IAAEG

Institut für Arbeitsrecht und Arbeitsbeziehungen in der Europäischen Gemeinschaft

Discussion Paper Series No. 06/2008

The Effects of Procedures on Social Interaction: A Literature Review

Vanessa Mertins

Institute for Labour Law and Industrial Relations in the European Community (IAAEG)
54286 Trier
Tel. +49 651 201-4741
Fax. +49 651 201-4742
www.iaaeg.de

The Effects of Procedures on Social Interaction:

A Literature Review

Vanessa Mertins[1]

Institute for Labour Law and

Industrial Relations in the European Community (IAAEG)

IAAEG Discussion Paper Series

No. 2008/06

December 23, 2008

[1]IAAEG, University of Trier, D-54286 Trier, Germany, Tel: +49 651 201 4746
Fax: +49 651 201 4742, E-mail: mertins@iaaeg.de

Abstract

While economists have neglected procedures for a long time, other social scientists early established a substantial research program. By now, there exists a large gap between a sheer bulk of empirical, experimental, and theoretical studies by non-economists and the fact that there is hardly any economic research on procedures. We argue that due to clear evidence for procedures influencing human decision-making, economists can not remain silent about procedural aspects of strategic interactions any longer. There is an important research agenda to be developed.

This survey article is intended to discuss an important approach by which the standard economic model, which is based on consequentialist preferences, needs to be enriched: not only outcomes shape human behavior but also the way in which decisions are taken. Behavioral economics may serve as an important link. Its aim is to integrate insights of cognitive and social psychologists as well as experimental economists with neoclassical economic theory. We argue that experimental economics should increase its efforts to identify procedural effects and that these experiments should be more incorporated in the theoretical literature as part of an ongoing dialogue between theorists and experimentalists. Among procedural aspects, procedural fairness suggests itself to become an integrative part. To highlight the need for rethinking the standard economic approach we review social science literature on procedural effects, with a special focus on experimental economics and inspired theory-building.

1 Introduction

Experimental economics is among the fastest growing areas of economic research. The field has evolved over the past decades both in terms of the methods it employs and the increasing range of economic phenomena it addresses. A topic currently attracting growing attention is the issue of procedures, i.e. the way that results in a certain outcome. Indeed, any decision in human interactions is inherently associated with a procedure. It is impossible to take a decision without deciding first on *how* to take it (*Sebald,* 2007a).

Judgments about a procedure might entail questions such as the following (*Deutsch,* 1975): Who gets to divide the money? Why? How were these things decided? To what degree did each party take part in the decision-making? Various procedural aspects that affect human decision-making have been identified. All of them show that people seem to care not only about outcomes themselves but also about how they emerged in the first place. With their pioneering research, *Thibaut* and *Walker* (1975) established the procedural fairness hypothesis:[1] Disputants are more satisfied with and willing to voluntarily accept decisions that are the result of a fair procedure. A large literature found procedural fairness judgments having a distinct influence upon the acceptance of decisions and obedience toward rules, policies, and laws, as well as upon people's willingness to engage in cooperative actions within groups, organizations and societies.

While experimental economists only recently started to address procedu-

[1]Following *Greenberg* (1990), procedural fairness is concerned with the perceived fairness of the process or system by which distribution decisions are made and implemented. Economists mostly speak of *procedural fairness*, while psychologists and lawyers seem to prefer the term *procedural justice*. We consider these expressions to be synonyms (see also *Van den Bos* and *Lind* (2002)).

ral questions, this literature has grown enormously in other social sciences. Indeed, procedures have been shown to matter in a broad range of areas and settings (for an overview, see *Frey* and *Stutzer* (2001) and *Frey* et al. (2004)).[2]

In the realm of economics, procedures are of particular importance for analyzing the behavior of consumers and workers. In the case of consumers it has been shown in a survey-based study by *Maxwell* (2002) that the knowledge of how a price is determined has a significant effect on how the price is being perceived. In organizational contexts, there exists a large literature on distinct concerns for procedural fairness (see *Cohen-Charash* and *Spector* (2001) and *Konovsky* (2000) for reviews). For example, procedural fairness evaluations influence negative employee behavior, e.g. theft (*Greenberg,* 1990), as well as employees' job satisfaction and organizational commitment (*Lowe* and *Vodanovich,* 1995), organizational change (*Tyler* and *De Cremer,* 2005), turnover intentions (*Olkkonen* and *Lipponen,* 2006), mentoring relationships (*Richard* et al., 2002), and may serve as indicator for trust (*Lengfeld* and *Krause,* 2006). Whereas fair procedures generally trigger positive responses, the opposite may be true as well. The implementation of participation in the decision-making process (usually assumed to increase procedural fairness) has been shown to result in negative effects: when decision makers fail to respond to inputs, perceptions of unfairness may be higher than if inputs had not been solicited at all (*Greenberg* and *Folger,* 1983).

Procedural aspects within polity and society have also been shown to be important. It is, for example, a well-known fact that people expect a

[2]Procedural aspects have not only been demonstrated to matter in various settings, but also in a wide range of methodologies (including panel surveys, questionnaire studies, and psychometric work) and cultures (see *MacCoun* (2005) for a survey).

fair political process (like having the right to participate) within democratic institutions. For example, government policies which aim on overcoming individuals' resistance to controversial projects (e.g. the construction of power plants) tend to be most successful if people feel that the process honors their concerns and is therefore perceived as fair (*Oberholzer-Gee* et al., 1995). Research on tax compliance and tax evasion has also shown that the way taxpayers are treated, e.g. with respect and dignity, significantly influences their willingness to pay taxes (*Feld* and *Frey,* 2002, 2007). Last but not least, people's willingness to engage in cooperative actions within groups, organizations and societies has been shown to significantly depend on procedural fairness judgments (*Tyler* and *Blader,* 2000).

Another important area where procedures are of prime importance is law. Various studies found that people react adversely to unfair legal procedures, irrespective of the objective judgment made by the court. People rather obey a decision if they regard the authority that made the decision as legitimate and entitled to be obeyed, irrespective of their own judgment about the decision (*Tyler* and *Lind,* 2000; *Tyler* and *Mitchell,* 1994). Indeed, people seem to link their fairness evaluation of a procedure with the legitimacy of authorities and to make their subsequent compliance behavior dependent thereon (see *Tyler* et al. (1997) for an overview). Thus, the effectiveness of legal authorities depends upon citizens' procedural fairness judgments.

We review some of these aspects in more detail below. This survey article is intended to give the reader an idea of the large gap between the existing evidence on procedural concerns provided mostly by psychologists and the neglect thereof by standard economic theory. Behavioral economics may serve as an important link. It aims on integrating insights derived by cognitive and social psychologists as well as experimental economists with

neoclassical economic theory. We argue that experimental economics, a method of empirical investigation in a highly controlled environment, should increase its efforts to identify procedural effects and thus help enrich the standard economic model. In order to highlight the need for rethinking the standard economic consequentialist approach we review findings from the social sciences that have a potential application for human decision-making, present a classification, and discuss the most prominent theories in the field (chapter 2). As the predestined method to study these procedural effects in the realm of economics seems to be the experimental method, we discuss previous findings in chapter 3. Section 4 briefly presents recent efforts to integrate individuals' procedural concerns into economic models, and section 5 offers a conclusion.

2 Procedures in social sciences

There is substantial empirical evidence and increasing recognition that not only outcomes but also procedures leading to them can affect people's utility from and their reactions to those decisions. However, there is still a large gap between a sheer bulk of empirical, experimental, and theoretical studies by non-economists and the fact that economists begun to investigate the role of procedures only recently. Whereas many social scientists, from psychologists and sociologists to political scientists and legal scholars, early started to raise procedural issues, economists have remained silent for a long time. Today, there is increasing recognition that rethinking the standard economic consequentialist approach is necessary. *Sen* (1995, 1997), for example, has repeatedly argued that economic models should combine preferences for outcomes with those for processes.

In this chapter, we focus on the basic findings in the social sciences,

thereby paying special attention to fundamental psychological research on procedural effects. Among any procedural aspects, procedural fairness judgments are especially emphasized, and thus we focus on them, as well. This chapter has three aims. The first is to identify and classify potentially relevant procedural characteristics. The second aim is to consider the reasons why procedures matter. The third is to review the effects of procedural considerations on people's utility and on their behavior.

2.1 Relevant procedural characteristics: *what* matters?

Procedural fairness can be seen to be the most thoroughly researched aspect among procedural effects. A large literature provides answers to what constitutes a fair procedure.[3] *Leventhal* (1980) distinguishes between six different procedural chracteristics of fair processes: representativeness, consistency, correctability, bias suppression, accuracy, and ethicality. Each characteristic may be of a higher or lower value. Representation rights, for example, may vary from voice to participation, i.e. from the opportunity to be heard before the decision is made to direct involvement in bringing about a decision.[4]

In their seminal paper, *Bies* and *Moag* (1986) emphasize the decision maker's role and add the concept of interactional fairness.[5] They state that

[3]See, e.g., the seminal works of *Thibaut* and *Walker* (1975) or *Lind* and *Tyler* (1988) where different procedural characteristics have been discussed at some length.

