facing the decision between a society with a low degree of inequality and a society with a high degree of inequality, those who financially benefit from more inequality should prefer the respective society and vice versa for those who benefit from less inequality.

However, empirical findings have shown that a notable proportion of people generally value equal wealth and income distributions more than unequal ones (Dawes et al., 2007; Lotz & Fetchenhauer, 2012; Norton & Ariely, 2011). Recently, Norton and Ariely (2011) gave a representative sample of US citizens the opportunity to design a society in which wealth is ideally distributed. The authors find that people of all regarded demographic groups wish for far more equal wealth distributions those observed in reality. As such, an overwhelming majority (92% of participants) prefers a society with a Swedish wealth distribution to a society with an American wealth distribution. Experimental research has shown that this preference for equally distributed wealth persists, even if more equality results in personal financial losses and less societal wealth in total (Lotz & Fetchenhauer, 2012). In accordance with these results, scholars have argued that inequality and justice concerns are integrated into human decision-making, leading people to be inequality averse to some degree (e.g., Fehr & Schmidt, 1999; Bolton & Ockenfels, 2000). Therefore, decisions regarding the society's level of inequality should be made depending on an individual's personal level of inequality aversion and his or her financial incentives.

4.3 Behavioral predictions

Based on the literature reviewed in Chapter 4.2.2, we believe that our participants will generally prefer a wealth distribution with a lower degree of inequality. However, the proportion of participants who opt for the higher degree of equality should differ depending on their position in the social hierarchy. In our experiment, participants are randomly assigned to a fictional lower, middle or upper class. Upper- and middle-class participants have a financial incentive to opt for an unequal society, whereas lower-class participants have a financial incentive to opt for an equal society. Hence, the largest proportion of equality voters should be found among lower-class participants.

Based on the literature reviewed in Chapter 4.2.1, we further assume that societies that opt for a greater degree of inequality show less cooperative behavior. This effect may be driven by various mechanisms, such as the self-selection of cooperative people into the equal society, similarity considerations, risk considerations, inequality aversion, and motivated reasoning.

First, a mechanism based on self-selection assumes that participants who vote for equality are generally more prosocial and, in turn, more cooperative than their counterparts (see, for example Bergh & Bjørnskov, 2014). If this were true, we would observe a higher level of cooperation among the participants who vote for equality, irrespective of the degree of inequality that is eventually implemented in their society.

Second, a mechanism based on similarity considerations argues that people prefer cooperating with those that are to a certain degree similar to themselves. It has been suggested that similarity is a crucial component in the evolution of cooperation (Riolo, Cohen & Axelrod, 2001), and previous research has found that perceived similarity motivates cooperation in social dilemmas (Fischer, 2009). Therefore, high wealth inequality might emphasize dissimilarities and consequently decrease cooperation. However, interestingly, cooperation has been found to increase if individuals perceive their interaction partners to share their attitudes (Fischer, 2009). In the context of democratic decision-

making, this finding suggests that people might cooperate more readily and more often if most people in their society share their personal attitudes.

Hence a similarity based mechanism suggests that, in a democratic system, wealth inequality should not necessarily lead to lower cooperation, but participants who are a part of the society's majority—their attitude towards the appropriate degree of inequality is similar to the majority's attitude towards inequality—should be especially cooperative irrespective of the eventually determined level of inequality.

Third, a mechanism based on risk considerations argues that the societal level of inequality acts as a proxy for previous behavior (Greiner et al., 2012). This mechanism implies that the democratic implementation of a political system that fosters inequality may signal previous selfish behavior and thereby increase the perceived risk of exploitation, which reduces trust and ultimately leads to decreased cooperation. Therefore, the mechanism predicts a decrease in the willingness to cooperate among all members of an unequal society, as a majority of selfish individuals increases the general risk of cooperation.

Fourth, a mechanism based on inequality aversion suggests that inequality decreases cooperation in societies as a byproduct of attempts to distribute wealth more equally (Fehr & Schmidt, 1999; Bolton & Ockenfels, 2000). As inequality-averse individuals are concerned not only about their own wealth but also about the general distribution of wealth within their society, they attempt to redistribute resources if wealth disparities surpass a certain threshold. One way to partly reallocate the society's wealth and reduce inequality is the provision of public goods by the rich without the contributions and, in turn, the cooperation of the poor. Hence, inequality-averse individuals might regard wealthy individuals as responsible for the provision of public goods that benefit society as a whole. Interestingly, wealthy inequality-averse individuals actually should willingly relinquish a part of their wealth to reduce wealth disparities. Thus, the mechanism simultaneously predicts

an increase in the willingness to cooperate among the wealthy and a decrease in the willingness to cooperate among the poor.

As in the present experiment, cooperation is measured by contributions to a public good, the depicted mechanism suggests that, after inequality was implemented, the upper- and middle-class participants who benefited are willing to contribute to the public good and cooperate, whereas the suffering lower-class participants do not contribute.

Finally, the underlying thought of a mechanism based on motivated reasoning is that people desire to act in their own self-interest; however, such behavior has to be justifiable for them. This justification has to surpass a certain threshold of plausibility, but people's motivation to arrive at their desired conclusion may cause them to selectively search their memory for beliefs and rules that may apply (Kunda, 1990). Consequently, inequality might decrease cooperation if not cooperating is in the self-interest of a majority and if inequality delivers a plausible justification arguing that not cooperating is appropriate.

In the present experiment, high inequality, on the one hand, benefits upper-class participants the most and middle-class participants a little; on the other hand, lower-class participants suffer from its implementation. Hence, after inequality is implemented and participants are asked to cooperatively contribute to the public good, lower-class participants might be motivated to reason that it is only fair if the previously benefiting middle-class and upper-class participants provide the public good on their own.

However, middle-class participants might not want to contribute either and thus may be motivated to neglect the fact that they benefited from inequality. Instead, they may compare themselves with upper-class participants and reason that the upper class benefited the most and should thus provide the public good on its own.

By contrast, upper-class participants may find no sufficiently plausible reason why middle- or lower-class participants should contribute more to the public good than they do, but they also do not want to be their paymasters. Hence, they might reason that the implementa-

tion of inequality and the decision to cooperate should be perceived as independent of one another and arrive at the desired conclusion that they should behave as if the previous situation did not occur.

Thus, because of motivated reasoning, inequality should not influence the cooperativeness of upper-class participants; however, cooperation among middle- and lower-class participants should decrease, causing an overall decrease in cooperative behavior under conditions of high inequality.

The conducted experiment is probably most closely related to the presented study by Haile and colleagues (2008). However, our experiment still differs in crucial ways. First, we do not alter the size of our participants' endowments and thus do not alter their behavioral options in the public good game (Anderson et al., 2008). Second, our experiment employs a democratic vote to determine the degree of inequality instead of a dictatorial decision and, in turn, provides valuable insights into the effect of economic inequality on cooperation in democratic systems and the mechanisms behind it. Third, we assign our participants to a fictional upper-, middle- or lower-class, which allows us to investigate whether the effect of inequality on cooperation does or does not depend on an individual's societal status.

4.4 Experimental Design

After being approached on the campus of a large German university, 342 persons agreed to participate in a study about decision-making. All the participants were told that the experiment included decisions about real monetary payoffs, yet they were not promised a specific payment amount. Seventy participants had to be excluded from the analysis for reasons such as incorrect answers to control questions, incomplete questionnaires or experimenter mistakes, leaving an adjusted sample of 272 participants (60% females)[4]. On average participants earned €8.54 in approximately 30 minutes. In each session of the ex-

[4] The excluded participants do not differ significantly from the participants who stayed in the analysis in any of the regarded variables.

periment, between 6 and 15 participants interacted in randomly chosen and anonymous groups of three. The group composition was stable throughout the experiment, which was paper-and-pencil and consisted of two phases.

In phase 1, we employed a welfare state game to induce inequality (Biniossek & Fetchenhauer, 2007; Lotz & Fetchenhauer, 2012). The participants were provided with different positions (person A, B, and C) and had to democratically choose between two alternatives (alternative 1 and alternative 2). While the different positions represented different societal statuses (person A = upper class; person B = middle class; person C = lower class), the two alternatives represented fictive societies (alternative 1 = equal society; alternative 2 = unequal society). Thereby, alternative 1 provided a relatively equal income distribution (person A = €5; person B = €4; person C = €3), whereas alternative 2 provided a relatively unequal income distribution (person A = €10; person B = €6; person C = €1) yet higher societal wealth in total[5]. With a Gini-coefficient of .273, alternative 1 might be compared to the Nordic countries (e.g., Gini coefficient for Finland in 2012: .278), while alternative 2 (Gini-coefficient = .427) might be compared to the US (Gini coefficient in 2013 = .411) (World Bank, 2015). The participants answered several sample questions to ensure their understanding of the paradigm and voted for their preferred society after being informed about their position as person A, B, or C. An experimenter then collected and evaluated the votes.

At the beginning of phase 2, the participants were told the votes of all members of their group, the final result of the vote, and they were reminded of their payment resulting from that decision. Then the questionnaire instructed participants on the public good game that we used to measure cooperative behavior. The participants interacted in the same group as in phase 1. Each participant received an endowment of €3 and had the opportunity to contribute every possible integer amount

[5] We implemented higher total wealth in the unequal society to account for the efficiency losses that might result from redistributing wealth in an equal society.

Table 7: Voting of the participants separated by class affiliation

Vote	Upper class	Middle class	Lower class	Total
Low inequality	40%	43%	92%	58%
Total	60%	57%	8%	42%

Notes. Low inequality = societies which eventually implemented a low degree of inequality; high inequality = societies which eventually implemented a high degree of inequality; Percentages are based on 272 participants with 91 upper-class participants, 91 middle-class participants and 90 lower-class participants

of this money to the public good or to keep it to himself or herself. The kept amount was added to the earnings of the respective participants, whereas the contributed amount was multiplied by 1.5 and distributed equally among all group members. Hence, every €1 invested increased the group's total payoff by €1.50 and earned each participant €0.50 (= €1*1.5/3). Again, the participants had to answer control questions before they stated their final decision for how much they wanted to contribute to the public good and how much they wanted to keep for themselves. Finally, the participants provided some socio-demographic information.

4.5 Results

First, we analyze the results of the democratic vote. Table 7 reports the voting behavior of our participants and indicates that, as expected, a majority (58%) preferred a society with a low degree of inequality to a society with a high degree of inequality; p = .009, two-sided binomial test. However, the table also shows that members of the classes studied strongly differed in their preferences, as indicated by their votes, χ^2 (2, N = 272) = 64.57, p < .001. While 92% of lower-class participants' voted in favor of a low degree of inequality, only 40% of upper-class and 43% of middle-class participants did the same. The votes of upper- and middle-class participants did not differ from another, χ^2 (1, N = 182) = .20, p = .65. Hence, in accordance with the assumption that particularly lower-class participants will prefer a low degree of wealth inequality, we mainly attribute the overall preference for low inequality to the votes of lower-class participants.