[4]Note that in the literature, voice is sometimes used in a less narrow sense in that it is a mere synonym to representativeness. *Anand* 2001 defines voice as the extent to which a person has control over a decision. *Folger* (1977) defines voice as the extent to which opinions and preferences of affected parties are considered in the decision-making process.

[5]Whereas some studies highlight distinctions between procedural and interactional fairness (e.g., *Bies,* 2001; *Cohen-Charash* and *Spector,* 2001), others (e.g., *Greenberg,* 1990; *Lind* and *Tyler,* 1988; *Tyler* and *Bies,* 1990) argue that interactional fairness should be subsumed under the rubric of a broader conceptualization of procedural fairness, an approach which we will follow throughout.

while obviously people are clearly concerned about the fairness of outcomes and formal procedures, they are also concerned about the interpersonal treatment they receive during the process. The authors identify four criteria for interactional fairness: respect, propriety, truthfulness and justification. These criteria have also been shown to explain perceptions of process-related fairness partially (e.g., *Colquitt* et al., 2001). *Dolan* et al. (2007) systematically evaluate the literature on procedural fairness[6] and identify six broad procedural characteristic categories: voice, neutrality, consistency, accuracy, reversibility and transparency. This short list of definitions should give the reader an understanding of the complexity of what may constitute a fair procedure.

Yet, despite these comprehensive classifications, the general understanding of the importance of various procedural characteristics and their interactional effects remains limited. The characteristics are described in a variety of ways making it thus difficult to compare findings across studies. Besides, only few studies provide data on more than one of the procedural characteristics and none provides information on trade-offs (see *Dolan* et al., 2007). Others (e.g., *Sondak* and *Tyler,* 2007) collect questionnaire data on various characteristics, but combine them into an overall index. Empirical evidence on the relative importance of different procedural characteristics as well as its interactive effects has been identified as a future challenge (e.g., *Leventhal,* 1980; *Skarlicki* and *Folger,* 1997) but is still limited. One exception is a meta-analysis by *Colquitt* et al. (2001). They find that voice explains 26% of the variance in perceptions of procedural fairness. When controlling

[6] *Dolan* et al. (2007) use keyword searches of electronic databases and hand searches of specific journals and papers by selected authors. They identify a total of 107 articles and books from across a range of decision-making contexts based on a systematic literature review.

for voice, the Leventhal criteria mentioned above explain an additional 21% of the variance in procedural fairness perceptions. Further research in this direction would help to identify those procedural characteristics which matter most for procedural fairness judgments. Hereby deduced results would be an asset for advising decision makers within organizations and society on how to shape institutions to bring about desired reactions (e.g. acceptance of decisions or obedience towards rules). *Sondak* and *Tyler* (2007) note that procedural design has successfully been implemented in the realm of dispute resolution institutions. As studies have shown that people evaluate procedural elements associated with mediation to be fairer than those associated with arbitration or formal trials (*Tyler,* 1987, 1988, 1990, 1997), the legal system has increasingly adopted mediation processes. This change resulted in increased satisfaction with the legal system and greater willingness of disputants to defer to third party dispute resolution decisions.

Thus, separating various procedural characteristics can be of value. Research also suggests, though, that these characteristics interact to affect individuals' fairness perceptions and subsequent behaviors. In the following, we will focus on procedures per se and discuss of what importance they are.

2.2 *Why* do people care about procedures?

It has been shown that procedures with their various characteristics play an important role in human decision-making. Possible reasons *why* procedures matter can be grouped into two rough categories (e.g., *Konow,* 2003): (1) procedures as means for fair/favorable outcomes (instrumental, consequentialist or direct reason), and (2) procedures as aim independent of therewith achieved outcomes (non-instrumental, expressive, proceduralist or indirect

reason).[7]

Reason (1) states that people care about procedures because they affect outcomes. In their classic work on procedural fairness, *John Thibaut* and *Laurens Walker* (1975) still subscribe to this view, arguing that procedures matter because they permit people to feel that they can help mold outcomes. For example, people are more likely to appraise a procedure as being fair if it gives them control over the decision-making process. Thus, process control is not seen to matter as an end in itself but as a means to an end: a way of improving one's prospects given the inevitability of not having full decision control. Hence, they suggest that people's desire to express their opinion is directly linked to their view that these arguments influence the decision. Later psychological research, however, has incorporated non-instrumental reasons due to increasing evidence pointing in other motivational directions (cf. the following paragraph). On the other hand, neo-classic economic theory (especially traditional welfare economics) still values procedures only to the extent to which they promote utility-leading outcomes as standard models are based on utilitarianism, which requires that every choice is judged only by the consequent states of affairs.

Reason (2) is based on the idea that people may also attribute an intrinsic value to the process itself. Political scientists (e.g., *Lane,* 1988) early started to argue that the democratic process per se provides utility to citizens. A proceduralist explanation why procedures are of prime importance has been offered by *Lind* and *Tyler* (1988) and *Tyler* (1990). They propose an identity-based group-value model in which they suggest that procedures

[7] An exception is the categorization by *Dolan* et al. (2007) which distinguishes between three potential reasons: (a) procedures affect outcomes, (b) procedures affect any other factors than outcomes, and (c) procedures are valued in their own right. However, *Dolan* et al. (2007) cannot clearly explain the differences between reason (b) and (c).

are valued because they communicate status and inclusion in groups. By expressing their own view, people are informed of their connections with group members and authorities. In this sense, procedures may lead to positive feelings and are associated with the perceived quality of social relationships between individuals and decision-makers. *Tyler* and *Lind* (1992) have extended this line of thinking to the study of authority relations. They argue that people view group authorities as representatives of the group, and are therefore sensitive to how those authorities exercise their authority. Using fair procedures to exercise authority both communicates that people are respected by the group, and it also suggests that the group is worth identifying with and being involved in. Besides, it has been shown that fair procedures tend to evoke feelings of loyalty to one's group and legitimize the authority of leaders (*Tyler* and *Belliveau,* 1995). Related research reviewed above is not restricted to perceived procedural fairness, but many other intrinsic benefits of a procedure have been identified, among them the utility gained by facing and meeting challenges, expressing oneself, using one's talents, and reporting experiences. Note that procedures may also lower utility, for instance by being cognitively taxing, or by forcing one into making a decision (e.g., *Lane,* 1988).

Whereas a growing literature in the social sciences, especially in psychology, political science and sociology helps to shift the focus to non-instrumental issues of procedures, only few economists early admitted that people care about procedures for non-instrumental reasons (e.g. *Frey* and *Stutzer,* 2001; *Hahn,* 1982; *Ng,* 1988; *Sen,* 1995, 1997). However, as we will reveal in the following chapters, economists have begun to investigate non-instrumental roles procedures play in human decision-making.

We can summarize that the distinction between instrumental and non-

instrumental reasons has transformed the way we think about the meanings and implications of procedures. Procedures *do* matter not only because of their effects on outcomes but those on other factors as well. In a next step, we will discuss these non-instrumental effects in more detail.

2.3 The effects of procedures: *how* do they matter?

Remarkable advancements have been reached in integrating processes and outcomes by studying their interactive effects, primarily procedural fairness effects (e.g. *Folger,* 1984; *Frey* and *Stutzer,* 2001; *Greenberg,* 1986; *Lind* and *Tyler,* 1988; *Sweeney* and *McFarlin,* 1993). But when comparing procedural and outcome fairness, what matters most? Meta-analyzes by *Cohen-Charash* and *Spector* (2001, 2002) and *Colquitt* et al. (2001) suggest that fairness judgments have independent effects on a variety of attitudinal and behavioral outcomes. *MacCoun* (2005) notes that in some studies, procedural fairness has better predicted attitudes toward one's supervisors and organization, whereas distributive fairness has better predicted pay satisfaction and job satisfaction. However, as he points out, direct horse race comparisons of predictor strength between procedural and distributive fairness are problematic due to its multiplicative, interactive effects.

The psychology of justice research (most notably done by *Tom Tyler*, *Allan Lind*, and colleagues) early raised the question why people care about and react to their evaluations of the fairness or unfairness of procedures. A particular effect has attracted remarkable attention: the *fair process effect* (also referred to as the *fair outcome effect*, depending on the individual viewpoint).

The fair process effect, describing the finding that people are more likely to accept decisions when they feel that they are made via fair procedures

(*Folger,* 1987), is said to be extremely robust. There is a sheer bulk of support for this effect (*Brockner* and *Wiesenfeld,* 1996; *Van den Bos* et al., 1999).[8] It is of particular importance for negative outcomes as a fair process enhances the perceived fairness of those unfavorable outcomes and thus results in higher satisfaction with negative outcomes. The effect is of great practical relevance because authorities' effectiveness depends heavily on the voluntary acceptance of rules and decisions by group members (*Sondak* and *Tyler,* 2007). For example, legal authorities seek voluntary compliance with law, political officials seek voluntary payment of taxes, and managers seek acceptance of workplace rules. *Lind* et al. (1993), for instance, found that real-life litigants who judge the arbitration process as fair are much more likely to accept the court's decision, irrespective of the actual instrumental outcome. Further, *Tyler* and *Lind* (2000) show that people are more likely to obey the commands of an authority if they regard the authority to be entitled to their obedience. This holds irrespective of their judgments about the authority's decision.