Table 8: Number of participants separated by the degree of inequality and class affiliation

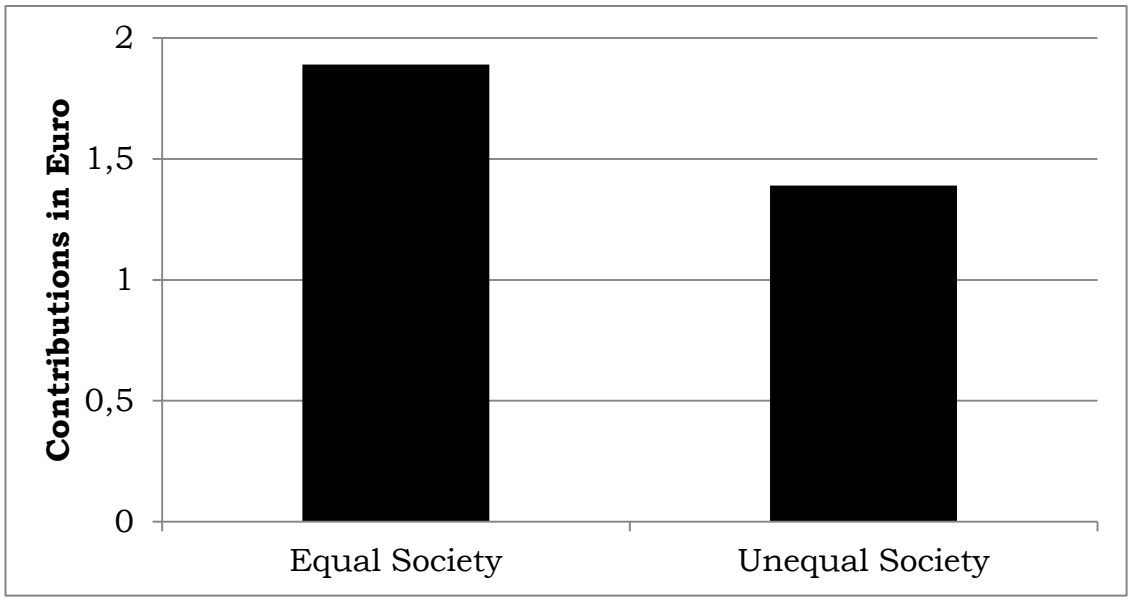
Society	Upper class n	Middle class n	Lower class n	Total
Low inequality	56	55	59	170
High inequality	35	36	31	102
Total	91	91	90	272

Notes. Low inequality = societies which eventually implemented a low degree of inequality; high inequality = societies which eventually implemented a high degree of inequality

Table 8 reports the distribution of participants in accordance with their class affiliation and the degree of inequality resulting from the democratic vote. Overall, 62.5% of the participants were eventually compensated as members of an equal society and 37.5% of the participants were compensated as members of an unequal society.

In the second step of our analysis, we want to answer the primary research question about whether democratically determined inequality decreases cooperation. The presented results indicate that cooperation was indeed negatively influenced by high inequality. On average, our participants contributed €1.70 (*SD* = 1.20) to the public good and thus 57% of their initial endowment. Figure 9 presents the average contributions to the public good separated by society (i.e., unequal society or equal society). In line with our prediction, the results reveal that inequality was related to lower levels of cooperation. The participants whose groups had previously chosen an equal society contributed, on average, €1.89 (*SD* = 1.14), whereas the participants whose groups had previously chosen an unequal society contributed only €1.39 (*SD* = 1.24); $p = .001$, two-sided Mann-Whitney U test. Therefore, these results affirm our main research hypothesis which stated that democratically determined inequality harms cooperation.

Figure 9: Public good game contributions separated by society affiliation



In the third step of our analysis, we explore the potential mechanisms on which the association between inequality and cooperation might be based. The first mechanism that we suggested was based on self-selection and argued that people with a predisposition for cooperation might self-select into a society with low inequality. Analyzing the relationship between the participants' votes and their contributions in the public good game reveals that our results do not support this mechanism. Table 9 provides the results of three OLS models that employ public good game contributions as a dependent variable. Model 1 finds that a participant's vote had no general effect on his or her contributions to the public good game. Therefore, the participants who voted for the equal society and those who voted for the unequal society exhibited similar levels of cooperation. Hence, cooperation in equal societies was not high because people who prefer the equal society are usually more cooperative.

Table 9: OLS regression models for the influence of the own vote and class affiliation on public good game contributions

	Model 1	Model 2	Model 3
	b (*SD*)	*b* (*SD*)	*b* (*SD*)
Constant	1.76 (.10)***	1.93 (.16)***	1.86 (.20)***
Vote inequality	-.15 (.15)	-.21 (.17)	-.10 (.25)
Middle class		-.21 (.18)	.11 (.27)
Lower class		-.21 (.20)	-.24 (.24)
Vote inequality x middle class			-.55 (.36)
Vote inequality x lower class			1.04 (.53)*
R^2	.004	.01	.04*
ΔR^2	.004	.006	.03**

Notes: Vote inequality is a dummy variable with 1 representing a vote for a high degree of inequality, middle class and lower class are dummy variables coded in a way that 1 represents the respective feature. *** $p < .001$, ** $p < .01$, * $p < .05$.

This result remains robust when we control for the influence of class affiliation on contributions using the upper class as the reference group (model 2). We find that neither membership in the middle class or lower class nor votes were associated with changes in cooperative behavior. In addition, by analyzing how voting interacted with class affiliation (model 3), we find no evidence supporting the hypothesis that equality-preferring individuals were more cooperative. Nevertheless, it should be noted that lower-class participants who voted for the unequal society cooperated even more than the reference group. Their contributions to the public good exceeded those of upper-class participants who voted for the equality system by, on average, €1.04. At first glance, this behavior might be perceived as counterintuitive; however, one might simply regard this group as social output maximizers. With their initial vote for an unequal society they do not seek personal profit to increase total societal wealth, and they consistently contribute high amounts to the public good to increase the total societal wealth irrespective of their individual outcomes.

However, we find no evidence suggesting that cooperative individuals show general preferences for equal income distributions, as those participants who initially voted for an equal society did not exhibit more

Table 10: OLS regression models for the influence of attitudinal similarity and class affiliation on public good game contributions

	Model 4	Model 5	Model 6
	b (*SD*)	*b* (*SD*)	*b* (*SD*)
Constant	1.47 (.14)***	1.56 (.17)***	1.63 (.24)***
Attitudinal similarity	.31 (.16)	.33 (.17)*	.24 (.28)
Middle Class		-.22 (.18)	-.01 (.37)
Lower Class		-.08 (.18)	-.36 (.33)
Attitudinal similarity x middle class			-.25 (.42)
Attitudinal similarity x lower class			.41 (.39)
R^2	.01	.02	.03
ΔR^2	.01	.01	.01

Notes: Attitudinal similarity, middle class and lower class are dummy variables coded in a way that 1 represents the respective feature. *** $p < .001$, ** $p < .01$, * $p < .05$.

cooperative behavior than their counterparts. Consequently, our results contradict the assumption that a mechanism based on self-selection underlies the association between inequality and cooperation.

The second mechanism that we suggested was based on similarity considerations and argued that inequality does not necessarily hamper cooperation; instead, dissimilar attitudes towards the desirable degree of inequality cause decreases in cooperation. However, we find no evidence to support the notion that such a mechanism based on similarity considerations underlies the association between inequality and cooperation. Model 4 in Table 10 shows that attitudinal similarity, measured by the conformity of the participants' votes and the implemented degree of inequality in their society[6] did not affect the participants' behaviors in the public good game. Hence, dissimilar attitudes towards the desirable degree of inequality did not harm cooperation in our experiment.

This finding remains robust when we control for the influence of class affiliation (model 5)[7] and the interactions between class affiliation

[6] Similar results were obtained by analyzing a trichotomous variable with -1 indicating that the other group members voted for the opposite alternative, 0 indicating that one group members voted for the same alternative and the other one for the opposite alternative, and 1 indicating that the other group members voted for the same alternative as the participant.

[7] The model remains insignificant (F [3, 268] = 1.74, p =.16) indicating that the seemingly significant effect of attitudinal similarity should not be interpreted as such.

and attitudinal similarity (model 6). Therefore, we find no evidence supporting the assumption that attitudinal similarity alters cooperative behavior which clearly contradicts the predictions of a mechanism based on similarity consideration. Therefore, our findings thus far indicate that the mechanism underlying the negative effect of inequality on cooperation is based neither on similarity considerations nor on self-selection.

To determine whether one of the remaining mechanisms accounts for the presented findings, we investigate how class affiliation and inequality interacted with regard to cooperation. Table 11 presents the results of our OLS regression models 7-9. While model 7 replicates the previously stated main finding that high inequality reduced cooperation, model 8 indicates that this finding does not change when we control for class affiliation. In model 9, we investigate whether the effect of inequality on cooperation depends on class affiliation which provides us with additional insights into the basic mechanism behind the inequality-cooperation relationship.

The third mechanism that we suggested was based on risk considerations and argued that the democratic implementation of inequality hampers cooperation because it increases the perceived risk of exploitation. The mechanism predicted that, due to these enhanced risk perceptions, all members of a society reduce cooperation. However, the reported results in model 9 do not support this prediction. First, within the equal societies, cooperation was stable between classes, as indicated by the coefficients for the middle class and the lower class being insignificant. Second, the significant effect of being affiliated with the unequal society reported in models 7 and 8 vanishes, which indicates that contributions to the public good did not differ between upper-class participants affiliated with the equal society and the unequal society. Therefore, inequality did not reduce cooperation among all members of an unequal society, which contradicts the assumptions made regarding a mechanism based on risk considerations.

Table 11: OLS regression models for the influence of society and class affiliation on public good game contributions

	Model 7	Model 8	Model 9
	b (*SD*)	*b* (*SD*)	*b* (*SD*)
Constant	1.89 (.09)***	1.99 (.14)***	1.79 (.16)***
Unequal Society	-.50 (.15)**	-.50 (.15)**	.04 (.25)
Middle Class		-.19 (.18)	.14 (.22)
Lower Class		-.12 (.18)	.16 (.22)
Unequal society x middle class			-.86 (.36)*
Unequal society x lower class			-.77 (.36)*
R^2	.04***	.05**	.07**
ΔR^2	.04***	.004	.03*

Notes: Unequal society, middle class and lower class are dummy variables coded in a way that 1 represents the respective feature. *** $p < .001$, ** $p < .01$, * $p < .05$.

The fourth mechanism that we suggested was based on inequality aversion and argued that reduced cooperation under conditions of high inequality is a byproduct of attempting to install a more equal distribution of wealth. For this experiment, the mechanism predicted that inequality reduces cooperation only among lower-class participants. Yet, this prediction is not supported by model 9. It shows that the initially detected lower levels of cooperation in unequal societies seem to be driven by low levels of cooperation among their middle- and lower-class participants. Middle-class participants in the unequal society contributed €0.86 less and lower-class participants in the unequal society contributed €0.77 less than our reference group of upper class participants in the equal society. Hence, contradicting a mechanism based on inequality aversion we find that inequality decreased cooperation not only for lower-class participants, but also for middle-class participants.

Figure 10: Public good game contributions separated by society and class affiliation

Finally, the fifth mechanism that we suggested was based on motivated reasoning and assumed that inequality harms cooperation because it delivers people the justification for self-serving behavior. The mechanism assumed that inequality would cause low levels of cooperation among middle- and lower-class participants but that cooperation would not be affected in the upper class. These predictions are affirmed by the presented results of our experiment. To illustrate this finding, Figure 10 compares the average public good game contributions of upper-, middle- and lower-class participants in societies with high and low inequality. As already noted, upper-class participants' contributions did not significantly differ in these two societies, which indicates similar levels of cooperation. However, middle- and lower-class participants of the unequal society cooperated less than their respective counterparts in the equal society. Middle-class participants in the equal society contributed more money to the public good than their counterparts in the unequal society (p = .001, two-sided Mann-Whitney U test), and the same is true with regard to lower class participants (p = .01, two sided

Mann-Whitney U test). Hence, differences in contributions between the equal and unequal society seem to be caused by contribution differences between the middle- and lower-class participants of both societies, as predicted by a basic mechanism based on motivated reasoning.

In summary, the presented findings thus contradict basic mechanisms based on self-selection, similarity considerations, risk considerations, and inequality aversion, while they support the notion that a mechanism based on motivated reasoning causes inequality to harm cooperation.[8]

4.6 Conclusion

Previous research has found that the origin of economic inequality plays a critical role in its eventual effect on cooperative behavior and economic growth. In this context, recent studies report that especially endogenously induced inequality harms cooperation. Nevertheless, economic inequality that results endogenously from a democratic process has thus far been neglected in experimental research. With a novel experimental design this paper investigates for the first time the effect of economic inequality on cooperative behavior when inequality is the result of a democratic decision within fictive societies. This design enables us to transfer the principle of the democratic welfare state to the laboratory and allows us to derive valuable insights into the relationship between inequality and cooperation.

Regarding the democratic determination of the degree of inequality in a society, we find further evidence indicating a human aversion to inequality (Fehr & Schmidt, 1999; Bolton & Ockenfels, 2000) and replicate the findings of a former experiment by Lotz and Fetchenhauer (2012). Most of our participants opt for a low degree of inequality. Particularly lower-class participants vote almost exclusively for a society with low inequality, but we also find that notable proportions of upper-

[8] An OLS regression model integrating the presented OLS regression models 3, 6, and 9 reveals consistent results indicating the presented findings to be robust.

and middle-class participants opt for low inequality, although this decision is not in their financial self-interest.

Furthermore, consistent with our main assumption, our results suggest that inequality resulting from these democratic decisions reduces contributions in the public good game and hence cooperation. Interestingly, previous research argues that economic inequality primarily affects people if it results from an unfair procedure (Bolton, Brandts, & Ockenfels, 2005; Haile et al., 2008). At least at first glance, the implementation of a policy that is supported by the majority and is determined democratically seems to be an example for a fair procedure, yet our results indicate that inequality still harms the level of societal cooperation. Hence, future research should investigate the perceived fairness of democratic processes in the regarded context. Furthermore, conditions should be determined under which inequality harms cooperation, even if it results from a seemingly fair procedure.

With regard to the basic mechanism underlying the association between inequality and cooperation, we find that individuals who initially preferred a distribution based on the standards of an equal society do not show more cooperative behavior than those who voted for an unequal society. Consequently, the result of the vote rather than the vote itself seems to ultimately determine the cooperation levels among our participants. Hence, a mechanism based on the self-selection of more cooperative individuals into a society with a higher degree of inequality did not to cause the negative relationship between inequality and cooperation. Furthermore, the conformity of the participants' votes and the implemented degree of inequality in their society, and thus a similarity in attitudes, did not alter cooperative behavior. Therefore, we also cannot find that a mechanism based on similarity considerations affects the level of cooperation.

Thus, so far, our results correspond with findings that indicate that people use levels of endogenously evoked inequality to determine the risk of cooperation, with higher inequality signaling previously selfish and thus uncooperative behavior (Greiner et al., 2012). However, if we

consider our results on the interaction between inequality and the studied fictive societal classes a risk-based explanation is not supported either. Because of the equally distributed information within our experiment, a risk-based mechanism predicts a cooperation-reducing effect of inequality with regard to all the observed societal classes. Instead, our results clearly contradict this assumption by showing that inequality decreases cooperation only among middle- and lower-class participants.

In line with the latter part of the previously mentioned finding, a mechanism based on inequality aversion correctly predicts that a high degree of inequality decreases cooperation among lower class participants, yet the result that inequality also decreases cooperation among middle-class participants does not support the mechanisms predictions. Therefore, we can also rule out that inequality aversion underlies the damaging effect of inequality on cooperation.

From the potential mechanisms depicted in Chapter 4.3, our results promote a basic mechanism based on motivated reasoning. Based on this mechanism, we correctly predicted that inequality negatively affects cooperation in general because it causes less cooperation among middle- and lower-class participants. Hence, it seems as if inequality harms cooperation in democratic systems because it delivers middle and lower class participants a sufficiently plausible justification for self-serving, uncooperative behavior.

Future research might investigate whether the depicted lines of thought (see Chapter 4.3) underlying the eventual decisions of upper-, middle-, and lower-class participants resemble reality. Furthermore, it would be interesting to explore the impact of democratically determined inequality on cooperative behavior if participants repeatedly interact with one another. If our assumptions about the reasoning underlying the observed behavioral pattern were correct, upper-class participants, for example, would be expected to adjust their behavior in future interactions. As outlined above, upper-class participants might initially be motivated to believe that the implementation of inequality and contributions to the public good operate independently. However, they may

abandon this belief once they realize that the two situations are not perceived to be independent by their group members. Consequently, they might be motivated to reason in favor of not cooperating themselves. In a new line of thought, upper-class participants might perceive themselves to fall prey to unjustified exploitation by middle- and lower-class participants and ultimately reduce their level of cooperation, too. This new line of thought might even motivate upper-class participants to punish the other group members not cooperating and to promote the further rise of inequality if they have the chance to do so. Hence, future research should explore the role of motivated reasoning in the context of inequality in general and with regard to the association between inequality and cooperation in particular.

In summary, our results indicate that economic inequality resulting from a democratic process harms cooperative behavior in societies by particularly affecting the cooperativeness of middle- and lower-class members. The basic mechanism behind this association is based neither on self-selection, similarity considerations, risk considerations, nor inequality aversion; instead, it is based on motivated reasoning. Thus, the decreasing effect of inequality on cooperation goes beyond what might be explained by an already existing predisposition to cooperate, which implies that reducing economic inequality in a society causally influences and elevates the level of societal cooperation, thereby strengthening societal prosperity.

5 General discussion

5.1 Key findings and overall implications

In three studies, we investigated various facets of wealth and income inequality in experimental settings. Overall, the presented results provide further evidence for the notion that inequality is generally perceived to be unjust and substantiate the idea that wealth and income disparities elicit various undesirable consequences, particularly at a group level (e.g., within societies). In the following section, I will summarize the main findings and discuss further implications of the observed patterns.

5.1.1 Inequality and justice

With regard to justice perceptions the presented findings in Chapter 2 underline previous theoretical and empirical research indicating that high inequality is associated with perceived injustice (e.g. Deutsch, 1975; Bolton & Ockenfels, 2000; Fehr & Schmidt, 1999; Lotz & Fetchenhauer, 2012). The participants who benefited from inequality and the participants who suffered because of inequality considered extreme income disparities unjust. In retrospect, this finding is particularly noteworthy because it applies to both the beneficiaries of inequality and the ones who suffer because of inequality. Hence, the perception of inequality as unjust seems to be common. Yet, our results show that the importance attributed to these justice concerns and thus their implications arguably differ among persons.

As revealed in Chapter 3, the degree to which persons are concerned about justice (i.e., their degree of JS) partly explains individual differences in equality preferences. In a democratic vote on the distribution of societal wealth, persons with genuinely strong justice concerns (i.e., those who had high JS_{others} scores) were found to favor low degrees of inequality, irrespective of whether this choice was in their financial self-interest. By contrast, persons who were predominantly concerned about not being the victim of injustice themselves (i.e., those who had

high JS_{victim} scores) did not show any specific preferences with regard to economic disparities; instead, they voted to implement the degree of inequality that agreed with their financial self-interest. If high inequality was connected to financial gains for them, they wanted societal wealth to be distributed unequally, and if low inequality was connected to financial gains, they wanted societal wealth to be distributed equally.

Taken together, our results strongly suggest an important role of justice concerns with regard to economic inequality. Particularly if inequality is determined democratically, its perception as unjust is of high importance, as this perception influences people's preferences for the level of inequality within a democratic system. However, the close association between inequality and injustice does not necessarily result in people refraining from inequality in democratic systems. It rather leads to genuine egalitarian preferences only among those who are highly sensitive to justice violations that affect other people.

5.1.2 Inequality and its affective, emotional, and cooperative consequences

With regard to the consequences of inequality the presented findings in Chapter 2 and Chapter 4 support prior research (e.g., Wilkinson & Pickett, 2009a) indicating that inequality predominantly causes consequences that are commonly perceived as undesirable. Chapter 2 reported that severe income inequality elicits negative affect, anger, and guilt among most of the persons concerned. In addition, Chapter 4 revealed that wealth inequality implemented through a democratic procedure harms the level of cooperation in groups (e.g., societies).

However, it has to be emphasized that the results in Chapter 2 and Chapter 4 strongly suggest that the observed effects of wealth and income disparities depend on a person's position within their respective distributional system. The aforementioned negative consequences can mostly be attributed to those who suffer because of inequality. These persons experience strong negative affect, anger, and even guilt (Chap-

ter 2), and are less willing to cooperate because of inequality (Chapter 4).

By contrast, the beneficiaries seem to experience inequality quite differently. In Chapter 2, we found them to display predominantly positive affect without exhibiting significantly elevated levels of guilt. In Chapter 4, we found that inequality did not impair the willingness to cooperate among its greatest beneficiaries (i.e., upper-class participants). Taken together, these results might be interpreted to reflect a certain mindlessness of inequality beneficiaries. They enjoy the privileges of what they regard as unjust income disparities without guilt and seem to be at least partly ignorant regarding the effects that inequality has on societal cooperation and others' emotional and affective experiences.

5.1.3 Overall implications

The presented empirical findings have made it unmistakably clear that economic inequality cannot be understood without recognizing the foundation it is build upon and accounting for the different perspectives associated to it. All reported studies imply, that with regard to inequality, it is crucial to consider whether inequality is advantageous or disadvantageous to a given individual. Inequality particularly elicits undesirable consequences among the disadvantaged, whereas its experience significantly differs for the greatest beneficiaries in whom it might even elicit rewarding feelings (i.e., positive affect).