The form of the process-outcome-interaction can be expressed in two different ways. From one viewpoint, process fairness mitigates the effects of outcomes, such that when process fairness is low, outcomes exert stronger effects on overall fairness perceptions. When process fairness is high, however, outcomes exert less impact on fairness perceptions. From another perspective, outcomes moderate the effects of process fairness such that when outcomes are negative, process fairness has stronger effects on fairness per-

[8]However, empirical and experimental economic evidence on the fair process effect is still rare. An exception is the study by *Bischoff* et al. (2008) who show by analyzing representative survey data that procedural fairness plays an important role for the acceptance of a given income distribution. Recent findings from the field of experimental economics are discussed below.

ceptions. When outcomes are favorable, however, process fairness has less impact on fairness perceptions.

Brockner and *Wiesenfeld* (1996) reviewed 45 studies examining the interaction between procedural fairness and outcome perceptions. The results revealed strong interaction effects in 43 samples which suggest that both effects exist. Thus, processes and outcomes have substitutable effects since people perceive overall fairness as existent as long as either the process or the outcome is fair. However, *Lind* and *Tyler* (1988) show that there is considerably more support for the mitigating effect of fair procedures on negative outcomes (fair process effect) than for the mitigating effect of fair outcomes on unfair procedures (fair outcome effect).

Of course, procedures are not similarly important to each individual; for example, *Gonzales* and *Tyler* (2008) note that procedural fairness is more important to those who believe themselves to be socially excluded, peripheral, or marginalized than to those perceiving themselves as socially included, central, and integrated. Besides, procedural fairness is found to be especially important when issues of identity and relationship are salient (*Tyler* and *DeCremer,* 2005). *Brockner* et al. (1995), for instance, show that the perceived favorability of outcomes depends on how they are framed. They find that when procedural fairness was high, decision frame had no effect on layoff survivors' reactions. When it was low, survivors reacted more favorably in the positive than in the negative frame.

Two distinct theories explaining the interaction between procedures and outcomes have been proposed: referent cognitions theory (e.g. *Folger,* 1984, 1987) and fairness heuristic theory (*Lind,* 1995, 2001; *Van den Bos* et al., 1997). For a review on both theories, see, e.g., *MacCoun* (2005).

In contrast to the overwhelming majority of studies that validate the ro-

bustness of the fair process effect, some studies find under certain conditions the opposite to be true (see, e.g., *Cohen,* 1985; *Folger,* 1977; *Kulik* and *Clark,* 1993; *Lind* and *Tyler,* 1988): Fair procedures can also result in less satisfaction with negative outcomes than unfair procedures. *Folger* (1977) show that outcomes that improved after an opportunity for "voice" are perceived as less fair than the same outcome without voice. Voice was operationalized here as the opportunity to express to an allocator one's own perception of just deserts. Folger referred later to this apparent contradiction to the usual finding of a positive relationship as *frustration effect*. *Cohen* (1985) suggests that the effect occurs likely in situations where allocators receive whatever amount they do not pay to recipients. He explains this with the recipients' impression procedures including an opportunity for voice could rather serve as an insincere attempt to give the allocation the semblance of fairness than b a real attempt to solicit views. In that case the recipient will not experience any enhancement of procedural fairness from the voice procedure and thus is expected to view the outcome as dissatisfying. *Lind* and *Tyler* (1988) add that the frustration effect only occur in settings where the characteristics that give the procedure a procedural fairness advantage are relatively weak.

Procedures not only provoke outcomes or influence subsequent behavior in respond to these outcomes, but may also have a value in their own. This value has been subsumed under the notion of procedural utility: The use of the preferred procedure may directly yield utility. For example, if people prefer the rule one-person-one-vote, the use of it yields immediate utility (*Ng,* 1988).

The idea that procedural utility can explain deviations from standard interpretations of rationality is not new. In other social sciences than eco-

nomics, procedural utility has a long tradition. It refers to the concept of Aristotelian eudaimonic well-being. However, the notion of procedural utility has received recent attention. It has been empirically shown (notably by *Frey* and colleagues) that people have preferences over procedures and that utility is provided if their preferences regarding the process as such are satisfied. For example, econometric analyses by *Frey* et al. (2004) suggest that people derive utility from mere participation in the political process. Their approach is based on self-reported and hence subjective well-being, happiness or satisfaction with life. Happiness measures outcome in the sense that a higher level is preferable to a lower level. They compare data on subjective well-being of Swiss citizens and non-nationals. Since only citizens have direct democratic rights and thus the opportunity to participate, while non-nationals are excluded, their data suggests that two-thirds of the gain in well-being is based on the possibility to be able to participate in the direct democratic process. *Frey* et al. (2004) add that individuals gain procedural utility in addition to outcome utility not only through actual participation but even through the mere possibility of participation. The same outcome may be evaluated differently, depending on whether it is a market outcome or the result of voting, bargaining, or command. They suggest that people are concerned about how they are treated by institutions and procedures because this has an impact on their identity and how positively (negatively) they feel about themselves.

Last but not least, decision-making procedures also convey important information about individuals' relationships within a group and with its authorities. In their seminal work, *Lind* and *Tyler* (1988) argue that people are concerned about issues of identity and status. They suggest that people use the fairness of procedures to learn about their status and to evaluate the

degree to which they want to define their identity according to the groups to which they belong (group-value model of procedural justice).[9]

3 Procedures in the lab – experimental economists' contributions

Until recently, there was a noticeable lack of evidence in economic research on the behavioral effects of procedures which was partly due to some kind of willful ignorance, partly to the difficulty of disentangling the effects of outcome and process considerations. We argue that with the rise of laboratory experiments, a powerful method that is able to clearly differentiate between both aspects has been established. All studies discussed here refer to the general issue of whether people's motivation and subsequent behavior is affected by the process by which an allocation is reached in the presence of real incentives. There are many different procedural aspects that may have some influence; a few of them have been studied so far, the most notable ones are reviewed below, namely the roles of appointment procedures, intentions, and procedural fairness.

3.1 The role of appointment procedures

Frequently, decisions are made by decision makers, i.e. individuals or groups who decide on issues whose outcomes affect others. In these cases, decision makers have to be appointed by the preceding use of a role assignment procedure. Typically, roles in bargaining experiments (e.g. proposers and responders in ultimatum game settings) are assigned via random procedures.

[9] In their 1992 publication, *Tyler* and *Lind* present their relational model of authority which extends the earlier model more generally beyond decision procedures to public support of authorities and rules more generally.

In these cases, the strength of property rights seems to be accompanied by a fairness norm suggesting that all players have (more or less) the same right to a share, resulting in a high probability for 50:50 allocations. This normative right has been shown to be altered by the introduction of real effort (e.g. cracking walnuts or solving a general knowledge quiz) to obtain the pie (see, e.g., *Frey* and *Bohnet,* 1995; *Ruffle,* 1998). There is substantial experimental evidence on this "entitlement effect". It says, in short, the larger an individuals' input into obtaining a pie, the fairer it is for them to keep a large share (*Fahr* and *Irlenbusch,* 2000; *Frey* and *Bohnet,* 1995;).

Hoffman and *Spitzer* (1985) and *Hoffman* et al. (1994), for example, show that proposers offer less and responders accept more unequal offers whenever the role of the proposer was earned (e.g. by scoring high on a general knowledge quiz) rather than randomly assigned. Further evidence is provided by *Cherry* et al. (2002) who conduct a dictator game with earned surplus and high anonymity and observe that 95% of the dictators keep the whole amount at stake.

In a three-player ultimatum game, *Grimalda* et al. (2008a) implement a particular procedural characteristic by varying the degree of participation: in the non-participation treatment, a proposer is randomly selected ex ante, and she becomes the only person to propose a division of the pie. In the participation treatment, all of the three group members, individually and simultaneously, make a proposal. One proposal among the three is then selected by a random draw, and the responders decide whether to accept or reject by majority vote. The authors emphasize that these two treatments are strategically equivalent in the sense that the expected payoffs are ceteris paribus the same. They find only weak evidence that participation makes a difference: after players have gained some experience, proposers seem to

demand less, and responders seem to concede less in the participation treatment which might be due to an entitlement effect. The authors conjecture that the effect of a higher number of institutions allowing more participation in the decision-making process also brings about more "socially responsible" behavior in the players and more equality in payoff distribution. They note that at the same time, however, this effect may also result in more conflict, as individuals are less prone to accept unequal offers from the proposer.