In Chapter 1.2, I pointed out the contradiction between the observation of rising inequality in democratic societies and research findings indicating a large consensus among people in perceiving high inequality to be unjust. The reported findings might add to an explanation of this observation. Recent research in political science suggested that even in democratic societies the wealthy exert more influence on policy-making and particularly on economic policies than the poor (Winter & Page, 2009). Hence, it might be presumed that the way inequality is perceived and evaluated by its beneficiaries is more important for the development

and persistence of societal inequality than its perception and evaluation by its victims. Although inequality might be commonly considered unjust irrespective of one's social position, we found that among the beneficiaries of inequality only those who hold genuine justice concerns for others show real preferences for a low degree of economic inequality (Chapter 3). Thus, our finding that the translation of justice perceptions to equality preferences depends on justice sensitivity, might partially explain the contradiction between rising inequality and perceptions of injustice in democratic societies.

Additionally, the empirical results revealed that beneficiaries experience inequality to be emotionally rewarding if they do not feel accountable for it (Chapter 2). Hence, inequality may also elicit positive affect and emotions among its beneficiaries in democratic systems. However, to allow for these feelings to arise it might be sufficient if beneficiaries are not aware of their accountability or convince themselves by motivated reasoning of not being accountable (Kunda, 1990). For instance, in Chapter 4 we have seen that motivated reasoning may let the greatest beneficiaries of inequality (i.e., upper-class participants) conclude that their previous behavior is not important for future interactions with the same individuals. In a similar way inequality might cause rewarding emotions among beneficiaries in democratic systems that are objectively accountable for inequality. These rewarding, positive feelings might influence people's behavior and guide them to make more selfish decisions (e.g., Forgas & Tan, 2013) which further promote increasing inequality. Hence, our results suggest that the positive implications inequality has for its beneficiaries may partly account for its recent development and persistence in democratic societies.

However, if we realistically assume the beneficiaries of inequality to be a comparatively smaller group within a society, it is important to stress that our findings imply severe negative consequences caused by inequality for a majority of people and the society as a whole. For instance, the negative affect and emotions inequality evokes among those who are disadvantaged may translate into undesirable behavioral pat-

terns (Cohen-Charash & Spector, 2001; Lee & Allen, 2002) or lead to resignation accompanied by physical and mental health issues among the concerned people (Layte, 2012; Weiner, 2014; Wilkinson & Pickett, 2009a).

Furthermore, our results revealed a reduced willingness to cooperate not only among those who objectively suffer from inequality, but also among people who just do not benefit as much from it as others. These findings indicate that inequality divides a society which is likely to have severe consequences for its future economic and social prosperity (Knack & Keefer, 1997; Zak & Knack, 2001).

Thus, in summary the presented empirical research suggests that on an individual level the affective, emotional, and behavioral consequences of inequality depend on whether inequality is advantageous or disadvantageous for an individual. However, on the group-level our findings strongly suggest that inequality evokes severe undesirable consequences, which is why the wide attention the topic has received in recent years seems to be justified. Hence, there can be no doubt that future political, scientific, and economical effort needs to be made to understand and hopefully solve the problems connected to economic inequality.

5.2 Critical appraisal

5.2.1 Inequality in democratic systems

In Chapter 3 and Chapter 4, my co-authors and I aimed to investigate inequality in democratic systems by refraining from commonly used randomized or merit-based methods for implementing inequality in experiments and by applying the welfare state game (Biniossek & Fetchenhauer, 2007; Lotz & Fetchenhauer, 2012)—a paradigm that creates inequality based on majority choice. As reviewed in Chapter 4, previous experimental research has indicated that the origin of inequality is a crucial determinant of its eventual effects (e.g.; Greiner et al., 2012). Thus, we believe that the method applied in Chapters 3 and 4 increases the external validity of the presented results, and future re-

search in the area of inequality in democratic systems may benefit from the application of the welfare state game or similar paradigms to induce inequality.

However, the applied designs might have certain limitations. For instance, when we focused on the association of democratically induced inequality and cooperation in Chapter 4, cooperation was measured immediately after the democratic procedure that determined inequality. Therefore, our participants were presumably highly aware of the connection between their vote and the implemented degree of inequality. In reality, however, a person's awareness of his or her influence on the policies that determine societal inequality might be low. Elections usually take place once every few years, which might decrease the individuals' awareness of the connection between voting and the current level of inequality. Furthermore, the great number of people in real democratic nations might facilitate a certain diffusion of responsibility (Darley & Latané, 1968) among their citizens and promote a feeling of low self-efficacy (Bandura, 1977). People might probably think that their votes do not influence anything. Thus, in reality, people, although part of a democratic system, might have little awareness of their personal influence on and responsibility for societal inequality.

If so, the *real* effect of inequality on cooperation in democratic systems might substantially differ from what was observed in Chapter 4. Hence, future research should investigate whether people's awareness of their influence on inequality in democratic systems moderates the effects of inequality on cooperation and other potentially related constructs.

5.2.2 Wealth/income differences versus status differentials

As aforementioned, the presented findings emphasize that different positions within an unequal distribution crucially determine the individuals' equality preferences and the effects of inequality. Therefore, the consideration of these positions and different perspectives on ine-

quality seems critical when gathering further insights into the development, persistence, and impact of inequality.

In this context, we probably did not sufficiently differentiate between what might be called the social component of inequality (i.e., status differences) and the economic component of inequality (i.e., income, respectively wealth differences), which might qualify as a limitation of the present research (see, for example Goldthorpe, 2010). For instance, in Chapter 2 we suggested that the major dissimilarities in the affect and emotions experiences by the advantaged and disadvantaged of inequality might result from disparities in payment and/or status (i.e., a person's relative rank in the social hierarchy of a group). However, due to the study's design, we were not able to determine whether the one or the other was crucial.

To explore the determinants of affective experiences in compensation systems more closely, Steiniger, Schlösser, and Fetchenhauer (2015b) created an experiment based on the design applied in Chapter 2. Similar to the presented experiment, the participants had to solve real effort tasks after being assigned to either the equality system or the tournament system and reported their affective states after they were informed about their payoffs. However, in contrast to the reported experiment in Chapter 2, both systems provided participants with relative performance feedback (i.e., participants were informed if they performed best, second best, and so on). Previous research has found that delivering such performance feedback is sufficient to create status differences among co-workers (Charness, Masclet, & Villeval, 2014). Payments in the equality system did not depend on the participants' relative performance, whereas payments in the tournament system did. Therefore, status differences and income differences were implemented independently.

The results supported the notion that affective experiences were mainly caused by status disparities, as indicated by the relative performance feedback's positive association with positive affect and negative

association with negative affect. By contrast, actual income was a minor factor for affective experiences (Steiniger et al., 2015b).

Hence, these results suggest that the social component (i.e., status) of inequality might have an independent, probably even more important, influence on affective experiences than the economic component (i.e., income) (see also Easterlin, 1973). Because of the crucial role that a person's position within an unequal distribution played in the previously reported findings, it seems an interesting and important task for future research to further disentangle these social and economic components within inequality.

6 Future research

In what follows, I will outline selected ideas for future research based on the empirical results and underlying theory in Chapters 2–4. In particular, the presented research ideas aim to account for some of the previously discussed limitations and attempt to expand the scope of the presented findings.

6.1 Inequality in democratic systems

6.1.1 Inequality and affect in democratic systems

In Chapter 2, I pointed out that exogenously implemented high inequality, once present, elicits fundamentally different affective states and emotions among its beneficiaries and among those who suffer because of it. However, based on the same theoretical background, this result would be expected to change once the degree of inequality is endogenously, not exogenously, implemented. Hence, high inequality resulting from a democratic process (i.e., endogenously implemented inequality) should elicit affective states and emotions that are more closely related to justice perceptions. Justice has been argued to elicit positive affect and emotions and injustice has been argued to elicit negative affect and emotions (e.g., Colquitt et al., 2013). As a consequence, people should predominantly experience positive affect if a democratic decision results in low inequality and negative affect if a democratic decision results in high inequality (see Chapter 2.1.4 and Chapter 2.1.5 for more detail).

These affective differences resulting from the democratic implementation of either high or low inequality may influence future distributional decisions. Generally, affect and emotions have been found to impact behavior and decision making in various ways (e.g., see Colquitt et al., 2013; Lerner, Li, Valdesolo, & Kassam, 2014). Positive affect, for instance, promotes internally focused information processing (Bless & Fiedler, 2006; Clore & Storbeck, 2006). Therefore, Forgas and Tan (2013) argued that positive affect should lead to more self-serving deci-

sions, because people are focused on their internal needs. The authors experimentally investigated this assumption providing evidence in its support. Consequently, people who experience high levels of positive affect can be expected to make particularly selfish decisions.

In contrast to positive affect, negative affect should promote externally focused information processing (Bless & Fiedler, 2006; Clore & Storbeck, 2006) and thus enhance the focus on external demands and facilitate compliance with social norms (Forgas & Tan, 2013). This assumption is supported by experimental results indicating that negative affect promotes prosocial decisions (Forgas & Tan, 2013) and is associated with the rejection of unequal offers in behavioral paradigms (Sanfey, Rilling, Nystrom, & Cohen, 2003; Van't Wout, Kahn, Sanfey, & Aleman, 2006). Hence, people who experience high levels of negative affect can be expected to make decisions in favor of more equal income distributions.

To test these predictions and to learn about the development of societal inequality in democratic systems, it might be helpful to conduct an experiment in which participants repeatedly interact with each other and determine their society's level of inequality over multiple periods. Such multi-period designs are commonly used in experimental research on topics such as economic growth (e.g., Greiner et al., 2012), and they may also prove valuable with regard to inequality.

In the first period of such an experiment, the welfare state game may be used as presented in Chapter 3 and Chapter 4. The participants should be assigned to fictive societal classes and democratically determine the initial degree of inequality in their fictive society. After the result of the democratic vote is revealed to the participants, their justice perceptions should be surveyed and their affective states should be measured. Because it is likely to reveal the most realistic picture of people's final justice perceptions, *overall justice* should be evaluated (Ambrose & Schminke, 2009; Barclay & Kiefer, 2014; see also Chapter 2.1.2), while affect might be assessed with the PANAS-X scales (Watson & Clark, 1999). In a subsequent second round of the welfare state

game, the participants might again decide whether to implement low or high inequality.

This experimental design would reveal several new insights into the association between affect and inequality in democratic systems. First, it would be possible to investigate whether the detected affect is significantly related to people's justice perceptions. Second, insights into the stability of distributional preferences in democratic systems would be revealed. Third, it would be possible to test the hypothesis that positive and negative affect mediate distributional decisions in Round 2.

If the results of the described experiment were to reveal a close association between justice perceptions and affect in a situation in which inequality was implemented democratically, this would provide further support for the crucial role of accountability in the regarded relationship (see Chapter 2). Furthermore, finding affective states to moderate distributional preferences in Round 2 might extend the literature claiming that inequality-averse behavior is motivated by feelings (e.g., Dawes et al., 2007).

6.1.2 Inequality and emotions in democratic systems

Modifications in the previously presented experimental design may reveal further insights into the area of inequality in democratic systems. For instance, instead of focusing on affective states, the previous experiment could also be conducted with a focus on emotions. In recent years, scholars have argued that specific emotions rather than general affective states cause behaviors and decisions (for a recent review, see Lerner et al., 2014).

In the context of the aforementioned experiment, it would be particularly interesting to investigate the association between distributional decisions in the second round and the emotions regarded in Chapter 2—i.e., guilt and anger. As previously argued, in the context of democratic decision-making, justice perceptions can be expected to affect emotions (see Chapter 2 and Chapter 6.1.1). Hence, if a high degree of

inequality is implemented, upper- and middle-class participants who voted in its favor can be expected to feel guilty, whereas lower-class participants, who most likely voted against its implementation (see, for example Lotz & Fetchenhauer, 2012; and voting results in Chapter 3 and Chapter 4), can be expected to feel angry (Krehbiel & Cropanzano, 2000; Weiss et al., 1999). Both of these emotions may foster the desire to attain a lower degree of inequality. Guilt may motivate upper- and middle-class participants to ensure that, in future interactions, lower-class participants will be treated more fairly and will be more likely to receive better outcomes (Cryder, Springer, & Morewedge, 2012; Cunningham, Steinberg, & Grev, 1980). Anger may motivate lower-class participants to make decisions that reduce the outcomes of upper- and middle-class participants in future interactions (Dawes et al., 2007).

Envy is another emotion that would be interesting to investigate in this context, as "envy occurs when a person lacks another's superior quality, achievement, or possession and either desires it or wishes that the other lacked it" (Parrott & Smith, 1993, p. 906). In the presented experiment, lower-class participants might be assumed to envy middle- and upper-class participants once high inequality is implemented; more interestingly, middle-class participants might also envy upper-class participants because the latter benefit even more from high inequality than the former do. Surprisingly little research examines the behavioral consequences of envy, yet prior research has associated envy with rather antisocial behavior, such as reduced cooperation and deception directed towards the envied person (Moran & Schweitzer, 2008; Smith & Kim, 2007).

Therefore, a study focusing on specific emotions may be particularly helpful in determining the motivation underlying inequality-averse behavior and will likely reveal a complex interplay of various emotions that cause this behavioral phenomenon.

6.1.3 Inequality, affect, and/or emotions in democratic systems in the long(er) run

A more sophisticated design than that of the previously presented experiments could aim to account for some of the previously mentioned limitations, for example, by manipulating awareness and perceived accountability. As discussed in Chapter 5.2.1, in democratic systems, the elections determining a society's level of inequality are likely be temporarily distinct from the occasions in which people encounter inequality, which might reduce people's awareness of the links between the two. However, the perceived connectedness between an individual's vote and societal inequality presumably determines his or her perceived accountability for inequality, which, in turn, is likely to influence affect and emotions and ultimately their consequences.

For instance, we previously assumed that, in democratic systems, upper-class participants who voted in favor of high inequality might feel guilty once inequality is actually implemented (Chapter 6.1.2) and thus treat in particular lower-class participants more fairly in future interactions (Cryder et al., 2012). However, this behavior will only occur if upper-class participants consider themselves accountable for the consequences that lower-class participants have to suffer. If upper-class participants do not sense or acknowledge the link between inequality and their vote, they presumably experience the positive affect and emotions observed in Chapter 2. Eventually, these emotional differences might even cause inequality-promoting behavior rather than inequality-reducing behavior (Forgas & Tan, 2013).

To test these hypotheses and investigate the influence of temporal distinctions on affective and emotional reactions to democratically induced inequality, a further condition could be added to the previously described experiment. In addition to measuring justice perceptions, affect, emotions, and their consequences immediately after the democratic determination of inequality, the initial decision in the welfare state game could be temporally separated from the assessment of the aforementioned constructs. For example, in the first phase, participants

could be invited to the laboratory to determine societal inequality in the welfare state game, as in the experiments described in Chapter 3 and Chapter 4. Afterwards, they would be told the election result of their group and asked to make an appointment for a second phase one or two weeks later. At the beginning of Phase 2, the participants would then receive their outcomes from the first welfare state game, prior to stating their justice perceptions, affect, emotions and making their decisions in a second welfare state game.

In the analysis, the surveyed affect and emotions from this condition could be compared to the affect and emotions surveyed in a condition similar to those in the experimental designs depicted in Chapter 6.1.1 or Chapter 6.1.2. The results would provide further information about the role of perceived accountability with regard to affective and emotional experiences resulting from inequality. Furthermore, they might add to the understanding of the development and persistence of inequality in democratic systems. The finding that low awareness promotes positive emotions which cause inequality promoting-behavior among the beneficiaries of inequality, might partly explain why inequality in democratic systems increases even though it is commonly considered unjust.

Alternative approaches to investigate similar research questions might increase the number of participants in the welfare state game to reduce perceived accountability or increase perceived accountability for some participant by selecting dictators who determine inequality in the welfare state game on their own.

6.2 Inequality and trust

As presented in Chapter 1.3, prior research suggests that the consequences of inequality are not limited to affect, emotions, and cooperation. Another concept which is often assigned a crucial role in inequality research is trust (Layte, 2012; Wilkinson & Pickett, 2009a; Zak & Knack, 2001). Trust is closely connected to cooperation (Chapter 4) and was argued to be of high importance for economic, political, and

social behavior (Ben-Ner & Halldorsson, 2010; Hardin, 2002). Therefore, I propose to extend the presented findings by investigating the association between inequality and trust in depth.

6.2.1 The causal direction

Although the relationship between inequality and trust on a societal level is generally well-documented (Bjørnskov, 2007; Knack & Keefer, 1997; Rothstein & Uslaner, 2005; Uslaner, 2002; Zak & Knack, 2001), the causal direction of this relationship and its underlying mechanisms remain unclear. Several competing mechanisms have been brought forward to explain the relationship between trust and inequality (Jordahl, 2009). The most popular causal assumption for the trust-inequality relationship states that higher levels of inequality lead to lower levels of trust (e.g., Dehley & Newton, 2005; Uslaner, 2002). However, other scholars argued that higher levels of trust among people result in more equal societies (Bergh & Bjørnskov, 2014). Hence, in a first study, the causal relationship between inequality and trust should be determined.

Causality in the inequality-trust relationship might be investigated in a design based on the welfare state game in Chapter 3 and Chapter 4. The topic would require for a two-phase study. In the first phase, the baseline trust level of all the participants would have to be surveyed. A so-called trust game could potentially be used for this purpose (Berg et al., 1995).

The standard trust game comprises two anonymous subjects—trustor and trustee—who both receive equally large initial endowments of money. In the first step, the trustor has the opportunity to send any amount of his or her endowment to the trustee. The money sent is multiplied by a fixed factor larger than 1 (to assure social efficiency) and is given to the trustee, who then decides how much he or she wants to send back to the trustor. Because a rational trustor would deduce that the trustee has no incentive to send money back, the predicted behavior for the trustor is to keep the entire initial endowment (Berg et al., 1995).

However, numerous studies have shown that actual behavior differs from this prediction and that trustors send, on average, approximately 50% of their initial endowment to the trustees (Camerer, 2003). Therefore, the amount sent by the trustor is usually interpreted as trust, whereas the amount returned by the trustee is interpreted as trustworthiness.

To gather data on the trust levels of all the participants, they need to make a decision in the trustor role. This goal can be achieved efficiently with a small manipulation of the original design, which has already been applied in prior research (e.g., Dunning, Anderson, Schlösser, Ehlebracht, & Fetchenhauer, 2014). The participants in the trust game are asked to make their decisions in the trustor role *and* in the trustee role. In this version of the trust game, the role that eventually determines the participants' outcomes is only subsequently assigned to them at random.

The second phase of the experiment should take place about one or two weeks after the first phase and should comprise a welfare state game and a second trust game. The welfare state game could be designed exactly like those employed in Chapter 3 and Chapter 4. The trust game could be similar to the one previously described, except that participants should be informed that their counterpart in the trust game will be a participant with whom they have already interacted in the welfare state game. Please note that the result of the first trust game should not be revealed to the participants before the end of the entire study to avoid possible confounding effects.

If the assumption that trust causally effects inequality were accurate, the results of the described experiment would show that exhibiting more trust in Phase 1 increases the likelihood of voting for the low-inequality alternative in the welfare state game. However, the degree of inequality resulting from the welfare state game would not impact the level of trust in the second trust game.

If, however, the assumption that inequality causally effects trust were accurate, the results should show that trust levels exhibited in

Phase 1 are unrelated to the participants' votes in the welfare state game. Instead, the degree of inequality resulting from the welfare state game would influence the level of trust in the second trust game. The participants in the fictive societies that ultimately implemented the low-inequality alternative would exhibit consistent or higher trust levels compared to those in the first trust game. By contrast, the participants in fictive societies that ultimately implemented the high-inequality alternative would exhibit lower levels of trust in the second trust game.

Solving the causality issue in the trust-inequality relationship would yield important implications for policy-making. The finding that inequality is the causal prior would imply, for instance, that trust could be fostered by reducing economic inequality with all the associated societal advantages an increase in trust entails.

6.2.2 The underlying mechanisms

If we assume that inequality would causally influence trust, an interesting follow-up study might investigate the underlying mechanisms of this relationship. The possible mechanisms behind this effect may be driven, for example, by the informational value of a society's degree of inequality or, referring to Chapter 2, by the emotional consequences of inequality.

A mechanism based on the informational value of inequality assumes that the degree of inequality in a society informs people about the values of others (Rothstein & Uslaner, 2005) and delivers information about previous behaviors (Greiner et al., 2012). Transferred to the framework of democratic systems, this assumption implies that the democratic implementation of a system that fosters equality may signal a general willingness to cooperate and share possible winnings, thereby reducing perceived risk and enhancing trust. Instead, the democratic implementation of a political system that fosters inequality may signal previous and potentially future selfish behaviors and thereby increase the perceived risk of being exploited and erode trust. The mechanism

thus predicts a decrease in trust among all members of a society, as a majority of selfish individuals increases the general risk of trust.

A mechanism based on the emotional consequences of inequality assumes that trust decreases in unequal societies because people become frustrated about their place in the social hierarchy. Unequally distributed wealth or income might lead to anger among the disadvantaged persons, as shown in Chapter 2; anger, in turn, has been found to negatively influence trust (Dunn & Schweitzer, 2005). Additionally, Fischer and Torgler (2006) have argued that income or wealth disparities might make disadvantaged persons envy advantaged persons, which will likely result in decreased trust. Hence, the mechanism predicts that democratically implemented inequality will not alter the trusting behavior of those who benefit from inequality; it will instead, reduce trust among those who envy the beneficiaries or who are angry about their personal situations.

A study investigating these two mechanisms could be based on the study described in the previous section (Chapter 6.2.1). First, the baseline trust levels of the participants would be assessed using the described version of the trust game. However, in contrast to the previously described study, the participants should also state their expectations regarding the trust game behavior of their counterpart.