Backes-Gellner et al. (2008) recently criticized that many experimental games were not appropriate to represent real relationships (e.g. in the realm of employment). *Brandts* et al. (2006) meet these concerns by introducing a role allocation beyond chance or effort, i.e. they test whether a selection procedure on the basis of information about personal characteristics may not only have an allocative impact, but may also cause other effects. They find that the very fact that people are selected on the basis of information about their personal characteristics results in lower demands compared to situations in which people are randomly determined. They provide statistical evidence for two different effects. First, knowingly selected allocators keep less for themselves than randomly selected ones ("I-want-YOU effect"). This effect has weakly been confirmed in round 1, but not in the following rounds. Second, selected players reward the selecting player more generously than a third party involved ("gratitude effect") with weak statistical significance in the first round but not in the following rounds.

Mertins (2008) and *Albert* et al. (2008) study another aspect of appointment procedures. They test whether individuals' procedural satisfaction, and their procedural fairness judgments on appointment procedures affect people's behavior. *Albert* et al. (2008) focus on both, responders' and proposers' behavior. They show that proposers claim significantly less if

they were chosen by majority vote (which implies the satisfaction of the responders' group preferences regarding the proposer's appointment procedure) thus confirming the result by *Brandts* et al. (2006) within a different framework. Furthermore, *Mertins* (2008) and *Albert* et al. (2008) show that the behavior of responders also depends on procedural satisfaction. Responders' demands vary depending on whether proposers obtain their roles with or without the responders' support: procedural satisfaction results in stronger resistance against various outcomes. People rather seem to accept decisions made by proposers which they have not supported (individually or by majority vote). As discussed before, this counterintuitive finding may be explained by the "frustration effect" (see, e.g., *Folger,* 1977; *Lind* and *Tyler,* 1988). Besides, the judgment whether a procedure is seen to be the fairer one out of two did not prove to significantly effect different reactions to outcomes.

3.2 The role of intentions

Numerous findings in experimental economics suggest that individuals deviate from the standard economic model in having strong social preferences (e.g. *DellaVigna,* forthcoming). That is, people care about fairness, equity, and reciprocity (for an overview, see *Camerer,* 2003; *Kagel* and *Roth,* 1995). However, there is disagreement within the scientific community whether outcome preferences are sufficient to predict the reciprocal actions observed, or whether it is necessary to account for *intentions* to measure reciprocal response. People might care not only about outcomes but also about intentions underlying distributional decisions.

Two different procedural settings are feasible to study the effects of intentions. First, responders receive information about which alternatives were

available to proposers. The alternatives not chosen may yield information about the intention or attitude of the decision-maker, which in turn may trigger reciprocal behavior. Second, the same outcome may be chosen by either a human decision-maker or a random procedure. The former is assumed to act with consciousness, thus may be perceived as intentional while the latter is assumed not to be perceived as intentional.

Experimental evidence on the role of intentions is mixed. For example, *Charness* (2004) and *Offerman* (2002) find little or no evidence that the attribution of fairness intentions matters in the domain of positively reciprocal behavior, i.e. reward. *Blount* (1995) and *Offerman* (2002) find weak evidence that it matters in the domain of negatively reciprocal behavior, i.e. punishment. *Bolton* et al. (1998) report on an experiment that allows studying both positive and negative reciprocal action in a single framework. In the reward treatment, results can fully be explained by outcome (instead of procedural) considerations. For the punishment treatment, there is some evidence that intentions might play a role. However, the difference in behavior is not statistically significant. *Charness* and *Levine* (2007) find strong evidence that intentions matter for both punishment and reward situations. We will review some of these findings in more detail below.

Building upon early findings by psychologists on the non-instrumental value of procedures, *Blount* (1995) was among the first who designed an economic experiment to analyze the effects of intentions.[10] She compares reactions to decisions either made by humans (perceived as intentional as humans can think about their actions and control them) or non-humans (random or natural occurrences are typically not perceived as intentional

[10]Note that *Blount*'s studies follow the methodological requirements of economic experiments with one exception: One treatment involves deception in subjects believe that other participants (and not the experimenter) made the proposals.

due to the absence of consciousness). She compares responder rejections in a standard ultimatum game with (a) rejections in a treatment in which an outside party, receiving no payoff for the game, proposed the allocation and (b) rejections in a treatment in which the proposal is said to result from a random number generator with equal probabilities. She finds rejection rates to be lowest in the random treatment, but still significantly positive.

Charness (2004) compares second movers' behavior in reaction to first movers' decisions with first movers being either human participants having an interest in the outcome (standard), having no interest (third party) or being a random machine. By analyzing a gift exchange game he finds that second mover contributions are slightly higher in the third party and random treatments than in the standard game. But positive correlation between first mover and second mover contributions is found in all three treatments, which is a contradiction to the intentions hypothesis: if intentions matter, there should be no correlation for random and third party treatments.

Kagel et al. (1996) study an ultimatum game in which treatments vary according to pie size and information thereon. Incomplete information treatments consist of second movers knowing both, but first movers knowing only their endowment, making it more difficult to attribute unfair intentions to the first mover. If intentions play a role, rejection rates are expected to be lower in the incomplete information treatments than in the complete ones. Indeed, *Kagel* et al. (1996) report evidence supporting the intentions hypothesis, but at the same time they also find the opposite to be true for another comparison of treatments. These observations suggest alternative interpretations including strategic considerations.

Falk et al. (2008) show that proposers' intentions matter for responders' behavior: it seems that responders wish not (only) to avoid unequal or

unfair outcomes but (also) to punish intentionally unfair proposers. The authors present three experiments which suggest that many of the observed punishments are actually triggered as a response to unkindness, not as an attempt to reduce inequality.

Charness and *Levine* (2007) analyze workers' reactions to pay decisions by firms following different wage-setting procedures. Each randomly paired group consisted of 2 players, one being the firm, the other representing the worker. Firms, endowed by \$12, had the choice between paying a high (\$ 8) or a low wage (\$ 4) to the worker. Then, a coin determined whether the economic conditions were good (bad) resulting in a worker's wage increase (decrease) by \$2. After having experienced the firms' decisions and the coin flips, workers chose an effort level: low effort cost \$1 and reduced the firm's payoff by \$ 4, medium effort cost workers nothing and did not change the firms' initial payoff, and high effort cost also \$1, but increased the firms' payoff by \$4. Thus, the same wage of \$ 6 could be determined by two different procedures: high wage (good intention) coupled with bad condition and low wage (bad intention) coupled with good condition. The authors find that workers who end up receiving medium wages respond much more positively when this is due to the firm offering a high wage but bad luck lowering the worker's pay than when the opposite holds: The firm offering a low wage and good luck raising the pay. Thus, participants' effort levels (i.e. rates of punishment and rewards) react strongly to intentions and more modestly to distributional outcomes.

Betrayal aversion is in line with recent theoretical models and empirical evidence that people care about how outcomes come to be and about others' intentions. *Bohnet* and *Zeckhauser* (2004) study this concept by examining whether the decision to trust a stranger in a one-shot interaction is equiv-

alent to taking a risky bet, or if a trust decision entails an additional risk premium to balance the costs of trust betrayal. They state the hypothesis that it is fundamentally different to trust another person than to rely on a random device that offers the same outcomes: people are averse to being betrayed. The authors compare a binary-choice trust game with a structurally identical, binary-choice risky dictator game with good or bad outcomes and elicit individuals' minimum acceptable probabilities of getting the good outcome such that they would prefer the pure chance for the sure payoff. Supporting their hypothesis, first movers state higher minimum acceptable probabilities in the trust game than in situations where nature determines the outcome. *Bohnet* et al. (2008) build upon this experimental design in testing whether betrayal aversion can be found outside the United States. In their cross-country study among Brazil, China, Oman, Switzerland, Turkey and the United States, they found people to be betrayal averse in any of these nations. The effect has been found to be most pronounced in Oman.

Although being psychological research, we discuss the work by *Fukuno* and *Ohbuchi* (2003) here as their research is strongly related to the questions raised. Their study addresses both the role of appointment procedures and that of intentions at the same time. Participants playing an ultimatum game received one of three offers: unfavorable and unequal, equal, or favorable but unequal. These offers were determined by either the other participant or by a computerized lottery, thus manipulating the arbitrariness of the role assignment procedure. The authors find that outcome acceptance is determined by distributive and procedural fairness judgments, and that these types of fairness are influenced by different situational characteristics, such as intentionality, the size, and the equality of the offer. Participants

perceive the intentional small offer as more unfair than the unintentional small offer, while they perceive the same offers as unfair in the distributive sense, regardless of intentionality. They rather reject the intentional than the unintentional small offer. Besides, people perceive the arbitrary procedure of the role assignment as highly unfair, whereas the difference of arbitrariness in role assignment procedures has no significant impact on their reactions to the offer.