In the second phase, the participants determine the degree of inequality in the welfare state game in the same way as described above. After the results of the welfare state game are revealed to the participants, their levels of anger and envy should be assessed. Then, the participants should again be confronted with the trust game. However, two modifications should be made. First, the participants should state their decisions as trustor and trustee in two trust games instead of one—one trust game against each of the other two group members. For example, a lower-class participant in the welfare state game should decide once in a trust game with an upper-class participant and once in a trust game with a middle-class participant. Second, before participants state

their decisions as trustor and trustee, they should state their expectations about the trust game behaviors of their specific group members.

By employing this design, it could be analyzed whether the observed levels of anger and envy and/or differences in people's expectations moderate changes in our participants' trust levels.

Evidence supporting the described mechanism based on the informational value of inequality will be detected if decreases in the expected trustworthiness of group members (i.e., the expected behavior as trustee) mediate decreases in trust within societies that have implemented a high degree of inequality. Evidence supporting the described emotion-based mechanism will be detected if anger and envy mediate decreases in trust within societies that have implemented a high degree of inequality.

In addition, the design would enable us to investigate whether participants' positions and the positions of their interaction partners moderate the effect of specific emotions on trust. For instance, in accordance with the theory reviewed in Chapter 2, lower-class participants in the welfare state game should feel particularly angry if they learn that their fictive society has decided to implement a high degree of inequality to their disadvantage. Furthermore, they might also envy upper- and middle-class participants, as both benefit from inequality. Hence, their emotions may lead lower-class participants to distrust upper- and middle-class participants alike. By contrast, middle class participants would actually benefit from the implementation of inequality and thus should not experience high levels of anger. However, upper-class participants benefit even more from high inequality than middle-class participants, which might still breed envy among middle-class participants. In accordance with the theory reviewed, this envy might cause middle-class participants to exhibit low levels of trust towards upper-class participants, while their trust in lower-class participants probably remains unaffected.

7 Concluding remarks

The presented research regards only a small part of what is associated to the world of economic inequality. However, I like to think of it as brushstrokes in a painting. Hopefully, one day this painting will help us to understand the nature and implications of inequality. Chances are high that once finalized the painting will portray different worlds; a world of those for whom inequality is advantageous and a world of those for whom it is disadvantageous.

If the drastic picture of war between these worlds will be revealed, as suggested by Plato millennia ago, still remains to be seen. However, the indications are strong that it will at least be a scene of conflict—a conflict affecting every one of us. In the future, we should concentrate on finding solutions to solve this conflict and the associated problems—for the good of all.

8 References

Ackerman, P. L. (2014). Nonsense, common sense, and science of expert performance: Talent and individual differences. *Intelligence, 45*, 6-17.

Adams, J. S. (1965). Inequality in social exchange. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (pp. 267-297). New York, NY: Academic Press.

Alvaredo, F., Atkinson, A. B., Piketty, T., & Saez, E. (2013). The top 1 percent in international and historical perspective. *Journal of Economic Perspectives, 27*, 3-20.

Almas, L., Cappelen, A. W., Sorensen, E. O., & Tungodden, B. (2010). Fairness and the development of inequality acceptance. *Science, 328*, 1176-1178.

Ambrose, M. L., & Schminke, M. (2009). The role of overall justice judgments in organizational justice research: A test of mediation. *Journal of Applied Psychology, 94*, 491-500.

Anderson, C., Srivastava, S., Beer, J., Spataro, S. E., & Chatman, J. A. (2006). Knowing your place: Self-perception of status in social groups. *Journal of Personality and Social Psychology, 91*, 1094-1110.

Anderson, L. A., Mellor, J. M., & Milyo, J. (2008). Inequality and public good provision: an experimental analysis. *The Journal of Socio-Economics, 37*, 1010-1028.

Atkinson, A. B., Piketty, T., & Saez, E. (2011). Top incomes in the long run of history. *Journal of Economic Literature, 49*, 3-71.

Bach, S., Corneo, G., & Steiner, V. (2009). From bottom to top: The entire income distribution in Germany, 1992-2003. *The Review of Income and Wealth, 55*, 303-330.

Backes-Gellner, U. & Pull, K. (2013). Tournament compensation systems, employee heterogeneity, and firm performance. *Human Resource Management, 52*, 375-398.

Balafoutas, L., Kocher, M. G., Putterman, L., & Sutter, M. (2013). Equality, equity, and incentives: An experiment. *European Economic Review, 60*, 32-51.

Bandura, A. (1977). Self-efficacy: Towards a unifying theory of behavioral change. *Psychological Review, 84*, 191-215.

Barclay, L. J:, & Kiefer, T. (2014). Approach or avoid? Exploring overall justice and the differential effects of positive and negative emotions. *Journal of Management, 40*, 1857-1898.

Baumert, A., Beierlein, C., Schmitt, M., Kemper, C. J., Kovaleva, A., Liebig, S., & Rammstedt, B. (2014). Measuring four perspectives of

justice sensitivity with two items each. *Journal of Personality Assessment, 96*, 380-390.

Bediou, B., Sacharin, V., Hill, C., Sander, D., & Scherer, K. R. (2012). Sharing the fruit of labor: Flexible application of justice principles in an ultimatum game with joint-production. *Social Justice Research, 25*, 25-40.

Becker, B. E., & Huselid, M. A. (1992). The incentive effects of tournament compensation systems. *Administrative Science Quarterly, 37*, 336-350.

Ben-Ner, A., & Halldorsson, F. (2010). Trusting and trustworthiness: What are they, how to measure them and what affects them. *Journal of Economic Psychology, 31*, 64-79.

Berg, J., Dickhaut, J., & McCabe, K. (1995). Trust, reciprocity and social history. *Games and Economic Behavior, 10*, 122-142.

Bergh, A., & Bjørnskov, C. (2014). Trust, welfare states and income equality: sorting out the causality. *European Journal of Political Economy, 35*, 183-199.

Biniossek, C., & Fetchenhauer, D. (2007). Fairness als Kollektivgut [Fairness as a collective good]. *Wirtschaftspsychologie, 9*, 68-82.

Bjørnskov, C., (2007). Determinants of generalized trust. A cross-country comparison. *Public Choice, 130*, 1-21.

Bless, H., & Fiedler, K. (2006). Mood and the regulation of information processing and behavior. In J. P. Forgas (Ed.), *Affect in Social Thinking and Behavior* (pp. 65–84). New York, NY: Psychology Press.

Bolton, G. E., Brandts, J., & Ockenfels, A. (2005). Fair procedures: evidence from games involving lotteries. *The Economic Journal, 115*, 1054-1076.

Bolton, G. E., & Ockenfels, A. (2000). A theory of equity, reciprocity, and competition. *American Economic Review, 90*, 166-193.

Bolton, G. E., & Ockenfels, A. (2006). Inequality aversion, efficiency, and maximin preferences in simple distribution experiments: Comment. *The American Economic Review, 96*, 1906-1911.

Bothner, M. S., Kang, J. H., & Stuart, T. E. (2007). Competitive crowding and risk taking in a tournament: Evidence from NASCAR racing. *Administrative Science Quarterly, 52,* 208-247.

Camerer, C. F. (2003). *Behavioral game theory*. Princeton, N.J.: Princeton University Press.

Cameron, C. D., Lindquist, K. A., & Gray, K. (2015). A constructionist review of morality and emotions: No evidence for specific links between moral content and discrete emotions. *Personality and Social Psychology Review*, *19*, 371-394.

Cappelen, A. W., Hole, A. D., Sorensen, E. O., & Tungodden, B. (2007). The pluralism of fairness ideals: An experimental approach. *American Economic Review, 97*, 818–827.

Chan, K.S., Mestelman, S., Moir, S., & Muller, R.A. (1996). The voluntary provision of public goods under varying income distributions. *The Canadian Journal of Economics, 29*, 54–59.

Charness, G., Masclet, D., & Villeval, M. C. (2014). The dark side of competition for status. *Management Science, 60*(1), 38-55.

Chlosta, K., Pull, K., & Futagami, S. (2014). Tournament structures in Japan and the U.S. Why are they different and will they change?. *Management and Organizational Studies, 1*(1), 63-71.

Cingano, F. (2014). *Trends in income inequality and its impact on economic growth* (Social, Employment and Migration Working Papers No. 163). Retrieved from OECD Homepage: http://www.oecd-ilibrary.org/docserver/download/5jxrjncwxv6j.pdf?expires=1445976894&id=id&accname=guest&checksum=628667C241CD6D565C6D24E2E44F0DEE

Clore, G. L., & Storbeck, J. (2006). Affect as information about liking, efficacy and importance. In J. P. Forgas (Ed.), *Affect in social thinking and behavior* (pp. 123–143). New York, NY: Psychology Press.

Cohen-Charash, Y., & Spector, P. E. (2001). The role of justice in organizations: A meta-analysis. *Organizational Behavior and Human Decision Processes, 86*, 278-321.

Colquitt, J. A., Scott, B. A., Rodell, J. B., Long, D. M., Zapata, C. P., Conlon, D. E., & Wesson, M. J. (2013). Justice at the millennium, a decade later: A meta-analytic test of social exchange and affect-based perspectives. *Journal of Applied Psychology, 96*, 199-236.

Connelly, B. L., Tihanyi, L., Crook, T. R., & Gangloff, K. A. (2014). Tournament Theory: Thirty years of contests and competitions. *Journal of Management, 40*, 16-47.

Cropanzano, R., Stein, J. H., & Nasdisic, T. (2011). *Social justice and the experience of emotions.* New York, NY: Routledge.

Cryder, C. E., Springer, S., & Morewedge, C. K. (2012). Guilty feelings, targeted actions. *Personality and Social Psychology Bulletin, 38*, 607-618.

Cunningham, M. R., Steinberg, J., & Grev, R. (1980). Wanting to and having to help: Separate motivations for positive mood and guilt-induced helping. *Journal of Personality and Social Psychology, 38*, 181-192.

Dal Bó, P., Foster, A., & Putterman, L. (2010). Institutions and behavior: Experimental evidence on the effects of democracy. *American Economic Review, 100*, 2205-2229.

Darley, J. M., & Latané, B. (1968). Bystander intervention in emergencies: Diffusion of Responsibility. *Journal of Personality and Social Psychology, 8*, 377-383.

Davies, J. B., Sandström, S., Shorrocks, A., & Wolff, E. (2009). The global pattern of household wealth. *Journal of International Development, 21,* 1111-1124.

Dawes, C. T., Fowler, J. H., Johnson, T., McElreath, R., & Smirnov, O. (2007). Egalitarian motives in humans. *Nature, 446*, 794-796.

Delhey, J., & Newton, K. (2005). Predicting cross-national levels of social trust: Global pattern or Nordic exceptionalism?. *European Sociological Review, 21*, 311-327.

Democracy, n. (2015). In *Oxford English Dictionary Online.* Retrieved from http://www.oed.com/view/Entry/49755

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*, 137-149.

Dunn, J. R., & Schweitzer, M. E. (2005). Feeling and Believing: The influence of emotion on trust. *Journal of Personality and Social Psychology, 88*, 736-748.

Dunnet, C. W. (1980). Pairwise multiple comparisons in the unequal variance case. *Journal of the American Statistical Association, 75,* 796-800.

Dunning, D., Anderson, J. E., Schlösser, T., Ehlebracht, D., & Fetchenhauer, D. (2014). Trust at zero acquaintance: More a mat-

ter of respect than expectation of reward. *Journal of Personality and Social Psychology, 107*, 122-141.

Easterlin, R. (1973) Does money buy happiness? *The Public Interest, 30*, 3-10.

Edele, A., Dziobek, I., & Keller, M. (2013). Explaining altruistic sharing in the dictator game: The role of affective empathy, cognitive empathy, and justice sensitivity. *Learning and Individual Differences, 24*, 96-102.

Ellsworth, P. C., & Smith, C. A. (1988). From appraisal to emotion: Differences among unpleasant feelings. *Motivation and Emotion, 12*, 271-302.

Fehr, E., & Schmidt, K. M. (1999). A theory of fairness, competition, and cooperation. *Quarterly Journal of Economics, 114*, 817-868.

Fehr, E., Bernhard, H., & Rockenbach, B. (2008). Egalitarianism in young children. *Nature, 454*, 1079-1083.

Festinger, L. (1957). *A theory of cognitive dissonance*. Stanford, CA: Stanford University Press.

Fetchenhauer, D., & Huang, X. (2004). Justice sensitivity and distributive decisions in experimental games. *Personality and Individual Differences, 36*, 1015-1029.

Fischer, I. (2009). Friend or foe: Subjective expected relative similarity as a determinant of cooperation. *Journal of Experimental Psychology: General*, *138*, 341-350.

Fischer, J. V. A., & Torgler, B. (2006). The effect of relative income position on social capital. *Economics Bulletin, 26*, 1-20.

Fischer, L. & Wiswede, G. (2009). *Grundlagen der Sozialpsychologie*. [Foundations of social psychology] München: Oldenburg.

Forbes, K. (2000). A reassessment of the relationship between inequality and growth. *American Economic Review, 88*, 869-887.

Forgas, J. P., & Tan H. B. (2013). To give or to keep? Affective influences on selfishness and fairness in computer-mediated interactions in the dictator game and the ultimatum game. *Computers in Human Behavior*, *29*, 64-74.

Frank, R. H., & Cook, P. J. (1996). *The Winner-Take-All Society*. New York, NY: Penguin Books.

Gallo, L. C., & Matthews, K. A. (2003). Understanding the association between socioeconomic status and physical health: Do negative emotions play a role? *Psychological Bulletin, 129*, 10-51.

Goldthorpe, J. H. (2010). Analysing social inequality: A critique of two recent contributions from economics and epidemiology. *European Sociological Review, 26*, 731-744.

Gollwitzer, M. & Rothmund, T. (2011). What exactly are victim-sensitive persons sensitive to?. *Journal of Research in Personality, 45*, 448–455.

Gollwitzer, M., Rothmund, T., Pfeiffer, A., & Ensenbach, C. (2009). Why and when justice sensitivity leads to pro- and antisocial behavior. *Journal of Research in Personality, 43*, 999-1005.

Gollwitzer, M., Rothmund, T., & Süßenbach, P. (2013). The sensitivity to mean intentions (SeMI) model: Basic assumptions, recent findings, and potential avenues for future research. *Social and Personality Psychology Compass, 7*, 415-426.

Gollwitzer, M., Schmitt, M., Schalke, R., Maes, J., & Baer, A. (2005). Asymmetrical effects of justice sensitivity perspectives on prosocial and antisocial behavior. *Social Justice Research, 18*, 183-201.

Grandey, A. A. (2000). Emotion regulation in the workplace: A new way to conceptualize emotional labor. *Journal of Occupational Health Psychology, 5*, 95-110.

Greenberg, J. (1983). Overcoming egocentric bias in perceived fairness through self-awareness. *Social Psychology Quarterly, 46*, 152-156.

Greiner, B., Ockenfels, A., & Werner, P. (2012). The dynamic interplay of inequality and trust: An experimental study. *Journal of Economic Behavior & Organization 81*, 355-365.

Grühn, D., Kotter-Grühn, D., & Röcke, C. (2010). Discrete affects across the adult lifespan: Evidence for multidimensionality and multidirectionality of affective experiences in young, middle-aged and older adults. *Journal of Research in Personality, 44*, 492-500.

Hardin, R. (2002). *Trust and trustworthiness*. New York, NY: Russel Sage.

Haile, D., Sadrieh, A., & Verbon, H. A. A. (2008). Self-serving dictators and economic growth. *Journal of Economic Behavior & Organization, 67*, 573-586.

Hayes, A. F., & Cai, L. (2007). Using heteroskedasticity-consistent standard error estimators in OLS regression: An introduction and software implementation. *Behavior Research Methods, 39*, 709-722.

Henrich, J., Mcelreath, R., Barr, A., Ensminger, J., Barrett, C., Bolyanatz, A., Cardenas, J. C., Gurven, M., Gwako, E., Henrich, N., Lesorogol, C., Marlowe, F., Tracer, D., & Ziker, J. (2006). Costly punishment across human societies. *Science, 312*, 1767-1770.

Hegtvedt, K. A., & Killian, C. (1999). Fairness and emotions: Reactions to the process and outcomes of negotiations. *Social Forces, 78*, 269-303.

Hillebrandt, A., & Barclay, L. J. (2013). Integrating organizational justice and affect: New insights, challenges, and opportunities. *Social Justice Research, 26*, 513-531.

Homans, G. (1961). *Social behavior: Its elementary forms*. New York, NY: Harcourt, Brace and World.

Huseman, R. C., Hatfield, J. D., & Miles, E. W. (1987). A new perspective on equity theory: The equity sensitivity construct. *Academy of Management Review, 12*, 222-234.

IAB. (2013). *Aktuelle Daten und Indikatoren – Tarifbindung der Beschäftigten* [Current figures and indicators – Tariff commitment of employees]. Retrieved from http://doku.iab.de/aktuell/2013/tarifbindung_2012.pdf

Jordahl, H. (2009). Economic inequality. In G. T. Svendsen & G. L. H. Svendson (Eds.) *Handbook of Social Capital* [pp. 323-336]. Cheltenham: Edward Elgar.

Kaplan, G. A., Pamuk, E. R., Lynch, J. W., Cohen, R. D., & Balfour, J. L. (1996). Inequality in income and mortality in the United States: Analysis of mortality and potential pathways. *British Medical Journal, 312*, 999-1003.

Keister, L. A. (2014). The one percent. *The Annual Review of Sociology, 40,* 347-367.

Knack, S., & Keefer, P. (1997). Does social capital have an economic payoff? A cross-country investigation. *The Quarterly Journal of Economics, 112*, 1251-1288.

Knoebler, C., & Tsoulouhas, T. (2013). Introduction to the special issue on tournaments and contests. *International Journal of Industrial Organization, 31*, 195-197.

Kosfeld, M., Okada, A., & Riedel, A. (2009). Institution formation in public good games. *American Economic Review, 99*, 1335-1355.

Kondo, N., Sembajwe, G., Kawachi, I., Dam, R. M. van, & Subramanian, S. V. (2009). Income inequality, mortality and self-rated health: meta-analysis of multilevel studies. *British Medical Journal, 339*, 1-9.

Kopczuk, W., & Saez, E. (2004). Top wealth shares in the United States 1916-2000: Evidence from estate tax returns. *National Tax Journal, 57*, 445-487.

Krehbiel, P. J., & Cropanzano, R. (2000). Procedural Justice, outcome favorability and emotion. *Social Justice Research, 13*, 339-360.

Kunda, Z. (1990). The case of motivated reasoning. *Psychological Bulletin, 108*, 480-498.

Layte, R. (2012). The association between income inequality and mental health: Testing status anxiety, social capital, and neo-materialist explanations. *European Sociological Review, 28*, 498-511.

Lazarus, R. S. (1991). *Emotions and adaptation*. New York, NY: Oxford University Press.

Lazear, E., & Rosen, S. (1981). Rank-order tournaments as optimum labor contracts. *Journal of Political Economy, 89*, 841-864.

Lee, K., & Allen, N. J. (2002). Organizational citizenship behavior and workplace deviance: The role of affect and cognition. *Journal of Applied Psychology, 87*, 131-142.

Lerner, A. P. (1947). The Economics of Control. New York, NY: The Macmillan Company.

Lerner, J. S., Li, Y., Valdesolo, P., & Kassam, K. S. (2015). Emotion and Decision Making. *Annual Review of Psychology, 66*, 799-823.

Leventhal, G. S. (1980). What should be done with equity theory? New approaches to the study of fairness in social relationships. In K. Gergen, M. Greenberg, & R. Willis (Eds.) *Social exchange: Advances in theory and research* (pp. 27-55). New York, NY: Plenum Press.

Lotz, S., & Fetchenhauer, D. (2012). Lifting the veil of ignorance in distributive justice – Evidence from a welfare state game. *Wirtschaftspsychologie, 14*, 74-80.

Lotz, S., Baumert, A., Schlösser, T., Gresser, F., & Fetchenhauer, D. (2011). Individual differences in third-party intervention: how justice sensitivity and moral emotions shape altruistic punishment. *Negotiation and Conflict Management Research, 4*, 297-313.

Lotz, S., Schlösser, T., Cain, D. M., & Fetchenhauer, D. (2013). The (in)stability of social preferences: Using justice sensitivity to predict

when altruism collapses. *Journal of Economic Behavior & Organization, 93*, 141-148.

Lovas, L., & Wolt, R. (2002). Sensitivity towards injustice in the context of some personality traits. *Studia Psychologica, 44*, 125-131.

Marmot, M. (2004). *The Status Syndrome*. New York, NY: Times Books.

Mikula, G., Petri, B., & Tanzer, N. (1990). What people regard as unjust: Types and structures of everyday experiences of injustice. *European Journal of Social Psychology, 20*, 133-149.

Miner, A. G., & Glomb, T. M. (2010). State mood, task performance, and behavior at work: A within-persons approach. *Organizational Behavior and Human Decision Processes, 112*, 43–57.

Mohiyeddini, C., & Schmitt, M. (1997). Justice sensitivity and reaction to unfair treatment in a laboratory situation. *Social Justice Research, 10*, 333-353.

Moran, S., & Schweitzer, M. E. (2008). When better is worse: envy and the use of deception. *Negotiation & Conflict Management Research, 1,* 3-29.

Muchinsky, P. M. (2000). Emotions in the workplace: the neglect of organizational behavior. *Journal of Organizational Behavior, 21*, 801-805.

Norton, M. I., & Ariely, D. (2011). Building a better America – One wealth quintile at a time. *Perspectives on Psychological Science, 6*, 9-12.