3.3 The role of procedural fairness

Given that procedural fairness is an integrative part of any of the issues discussed above, we address the procedural fairness effect in a separate chapter. As pointed out before, the fair process effect is one of the most frequently replicated findings in social psychology (*Van den Bos* et al., 1999), and is said to be one of the most important discoveries in justice research (*Van den Bos* et al., 1998). Surprisingly, there is still extremely little experimental evidence for cases where the participants' decisions have monetary consequences. The first experimental economists explicitly tackling the question of procedural fairness are *Bolton* et al. (2005) who show that allocations resulting from fair procedures (implemented by unbiased random procedures), are more acceptable than the same unfair outcome chosen by a third-party. *Bolton* et al. (2005) investigate within ultimatum games whether the allocation bias of a random fair procedure influences the ex post acceptability of the outcome of the procedure. Their main result is that settings with fair procedures leading to unequal outcomes and settings with equal outcomes seem to be equivalently treated by responders. That is, procedural fairness – even when leading to unequal outcomes – is indeed a substitute for outcome equality.

A related study is provided by *Grimalda* et al. (2008b), who study fairness regarding the allocation of initial opportunities by varying the probability (opportunity) that a player becomes the proposer in an ultimatum game (i.e., 0%, 1%, 20% and 50% opportunity). That is, whereas *Bolton* et al. (2005) analyze whether the allocation bias of a random fair procedure influences the ex post outcome acceptability, *Grimalda* et al. (2008b) focus on fairness prior to the unfolding of the interaction. In particular, the latter hypothesize that opportunity has a symbolic value (e.g. some kind of procedural utility) to participants. That is, responders will accept more unequal outcomes, as the procedure becomes relatively more unbiased and hence more procedurally fair. Since proposers are expected to anticipate these reactions, they will increase their demands on average. In other words, the fairer the procedure, the higher the inequality in outcomes. The authors find that a 1% probability of becoming a proposer leads to significantly lower offers and higher acceptance rates compared to the case where participants have no such a chance. By raising this probability further, the observed effect continues but is no longer significant with respect to the 1% treatment. The authors draw the conclusion that people in this setting are motivated solely by the symbolic aspect of opportunity, rather than by the actual fairness in the allocation of opportunities.

Albert and *Mertins* (2008) study the influence of more or less participation in the decision-making process, thus testing the procedural fairness hypothesis that more participation (higher fairness) increases acceptance of unfavorable decisions. The present paper tests this conjecture in a three-person power-to-take game. Two takers decide which fraction of the responder's endowment to transfer to themselves; the responder decides which part of the endowment to destroy. Hence, the responder can punish greedy tak-

ers, but only at her own expense. The authors modify the game by letting the responder participate in the takers' transfer decision and consider the effect of participation on the destruction rate. They conclude that participation matters. Responders destroy more if they (1) have no opportunity to participate in the decision-making process and (2) are confronted with highly unfavorable outcomes. This participation effect is highly significant for those responders (the majority) who show negative reciprocity (i.e., destroy more when takers are more greedy).

By focusing on procedural fairness norms the study by *Dittrich* and *Tontrup* (2008) aims on facilitating the analysis of institutional processes like administrative procedures. They recently started investigating the existence and impact of several factors related to procedural fairness norms. In their experimental setting, a decision-maker earns an entitlement to some objectively determined payoff in a real effort task. His actual payoff is, however, determined by a neutral third party, which decides based on incomplete information. Rational, risk-averse decision-makers should accept the sure offer, but many participants filed an objection against it and subsequently faced a gamble with expectations equal to the payoff determined by the neutral third party. The authors show that higher transparency of the decision process of the third party reduces objections by 40 percentage points. Their future research is intended to elicit the willingness to pay for filing an objection and for increasing the transparency of the third party's decision process. Besides, institutional factors will be manipulated to gain insights into the sensitivity of procedural fairness norms.

Tontrup and *Gaissmaier* (2008) analyze the effects of perceived legitimacy of procedures on people's willingness to cooperate. In their experimental public good game, they allow participants to vote on a set of rules

vs. imposing the same institutions exogenously. They provide statistical evidence for their hypothesis that average contributions to the public good are higher in the voting than in the control condition (85.2% vs. 58.5%). That is, participation in the procedure is sufficient to increase cooperation rates. The authors show that the size of the effect does not depend on the set of rules participants actually decided for nor on whether subjects actually received the institution they personally voted for. The authors assume the perceived legitimacy of procedures to be an important determinant of people's willingness to cooperate with one another in social dilemmas. To provide evidence for this explanation, the authors replicate the experiment in China, since China is perceived as a country where the democratic majority rule is not seen to be particularly legitimate. As hypothesized and in sharp contrast to the results in Germany, they find no increased contributions in the voting groups of the Chinese sessions.

As mentioned before, procedural fairness is the best analyzed aspect of procedural concerns; procedural favorability has mostly been treated interchangeable as both concepts overlap to a great extent. The same is true for outcome fairness and outcome favorability. There is empirical evidence that strong correlations between individuals' perceptions of outcome fairness and outcome favorability (e.g., *Greenberg,* 1994; *Tyler* and *Caine,* 1981) or even no differences at all exist (*Brockner* and *Wiesenfeld,* 1996). More recent research suggests, however, that fairness and favorability judgments do not always show the same effect (*Van den Bos* et al., 1997, 1998). To our knowledge, *Mertins* (2008) and *Albert* et al. (2008) are the first papers by experimental economists which explicitly differentiate between the effects of procedural satisfaction and procedural fairness judgments. *Mertins* (2008) finds that resistance against any feasible claim is higher if the proposer's ap-

pointment procedure is judged to be the fairer one (in comparison to another procedure available). However, the differences in the willingness to offer resistance were not statistically significant. On the other hand, resistance differs significantly depending on whether people's procedural preferences are satisfied or not. Surprisingly, the author cannot provide evidence for the robust fair process effect, but for the rather exceptional frustration effect (*Folger* 1977). That is, people rather seem to accept decisions (i.e. offer less resistance) made by proposers which they have not supported (individually or by majority vote). This observation may be explained by people asserting a claim on their behalf (i.e. demand fair treatment like a generous offer) when voting for a procedure and thus for a proposer.

4 What does economic theory say about procedures?

Due to the recent popularity of the field of behavioral and experimental economics, an impressing amount of interesting results has been produced. Concurrently, *Bergh* (2008) argues the supply of theoretical explanatory frameworks remained rather limited. This is particular true for the research on procedures. Whereas increasing experimental evidence indicates that procedures matter, their impact on human decision-making still awaits a proper theoretical foundation as both, traditional economic theory and even most models of social preferences, are based on a consequentialist view (see *Sobel* (2005) for a survey).

One class of models of social preferences assumes that individuals maximize their utility according to well-defined preferences, but permit preferences to depend on the payoffs of others. Let us, for example, consider the theory of inequity aversion by *Fehr* and *Schmidt* (1999) and the ERC model

by *Bolton* and *Ockenfels* (2000). These models of distributional concerns assume that people's utility depends only on outcomes and is independent from any procedures preceding the outcome. Indeed, economic models are expected to be simplified to focus the attention on the important mechanisms of behavior. However, in case of a theory of fairness, reduction to distributional fairness and thus neglect of an enormous amount of evidence on the behavioral importance of procedural fairness seems not to be adequate (see *Bergh* (2008) for a critical discussion).

There is another class of models of social preferences (see e.g., *Dufwenberg* and *Kirchsteiger,* 2004; *Rabin,* 1993;) which incorporates procedural aspects in the form of perceived intentions by assuming them to trigger corresponding responses (positive or negative reciprocity). *Falk* and *Fischbacher* (2006) expand this approach by presenting a formal theory of reciprocity which takes into account both that people evaluate the kindness of an action by its consequences and also by the underlying motivation, i.e. intention. The theory explains the relevant stylized facts of a wide range of experimental games. Among them are the ultimatum game, the gift-exchange game, a reduced best-shot game, the dictator game, the prisoner's dilemma, public good games, and the investment game. Furthermore, the theory explains why subjects behave differently in treatments where they experience the actions of real persons compared to treatments where they face actions caused by a random device.

However, both classes of theories cannot explain any observed behavior. Thus, it has repeatedly been argued that fairness models that go further by combining both intentionality and distributional concerns are needed (see e.g. *Bereby-Meyer* and *Niederle,* 2005). Besides, some recent experimental findings focusing on procedural effects can neither be explained by distribu-

tional nor by reciprocity models, resulting in the appearance of completely new theories. *Grimalda* et al. (2008b), for example, observe a discontinuous jump from no opportunity to 1%-opportunity. They propose a combination of inequality aversion models with Nozick's symbolic utility. The authors note that this is not the attempt to introduce a new social utility model. However, their approach demonstrates the increasing effort to explain observed behavior associated with procedural effects. Another attempt to explain data that are neither outcome-based nor explainable by reciprocity models is the process model by *Trautmann* (2007). He proposes a model of individual preferences for process fairness that complements the Fehr-Schmidt model for outcome fairness. The introduction of process fairness raises issues of dynamic consistency of fairness preferences. The author discusses theoretical and policy implications of inconsistency in a dynamic decision context. He provides applications to welfare improvements and illustrates the integration of the process model in economic theory. *Konow* (1996, 2000) proposes a positive theory of economic fairness giving a fundamental importance to procedures and context. It is based on the accountability principle: A person's fair allocation varies in proportion to the relevant variables she can influence, but not according to those she cannot reasonably influence.

In the context of expected utility theory and in search of a model for the utility of gambling, *Le Menestrel* (2001) introduces a first model of procedural utility by treating it as a qualitative argument outside the utility function. It allows distinguishing the game of payoffs presented to the individuals from the psychological game that is perceived and played. *Le Menestrel* (2006) introduces a game-theoretic model of rationality that combines procedural utility over actions with consequential utility over payoffs.

Thus, empirically observed cooperative behavior can be rationally explained by a procedural utility for cooperation. The conventional interpretation of the Prisoners' Dilemma is that individuals should defect, whatever the payoff differentials between cooperation and defection. In the proposed model, mutual cooperation can emerge as the unique Ideal Nash Equilibrium when procedural utility for cooperation is sufficiently strong. Moreover, a given game of consequences may be played differently by different individuals with different procedural utility. The results of the model allow predictions about the dependence of rational behavior upon individuals and the social context. Similar work has been done by *Sebald* (2007a), who provides a game-theoretic framework that integrates procedural concerns into economic analysis.[11]

The experiment by *Bolton* et al. (2005) is accomplished by an extension of the ERC model to address the observed findings by meshing procedural fairness norms with allocation fairness norms. They argue the key insight is that changing the feasible outcome space, or determining the allocation by randomization, creates alternative fairness norms. The authors embed these competing norms into the ERC model by refining the reference point. They note that refining the reference points in social utility models indeed appears to be a promising research path. But since the model is extended post hoc, the experimental data cannot be considered a test. Besides, the authors view their theoretical attempt as a sketch because they want to demonstrate that a relative payoff model with a more refined reference point can, in principle, capture the observed phenomena.

A similar approach is employed by *Krawczyk* (2007), who also provides an extension of the ERC model, allowing for indirect modeling of reciprocal

[11] *Sebald* (2007b) provides an application of the general framework.

behavior. In presenting a new model aimed at predicting behavior in games involving a randomized allocation procedure, he builds upon the central procedural fairness hypothesis (see the preceding discussion). The model is designed to capture the relative importance and interaction between procedural and distributive fairness. The author drops the consequentialist perspective by explicitly incorporating a new term into the utility function, which captures the way in which outcomes are generated. By doing so, procedural considerations including procedural fairness can be accounted for. By applying the model to ten experimental games, the author shows that the model predicts well. However, he suggests further verification of the model and possible extensions.

Bolton et al. (2005) intend to open the way to a more careful consideration of how allocation and procedural fairness interact, and to point to a role for competing fairness norms in understanding procedural fairness. They argue that different situations might systematically evoke different fairness norms, so that a practical taxonomy can be developed by identifying natural classes of games to which they apply. At the same time, they admit that even the most sophisticated models do not capture the heterogeneity of individuals' perceptions of what is fair in games. Additionally, these models cannot be general enough to capture different fairness norms that might emerge in other, possibly more complex games.

5 Conclusion

Indeed, clear evidence for procedures influencing human decision-making exists. This survey article shows that, on the one hand, social scientists other than economists have provided a sheer bulk of empirical, experimental, and theoretical studies validating the conjecture that not only outcomes shape

human behavior but also the way in which decisions are taken. On the other hand, procedures have been neglected by economists for a long time. Recently, the economic research increased its attempts to identify procedural effects and started to build theories based on these observations.

We argue that behavioral economics may serve as an important link because it integrates insights by psychologists as well as experimental economists with neoclassical economic theory. Future economic research should make use of the experimental method, as it is able to systematically investigate economic behavior under controlled and replicable laboratory conditions. It has been argued that many experimental games are not appropriate to represent real relationships, e.g. real employment relationships (*Backes-Gellner* et al., 2008). Their survey shows that only recently, laboratory experiments have begun to meet these concerns by introducing additional factors like competition, social interaction or real effort. We perceive the introduction of procedural aspects as part of the same line of reasoning and argue that its implementation is already overdue.

By discussing some recent experimental findings focusing on procedural effects, we provide evidence for a promising new research agenda to be developed and to demonstrate at the same time the shortcomings of existing models. Neither traditional models nor those based on distributional or reciprocal fairness explain the observed behavior. We agree with *Grimalda* et al. (2008b) who argue that recent experimental results demand an altogether different conceptual approach or at least some generalization of previous economic models. But if different games systematically trigger different fairness perceptions, a general model explaining the facts without addressing the heterogeneity of fairness norms is hard to imagine. Further, *Bolton* et al. (2005) argue if there is no such thing as a universal fairness

or reciprocity norm to guide social behavior independent of the game, any model with a simple statement of those norms is bound to be incomplete. However, this does not mean that such models are useless. A large literature has shown that we can go a surprisingly long way with very simple models of fairness in some important classes of games. For more challenging games, systematic variations of fairness norms could be incorporated in a way that allows subsequent empirical tests and theoretical refinements.

The increasing awareness for procedures is a step in the right direction though there is still a lot to do. As long as procedures are excluded from an experimental design (e.g. by assuming a pie to appear like manna from heaven) simplistic models of human behavior might explain observations. However, when applying a more realistic approach by introducing any kind of procedures, we find strong evidence from various fields and methods that procedures do matter.

Acknowledgements

The author thanks Max Albert, Ivo Bischoff, Stefanie von Brochowski, and Birgit E. Will for helpful comments and suggestions.

References

Albert, M., H. Egbert, G. Chobanov, V. Mertins, and T. Sedlarski (2008). "Procedural Preferences and Collective Resistance: Preliminary Results from an Experimental Investigation." Unpublished manuscript.

Albert, M. and V. Mertins (2008). "Participation and decision making: A three-person power-to-take experiment." MAGS Joint Discussion Paper Series in Economics. 05-2008, Justus Liebig University Giessen.

Anand, P. (2001)."Procedural fairness in economic and social choice: Evidence from a survey of voters". Journal of Economic Psychology. 22, 247–270.

Backes-Gellner, U., D. Bessey, K. Pull, and S. Tuor (2008). "What Behavioural economics teaches personnel economics." *Institute for Strategy and Business Economics Working Paper*, University of Zurich.

Bereby-Meyer, Y. and M. Niederle (2005). "Fairness in bargaining." Journal of Economic Behavior and Organization. 56, 173–186.

Bergh, A. (2008). "A critical note on the theory of inequity aversion." Journal of Socio-Economics. 37, 1789-–1796.

Bies, R. (2001). "Interactional (in)justice: The sacred and the profane." In J. Greenberg and R. Cropanzano (Eds.), Advances in Organizational Justice. Stanford: Stanford University Press, 89–118.

Bies, R. and J. Moag (1986). "Interactional justice: Communication criteria of fairness." In R. Lewicki, B. Sheppard, and B. Bazerman (Eds.), Research on Negotiation in Organizations, Greenwich: JAI Press, 43–55.

Bischoff, I., F. Heinemann, and T. Henninghausen (2008). "Individual determinants of social fairness assessments – The case of Germany." ZEW Discussion Paper No. 08–063.

Blount, S. (1995). "When social outcomes aren't fair: The effect of causal attributions on preferences." Organizational Behavior and Human Decision Making. 63, 131–144.

Bohnet, I., F. Greig, B. Herrmann, and R. Zeckhauser (2008). "Betrayal aversion: Evidence from Brazil, China, Oman, Switzerland, Turkey, and the United States." American Economic Review. 98, 294–310.

Bohnet, I. and R. Zeckhauser (2004). "Trust, risk and betrayal." Journal of Economic Behavior and Organization. 55, 467-–484.

Bolton, G., J. Brandts, and A. Ockenfels (2005). "Fair procedures. Evidence from games involving lotteries." Economic Journal. 115, 1054–1076.

Bolton, G., J. Brandts and A. Ockenfels´(1998). "Measuring motivations for the reciprocal responses observed in a simple dilemma game." Experimental Economics. 1, 207-–220.

Bolton, G. and A. Ockenfels (2000). "A theory of equity, reciprocity, and competition." The American Economic Review. 90, 166–193.

Brandts, J., W. Güth, and A. Stiehler (2006). "I want YOU! An experiment studying the selection effect when assigning distributive power." Labour Economics. 13, 1–17.

Brockner, J. and B. Wiesenfeld (1996). "An integrative framework for explaining reactions to decisions. Interactive effects of outcomes and procedures." Psychological Bulletin. 120, 189–208.

Brockner, J., B. Wiesenfeld, and C. Martin (1995). "Decision frame, procedural justice, and survivors' reactions to job layoffs." Organizational Behavior and Human Decision Processes. 63, 59–68.

Camerer, C. (2003). "Behavioral Game Theory". Princeton: Princeton University Press.

Charness, G. (2004). "Attribution and reciprocity in an experimental labor market." Journal of Labor Economics. 22, 665–688.