OECD. (2015). *Level of GDP per capita and productivity* [Data set]. Retrieved from https://stats.oecd.org/Index.aspx?DataSetCode=PDB_LV

Oishi, S., Kesebir, S., & Diener, E. (2011). Income Inequality and Happiness. *Psychological Science, 22*, 1095-1100

Parrott, W. G., & Smith, R.H. (1993). Distinguishing the experiences of envy and jealousy. *Journal of Personality and Social Psychology, 64,* 906-920.

Pickett, K. E., Mookherjee, J., & Wilkinson, R. G. (2005). Adolescent birth rates, total homicides, and income inequality in rich countries. *American Journal of Public Health, 95*, 1181-1183.

Piketty, T. (2014). *Capital in the twenty-first century*. Cambridge, MA: Harvard University Press.

Piketty, T., & Saez, E. (2003). Income inequality in the United States, 1913-1998. *Quarterly Journal of Economics, 118*, 1-39.

Piketty, T., & Saez, E. (2006). The evolution of top incomes: A historical and international perspective. *American Economic Review, 96*, 200-205.

Plato (trans. 1973). *The republic and other works.* New York, NY: Random House.

Pruitt, D. G., & Kimmel, M. (1977). Twenty years of experimental gaming: critique, synthesis, and suggestions for the future. *Annual Review of Psychology, 28*, 363–392.

Putterman, L., Tryan, J. R., & Kamei, K. (2011). Public goods and voting on formal sanction schemes. *Journal of Public Economics, 95*, 1213-1222.

Putnam, R. (2000). *Bowling alone.* New York, NY: Smith and Schuster.

Rawls, J. (1971). *A theory of justice*. Cambridge, MA: Harvard University Press.

Riolo, R. L., Cohen, M. D., & Axelrod, R. (2001). Evolution of cooperation without reciprocity. *Nature, 414,* 441-443.

Rothmund, T., Baumert, A., & Zinkernagel, A. (2014). The German "Wutbüger": How justice sensitivity accounts for individual differences in political engagement. *Social Justice Research, 27*, 24-44.

Rothstein, B., & Uslaner, E.M. (2005). All for all: equality, corruption, and social trust. *World Politics, 58*, 41-72.

Sadrieh, A., Verbon, H. A. A. (2006). Inequality, cooperation, and growth: An experimental study. *European Economic Review, 50,* 1197-1222.

Sanfey, A. G., Rilling J. K., Nystrom, L. E., & Cohen, J. D. (2003). The neutral basis of economic decision-making in the ultimatum game. *Science, 300*, 1755-1758.

Saez, E. (2015). *Income inequality in the United States, 1913-1998* [Updated data set]. Retrieved from http://eml.berkeley.edu/~saez/

Saunders, P. (2010) *Beware of false prophets*. London: Policy Exchange.

Scherer, K. R. (2005). What are emotions? And how can they be measured?. *Social Science Information, 44*, 693-727.

Schmitt, M. (1998). Gerechtigkeit und Solidarität im wiedervereinigten Deutschland [Justice and solidarity in the re-united Germany]. In B. Reichle, & M. Schmitt (Eds.), *Verantwortung, Gerechtigkeit und Moral* [Responsibility, justice and morality] (pp. 87-99). Weinheim: Juventa.

Schmitt, M., & Dörfel, M. (1999). Procedural justice at work, justice sensitivity, job satisfaction, and psychosomatic well-being. *European Journal of Social Psychology, 29*, 443-453.

Schmitt, M., Baumert, A., Gollwitzer, M., & Maes, J. (2010). The justice sensitivity inventory: Factorial validity, location in the personality facet space, demographic pattern, and normative data. *Social Justice Research, 23*, 211-238.

Schmitt, M., Gollwitzer, M., Maes, J., & Arbach, D. (2005). Justice sensitivity: Assessment and location in the personality space. *European Journal of Psychological Assesment, 21*, 202-211.

Schlösser, T., & Fetchenhauer, D. (2015). *Die Hypokrisie der System-Gewinner. Zum Zusammenhang von objektiver Ungleichheit und wahrgenommener Verteilungs-Gerechtigkeit* [The hypocrisy of system-winners. The relationship of objective inequality and perceived distributional justice]. Manuscript in preparation, Institute of Sociology and Social Psychology, University of Cologne, Cologne, Germany.

Smith, C. A., & Ellsworth, P. C. (1985). Patterns of cognitive appraisal in emotions. *Journal of Personality and Social Psychology, 48*, 813-838.

Smith, R. H., & Kim, S. H. (2007). Comprehending envy. *Psychological Bulletin, 133,* 46-64.

Spielberger, C. D., Jacobs, G. A., Russell, S., & Crane, R. S. (1983). Assessment of anger: The State-Trait Anger Scale. In J. N. Butcher & C. D. Spielberger (Eds.), *Advances in personality assessment* (pp. 52-76). Hillsdale, NJ: Erlbaum.

Staw, B. M., Sutton, R. S., & Pelled, L. H. (1994). Employee positive emotions and favorable outcomes at the workplace. *Organizational Science, 5*, 51-70.

Statistisches Bundesamt (2013). Finanzen und Steuern : Personal des öffentlichen Dienstes [Finances and Taxes: Employees in public service]. Retrieved from https://www.destatis.de/DE/ Publikationen/Thematisch/FinanzenSteuern/OeffentlicherDienst/PersonaloeffentlicherDienst2140600127004.pdf?__blob=publicationFile

Steiniger, T., Schlösser, T., & Fetchenhauer, D. (2015a). It's a shame, but I'm not to blame: Perceived justice, affect, and emotions in (un)equal compensation systems. *Wirtschaftspsychologie, 17*(4), 71-82.

Steiniger, T., Schlösser, T., & Fetchenhauer, D. (2015b). *When justice does (not) matter: Status moderates the impact of perceived justice and affect on inequality aversion*. Unpublished manuscript, Institute of Sociology and Social Psychology, University of Cologne, Cologne, Germany.

Stiglitz, J. E. (2012). *The price of inequality – How today's divided society endangers our future.* New York, NY: W. W. Norton & Company.

Subramanian, S. V., & Kawachi, I. (2004). Income inequality and health: What have we learned so far?. *Epidemiologic Reviews, 26*, 78-91.

Sun, S., Pan, W., & Wang, L. L. (2011). Rethinking observed power: concept, practice, and implications. *Methodology, 7*, 81-87.

Sutter, M., Haigner, S., & Kocher, M. G. (2010). Choosing the carrot or the stick? Endogenous institutional choice in social dilemma situations. *Review of Economic Studies, 77*, 1540-1566.

The All England Lawn Tennis Club (2013). *Prize Money* [Press Release]. Retrieved from http://www.wimbledon.com/pdf/Press_Release_Prize_Money_2013.pdf

Tiedens, L. Z., Ellsworth, P. C., & Mesquita, B. (2000). Sentimental Stereotypes: Emotional expectations for high-and low-status group members. *Personality and Social Psychology Bulletin, 26*, 560-575.

Tiedens, L. Z., Ellsworth, P. C., & Moskowitz, D. S. (1998). Feeling your place: Emotional consequences of social status positions. Unpublished manuscript.

Uslaner, E.M. (2002). *The moral foundation of trust*. Cambridge, MA: Cambridge University Press.

Van den Bos, K. (2001). Fundamental research by means of laboratory experiments is essential for a better understanding of organizational justice. *Journal of Vocational Behavior, 58*, 254-259.

Vandergrift, D., Yavas, A., & Brown, P. M. (2007). Incentive effects and overcrowding in tournaments: An experimental analysis. *Experimental Economics, 10*, 345-368.

Van't Wout, M., Kahn, R. S., Sanfey, A. G., & Aleman, A. (2006). Affective state and decision-making in the ultimatum game. *Experimental Brain Research, 169,* 564-568.

Walker, J. M., Gardner, R., Herr, A., & Ostrom, E. (2000). Collective choice in the commons: Experimental results on proposed allocation rules and votes. *The Economic Journal, 110*, 212-234.

Walster, E., Berscheid, E., & Walster, G. W. (1976). New directions in equity research. In Berkowitz, L. & Walster, E. (Eds.), *Advances in Experimental Social Psychology* (Vol. 9), New York, NY: Academic Press.

Watson, D., & Clark, L. A. (1999). The PANAS-X: Manual for the positive and negative affect schedule–expanded form. Unpublished manuscript.

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54*, 1063-1070.

Weiner, B. (2014). The attribution approach to emotion and motivation: History, hypotheses, home runs, headaches/ heartaches. *Emotion Review, 6*, 353-361.

Weiss, H. M., & Cropanzano, R. (1996). Affective events theory: A theoretical discussion of the structure, causes and consequences of affective experiences at work. In B. M. Staw & L. L. Cummings (Eds.),

Research in Organizational Behavior (Vol. 18, pp. 1–74). Greenwich, CT: JAI Press.

Weiss, H. M., Suckow, K., & Cropanzano, R. (1999). Effects of justice conditions on discrete emotions. *Journal of Applied Psychology, 84*, 786-794.

World Bank. (2015). *Gini index (World Bank estimate)* [Data set]. Retrieved from http://data.worldbank.org/indicator/SI.POV.GINI

Wilkinson, R. G., & Pickett, K. E. (2007). The problems of relative deprivation: Why some societies do better than others. *Social Science & Medicine, 65*, 1965-1978.

Wilkinson, R. G., & Pickett, K. E. (2009a). *The Spirit Level: Why Equality is Better for Everybody*. London: Penguin Books.

Wilkinson, R. G., & Pickett, K. E. (2009b). Income inequality and social dysfunction. *Annual Review of Sociology, 35*, 493-511.

Winter, J. A., & Page, B. I. (2009). Oligarchy in the United States?. *Perspectives on Politics, 7*, 731-751.

Zak, P. J., & Knack, S., (2001). Trust and growth. *The Economic Journal, 111*, 295-321.

9 Curriculum Vitae

Personal Information	
Name	Tim Steiniger
Date of Birth	August 24th, 1985
Place of Birth	Waldbröl, Germany
Nationality	German

Education	
10.2012 - Present	Postgraduate studies, University of Cologne
09.2012	Graduation, Diplom Soziologe (MBA equivalent)
04.2007 - 09.2012	Social Sciences (Diploma), University of Cologne
06.2004	Higher education entrance qualification, Hollenberg Gymnasium Waldbröl

Professional Experience and Internships	
10.2015 - Present	Research assistant, Institute of Sociology and Social Psychology, University of Cologne
10.2012 - 09.2015	Lecturer, Institute of Sociology and Social Psychology, University of Cologne
08.2012 - 10.2008	Intern, Lanxess Deutschland GmbH, Leverkusen
05.2012 - 07.2012	Intern, Vodafone Deutschland GmbH, Düsseldorf
10.2010 - 02.2012	Student Assistant, Institute of Sociology and Social Psychology, University of Cologne

Cologne, November 2nd, 2015

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Tim Steiniger