Charness, G. and D. Levine (2007). "Intention and stochastic outcomes : An experimental study." Economic Journal. 117, 1051–1072.

Cherry, T., P. Frykblom, and J. Shogren (2002). "Hardnose the dictator." American Economic Review. 92, 1218-–1221.

Cohen, P. (1985). "Heuristic Reasoning about Uncertainty: An Artificial Intelligence Approach." London: Pitman.

Cohen-Charash, Y. and P. Spector (2002). "Erratum." Organizational Behavior and Human Decision Processes. 89, 1215.

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

Colquitt, J., D. Conlon, M. Wesson, C. Porter, and K. Ng (2001). "Justice at the millennium: A meta-analytic review of 25 years of organizational justice research." Journal of Applied Psychology. 86, 425–445.

DellaVigna, S. (forthcoming). "Psychology and economics: Evidence from the field." Journal of Economic Literature.

Deutsch, M. (1975). "Equity, equality, and need: What determines which value will be used as the basis for distributive justice?" Journal of Social Issues. 31, 137–149.

Dittrich, D. and W. Tontrup (2008). "Pricing Procedural Fairness." Unpublished manuscript prepared for IAREP/SABE world meeting 2008, Rome.

Dolan, P., R. Edlin, A. Tsuchiya, and A. Wailoo (2007). "It ain't what you do, it's the way that you do it: Characteristics of procedural justice and their importance in social decision-making." Journal of Economic Behavior and Organization. 64, 157–170.

Dufwenberg, M. and G. Kirchsteiger (2004). "A theory of sequential reciprocity." Games and Economic Behavior. 47, 268–298.

Fahr, R. and B. Irlenbusch (2000). "Fairness as a constraint on trust in reciprocity: Earned property rights in a reciprocal exchange experiment." Economics Letters. 66, 275–282.

Falk, A., E. Fehr, and U. Fischbacher (2008). "Testing theories of fairness - Intentions matter." Games and Economic Behavior. 62, 287–303.

Falk, A. and U. Fischbacher (2006). "A theory of reciprocity." Games and Economic Behavior. 54, 293–315.

Fehr, A. and K. Schmidt (1999). "Theory of fairness, competition, and cooperation." Quarterly Journal of Economics. 114, 817–868.

Feld, L. and B. Frey (2007). "Tax compliance as the result of a psychological tax contract. The role of incentives and responsive regulation." Law and Policy. 29, 102–120.

Feld, L. and B. Frey (2002). "Trust breeds trust: How taxpayers are treated." Economics of Governance. 3, 87–99.

Folger, R. (1987). "Reformulating the preconditions of resentment: A referent cognitions model." In J. Masters and W. Smith (Eds.), Social Comparison, Social Justice, and Relative Deprivation. Hillsdale, NJ: Erlbaum, 183–215.

Folger, R. (1984). "Perceived injustice, referent cognitions, and the concept of comparison level." Representative Research in Social Psychology. 14, 88–108.

Folger, R. (1977). "Distributive and procedural justice: Combined impact of 'voice' and improvement of experienced inequity." Journal of Personality and Social Psychology. 35, 108–119.

Frey, B., M. Benz, and A. Stutzer (2004). "Introducing procedural utility: Not only what, but also how matters." Journal of Institutional and Theoretical Economics. 160, 377–401.

Frey, B. and I. Bohnet (1995). "Institutions affect fairness. Experimental investigations." Journal of Institutional and Theoretical Economics. 151, 286—303.

Frey, B. and A. Stutzer (2001). "Procedures matter in political economy." Journal of Public Choice and Constitutional Economics. 2, 3–18.

Fukuno, M. and K.-I. Ohbuchi (2003). "Procedural fairness in ultimatum bargaining: Effects of interactional fairness and formal procedure on respondents' reactions to unequal offers." Japanese Psychological Research. 45, 152–161.

Gonzales, C. and T. Tyler (2008). "The psychology of enfranchisement: Engaging and fostering inclusion of members through voting and decision-making procedures." Journal of Social Issues. 64, 447–466.

Greenberg, J. (1994). "Using socially fair treatment to promote acceptance of a work site smoking ban." Journal of Applied Psychology. 79, 288–297.

Greenberg, J. (1990). "Employee theft as a reaction to underpayment inequity: The hidden cost of pay cuts." Journal of Applied Psychology. 75, 561–568.

Greenberg, J. (1986). "Determinants of perceived fairness of performance evaluations." Journal of Applied Psychology. 71, 340–342.

Greenberg, J. and R. Folger (1983) "Procedural justice, participation, and the fair process effect in groups and organizations". In P. Paulus (ed.) Basic Group Processes. New York: Springer-Verlag, 235–256.

Grimalda, G., A. Kar, and E. Proto (2008a). "On the value of participation: Endogenous emergence of social norms in a three-player ultimatum game." International Review of Economics. 55, 127–147.

Grimalda, G., A. Kar, and E. Proto (2008b). "The impact of (in)equality of opportunities on wealth distribution: Evidence from ultimatum games." Warwick Economic Research Papers, No. 843.

Hahn, F. (1982). "On some difficulties of the utilitarian economist." In A. Sen and B. Williams (eds.) Utilitarianism and beyond. Cambridge: Cambridge University Press.

Hoffman E., McCabe K., Shachat K., and Smith V. (1994). "Preferences, property rights, and anonymity in bargaining games." Games and Economic Behaviour. 7, 346—380.

Hoffman, E. and M. Spitzer (1985). "Entitlements, rights and fairness: An experimental examination of subjects' concepts of distributive justice." Journal of Legal Studies. 14, 259–297.

Kagel, J., C. Kim and D. Moser (1996). "'Fairness' in ultimatum games with asymmetric information and asymmetric payoffs." Games and Economic Behavior. 13, 10–100.

Kagel, J. and A. Roth (Eds.) (1995). "The Handbook of Experimental Economics." Princeton: Princeton University Press.

Konovsky, M. (2000). "Understanding procedural justice and its impact on business organizations." Journal of Management 26, 489—511.

Konow, J. (2003). "Which is the fairest one of all? A positive analysis of justice theory." Journal of Economic Literature. XLI, 1188–1239.

Konow, J. (2000). "Fair shares: Accountability and cognitive dissonance in allocation decisions." American Economic Review. 90, 1072–1091.

Konow, J. (1996). "A positive theory of economic fairness." Journal of Economic Behavior and Organization. 31, 13–35.

Krawczyk, M. (2007). "A Model of Procedural and Distributive Fairness." University of Amsterdam. Working paper.

Kulik, C. and S. Clark (1993). "Frustration effects in procedural justice research: The case of drug-testing legislation." Social Justice Research. 6, 287–299.

Lane, R. (1988). "Procedural goods in a democracy." Social Justice Research. 2, 177–192.

Le Menestrel, M. (2006). "A one-shot prisoners' dilemma with procedural utility." International Game Theory Review. 8, 655–668.

Le Menestrel, M. (2001). "A process approach to the theory of gambling." Theory and Decision. 50, 249–262.

Lengfeld, H. and A. Krause (2006). "Wann gilt der Arbeitsmarkt als sozial gerecht? Der Einfluss des Unternehmenskontexts auf die Akzeptanz ertragsabhängiger Entlohnung." Kölner Zeitschrift für Soziologie und Sozialpsychologie. 58, 98–116.

Leventhal, G. (1980). "What should be done with equity theory? New approaches to the study of fairness in social relationships." In K. Gergen et al.(Eds.), Social Exchange: Advances in Theory and Research. New York: Plenum Press, 27–53.

Lind , E. (2001). "Fairness heuristic theory: Justice judgments as pivotal cognitions in organizational relations." In J. Greenberg and R. Cropanzano (Eds.), Advances in Organizational Justice. Stanford, CA: Stanford University Press, 56–88.

Lind, E.(1995). "Social Conflict and Social Justice: Some Lessons from the Social Psychology of Justice." Leiden: Leiden University Press.

Lind, E., C. Kulik, M. Ambrose, and M. de Vera Park (1993). "Individual and corporate dispute resolution: Using procedural fairness as a decision heuristic." Administrative Science Quarterly. 38, 224–251.

Lind, E. and T. Tyler. (1988). "The Social Psychology of Procedural Justice." New York: Plenum.

Lowe, R. and S. Vodanovich (1995). "A field study of distributive and procedural justice as predictors of satisfaction and organizational commitment." Journal of Business and Psychology. 10, 99–114.

MacCoun, R. (2005). "Voice, control, and belonging: The double-edged sword of procedural fairness." Annual Review of Law and Social Science. 1, 171–201.

Maxwell, S. (2002). "Rule-based price fairness and its effect on willingness to purchase." Journal of Economic Psychology. 23, 191–212.

Mertins, V. (2008). "Procedural satisfaction matters - procedural fairness does not: An experiment studying the effects of procedural judgments on outcome acceptance." IAAEG Discussion Paper No. 2008/07.

Ng, Y.-K. (1988). "Economic efficiency versus egalitarian rights." Kyklos. 41, 215–237.

Oberholzer-Gee, F., B. Frey, A. Hart, and W. Pommerehne (1995). "Panik, Protest und Paralyse: Eine empirische Untersuchung über nukleare Endlager in der Schweiz." Schweizerische Zeitschrift für Volkswirtschaft und Statistik. 13, 147–177.

Offerman, T. (2002). "Hurting hurts more than helping helps." European Economic Review. 46, 1423–1437.

Olkkonen, M. and J. Lipponen (2006). "Relationships between organizational justice, identification with the organization and the work unit, and group-related outcomes." Organizational Behavior and Human Decision Processes. 100. 202-–215.

Rabin, M. (1993). "Incorporating fairness into game theory and economics." American Economic Review. 83, 1281–1302.

Richard, O., E. Taylor, T. Barnett, and M. Nesbit (2002). "Procedural voice and distributive justice: Their influence on mentoring career help and other outcomes." Journal of Business Research. 55, 725–735.

Ruffle, B. (1998). "More is better, but fair is fair: Tipping in dictator and ultimatum games." Games and Economic Behavior. 23, 247—265.

Sebald, A. (2007a). "Procedural concerns in psychological games." ECORE Discussion Paper 2007/62, Brussels.

Sebald, A. (2007b). "Procedural concerns and reciprocity." ECORE Discussion Paper 2007/54, Brussels.

Sen, A. (1997). "Maximization and the act of choice." Econometrica. 65, 745–779.

Sen, A. (1995). "Rationality and social choice." American Economic Review. 85, 1–24.

Skarlicki, D. and R. Folger (1997). "Retaliation in the workplace." Journal of Applied Psychology. 82, 434–443.

Sobel, J. (2005). "Interdependent preferences and reciprocity." Journal of Economic Literature. 43, 392–436.

Sondak, H. and T. Tyler (2007). "How does procedural justice shape the desirability of markets?" Journal of Economic Psychology. 28, 79–92.

Sweeney, P. and D. McFarlin (1993). "Workers evaluation of the 'ends' and the 'means': An examination of four models of distributive and procedural justice." Organizational Behavior and Human Decision Processes. 55, 23–40.

Thibaut, J. and L. Walker (1975). "Procedural Justice: A Psychological Analysis." Hillsdale, NJ: Lawrence Erlbaum Associates.

Tontrup, W. and W. Gaissmaier (2008). "The Comparative Advantage of Legitimate Procedure - An Intercultural Comparison of Germany and China." Unpublished manuscript prepared for IAREP/SABE world meeting 2008, Rome.

Trautmann, S. (2007). "Fehr-Schmidt Process Fairness and Dynamic Consistency." Mimeo. Erasmus University Rotterdam.

Tyler, T. (1997). "Citizen discontent with legal procedures." American Journal of Comparative Law. 45, 869—902.

Tyler, T. (1990). "Why People Obey the Law." New Haven: Yale University Press.

Tyler, T. (1988). "Client perceptions of litigation." Trial. 24, 40-–45.

Tyler, T. (1987). "The psychology of dispute resolution: Implications for the mediation of disputes by third parties." Negotiation Journal. 3, 367–374.

Tyler, T. and M. Belliveau (1995). "Tradeoffs in justice principles : Definitions of fairness." In Bunker, B. and J. Rubin (Eds.), Conflict, Cooperation, and Justice. San Francisco: Jossey-Bass, 291–314.

Tyler, T. and R. Bies (1990). "Interpersonal aspects of procedural justice." In J. S. Carroll (Ed.), Applied Social Psychology in Business Settings. Hillsdale, NJ: Erlbaum, 77–98.

Tyler, T. and S. Blader (2000). "Cooperation in Groups." Philadelphia: Psychology Press.

Tyler, T., R. Boeckmann, H. Smith, and Y. Huo (1997). "Social Justice in a Diverse Society." Bolder: Westview Press.

Tyler, T. and A. Caine (1981). "The role of distributional and procedural fairness in the endorsement of formal leaders." Journal of Personality and Social Psychology. 41, 642-–655.

Tyler, T. and D. De Cremer (2005). "Process-based leadership: Fair procedures and reactions to organizational change." Leadership Quarterly. 16, 529–545.

Tyler, T. and E. Lind (2000). "Procedural justice." In J. Sanders and V.L. Hamilton (Eds.), Handbook of Justice Research in Law. New York: Kluwer Academic/Plenum Publishers, 65–92.

Tyler, T. and E. Lind (1992). "A relational model of authority." Advances in Experimental Social Psychology. 25, 115–191.

Tyler, T. and G. Mitchell (1994). "Legitimacy and the empowerment of discretionary legal authority: The United States Supreme Court and abortion rights." Duke Law Journal. 43, 703–814.

Van den Bos, K., J. Bruins, H. Wilke, and E. Dronkert (1999). "Sometimes unfair procedures have nice aspects: On the psychology of the fair process effect." Journal of Personality and Social Psychology. 77, 324–336.

Van den Bos, K. and E. Lind (2002). "Uncertainty management by means of fairness judgments." Advancements in Experimental Social Psychology. 34, 1–60

Van den Bos, K., E. Lind, R. Vermunt, and H. Wilke (1997). "How do I judge my outcome when I do not know the outcome of others? The psychology of the fair process effect." Journal of Personality and Social Psychology. 72, 1034–1046.

Van den Bos, K., H. Wilke, E. Lind, and R. Vermunt (1998). "Evaluating outcomes by means of the fair process effect: Evidence for different processes in fairness and satisfaction judgments." Journal of Personality and Social Psychology. 74, 1493–1503.

IAAEG Discussion Paper Series (since 2001)

No.	Author(s)	Title
03/2009	Daniel Heuermann	Human Capital Externalities in Western Germany
02/2009	Daniel Heuermann	Reinventing the Skilled Region: Human Capital Externalities and Industrial Change
01/2009	Daniel Heuermann	Career Networks and Job Matching - Evidence on the Microeconomic Foundations of Human Capital Externalities
07/2008	Vanessa Mertins	Procedural Satisfaction Matters - Procedural Fairness Does Not: An Experiment Studying the Effects of Procedural Judgments on Outcome Acceptance
06/2008	Vanessa Mertins	The Effects of Procedures on Social Interaction: A Literature Review
05/2008	Daniel Heuermann	Human Capital Externalities in Western Germany.
04/2008	Daniel Heuermann	Job Turnover, Risk Sharing and Regional Wages in Western Germany.
03/2008	Peter Schneider Dieter Sadowski	The impact of New Public Management (NPM) instruments on PhD education.
02/2008	Anke Hammen	Fachliche Zusammensetzung von Bildungsportfolios: Empirische Analyse eines Risk-Return Trade-Offs
01/2008	Kai Kühne Dieter Sadowski	Empirische Mitbestimmungsforschung und Öffentlichkeit
03/2007	Christoph Sax	Demographie und Lohnunterschiede
02/2007	Andreas Tiltag	Der Traum vom Mindestlohn: ein Ländervergleich.
01/2007	Daniel Heuermann	Human Capital Externalities in Western Germany.
01/2006	Susanne Warning	A Model of Strategic University Positioning
01/2005	Mihai Paunescu	Conditions for an efficient innovation process: The Complementarity between new HRM practices and Suggestion Schemes.
01/2004	Mihai Paunescu	Ineffizienzen öffentlicher und privater Schulen im internationalen Vergleich. Eine Data-Envelopment-Analyse der PISA-2000-Daten.
02/2003	Dieter Sadowski Oliver Ludewig	Organisational Capital: The Power of an Economic Metaphor - Organisational Capital in German Establishments.
01/2003	Kerstin Pull	Der Einfluss personalpolitischer Flexibilität auf die Standortwahl Multinationaler Unternehmen: eine empirische Analyse..
06/2002	Dieter Sadowski Oliver Ludewig Florian Turk	Europeanization of Collective Bargaining. Centralization Costs and Optimal Wage Bargaining Area.
05/2002	Martin Schneider	Performance Management by Culture in the NLRB's Division of Judges and the German Labor Courts of Appeal.
04/2002	Kerstin Pull	Labour Market Regulation and Foreign Direct Investment: US Multinationals in Germany and the UK.
03/2002	Martin Schneider	Leistungssteuerung und Karriereanreize für "professionals": Ein Vergleich deutscher und amerikanischer Berufsrichter.
02/2002	Martin Schneider	Judicial Lawmaking in a Civil Law System: Evidence from German Labor Courts of Appeal.
01/2002	Florian Turk	Export und Beschäftigungsdynamik: eine mikroökonomische und -ökonometrische Analyse mit dem Betriebspanel Rheinland-Pfalz.
02/2001	Florian Turk	Ein wertschöpfungsbasierter Ansatz der einzelwirtschaftlichen Verteilungstheorie: Bilanzpolitik und Arbeitsrecht als institutionalisierte Verhandlungsrestriktionen.
01/2001	Dieter Sadowski Oliver Ludewig Florian Turk	Employment-related Collective Bargaining in Germany.