

Introducing Procedural Utility: Not only What, but also How Matters

by

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Abstract: People not only care about outcomes, they also value the procedures which lead to the outcomes. Procedural utility is a potentially important source of human well-being. This paper aims at introducing the concept of procedural utility into economics, and argues that it should be incorporated more widely into economic theory and empirical research. Three building blocks of a concept of procedural utility are outlined and it is suggested how procedural utility can be fruitfully integrated. Evidence from a broad range of social sciences is reviewed in order to show that procedural utility is a relevant concept for economics. (98 words)

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I. Introduction

Why are people, e.g. faculty members, often unhappy with a decision when they have for once not been properly consulted in the decision making process, even if they perfectly agree with the decision that has been reached? Why are individuals involved in lawsuits often more willing to accept a given judgment when they feel that court procedures were fair? And how can it be explained that workers are often not only concerned with organizational outcomes, but also with the ways these outcomes are determined?

This paper suggests that a common answer to these questions is procedural utility. Procedural utility means that people not only value actual outcomes, i.e. the '*what*', but also the conditions and processes which lead to these outcomes, i.e. the '*how*'. Procedural utility thus represents a completely different approach to human well-being than the standard approach applied in economics. The economic concept of utility as generally applied today is outcome-oriented: individual utility is seen as a result of benefits and costs associated with instrumental outcomes. In contrast, procedural utility refers to the non-instrumental pleasures and displeasures of processes.

The goal of this paper is to introduce procedural utility into economics. We argue that procedural utility is an important determinant of human well-being that has to be incorporated more widely into economic theory and empirical research. So far, this has been largely neglected. However, in other social sciences, concepts similar to procedural utility have a long history. The present paper outlines three building blocks of a concept of procedural utility and offers thoughts on how procedural utility can be fruitfully integrated into the existing economic approach. Moreover, it reviews some of the evidence from a broad range of social sciences and areas in order to show that procedural utility is a relevant concept for economics. Finally, it is argued that procedural utility is of great policy relevance.

The paper is structured as follows: Section II outlines the concept of procedural utility and shows its broad psychological basis. Special emphasis is put on how procedural utility differs from outcome utility, and why this distinction is useful for economic analysis. Section III deals with the main

sources of procedural utility. It first discusses institutionalized processes as an important source of procedural utility. Further, it looks at specific areas where procedural utility can be demonstrated to matter. In the economy, individuals have been shown to enjoy procedural utility in their capacity as consumers or income earners; in the polity and society as citizens subjected to different political and societal procedures; in organizations as employees confronted with different organizational procedures; and in law as litigants. Section IV explores various theoretical relationships between procedural utility and standard outcome utility. Three questions are addressed: To what extent can procedures and outcomes be analyzed independently of each other, and to what extent should they be considered together? Is there a trade-off between procedural concerns and outcome concerns, or are they rather complements? Does the importance of procedural utility depend on the context of action, e.g. the available choice alternatives? Section V offers concluding remarks.

II. A Concept of Procedural Utility

Economic analysis has focused on instrumental outcomes ever since the positivistic movement in economics in the 1930's. Without doubt, this was of paramount importance for the success of the economic approach to behavior in the social sciences. Obviously, individuals care a lot about instrumental outcomes as reflected in the costs and benefits of available alternatives; economics has derived a powerful model of human behavior based on this insight.

Paradoxically, the positivistic movement in economics in itself did not imply such a focus on instrumental outcomes. In fact, economics is since then deliberately vague about what human preferences are defined over. In the 1930's, economists just gave up the idea that utility could be observed directly and adopted the view that the only way to infer utility was from revealed behavior. But in principle, what individuals value could be anything. Economics is thus also potentially open to the idea that individuals enjoy procedural utility.

Procedural utility, however, poses a challenge to the concept of utility as it is *practically* used in much of economics. The existing theoretical cornerstones of economics as, for instance, expected utility theory or game theory, generally define preferences over monetary payoffs. Thus, economics models as they are applied today often adopt a narrow view of human utility by focussing on

instrumental outcomes. The notion that instrumental outcomes are not the only source of utility and not the only driving force behind behavior has become almost completely absent in economic analysis.¹

Procedural utility, in contrast, means that there is something beyond instrumental outputs as they are captured in a traditional economic utility function. People may have preferences about *how* instrumental outcomes are generated. These preferences about processes generate procedural utility.

We propose a concept of procedural utility that goes beyond instrumental outcomes and that contributes to a broader understanding of humans' non-instrumental concerns. It rests on three building blocks, which deviate in important respects from the utility concept normally applied in economics:

- (i) Procedural utility emphasizes utility as *well-being*. Utility is understood in a broad sense as pleasure and pain, positive and negative affect or life satisfaction.² This reinstates the original economic idea that utility consists of everything that individuals value. Based on a substantial amount of research on reported subjective well-being or happiness in economics (see Frey and Stutzer 2002b,c and Oswald 1997 for reviews), there is now a rediscovery of well-being as a direct measure of human utility.³
- (ii) Closely connected with this first point, procedural utility focuses on *non-instrumental* determinants of utility. It is not exclusively concerned with instrumental outcomes that are

¹ An exception may be the utility gained from gambling, which was already considered by Pascal (1670), and later by Marschak (1950) and by von Neumann and Morgenstern (1953) to be incompatible with expected utility maximization (see also Harsanyi 1993). Recently, Le Menestrel (2001) established axioms for a model of rational behavior combining processes and consequences in gambling. However, gambling may also qualify as non-tangible consumption, which is readily accessible with the standard approach in economics. The most prominent economist who has repeatedly argued that economic choice models should combine preferences for outcome with those for processes is Sen (1995, 1997).

² Daniel Kahneman has coined the term 'experienced utility' for this notion of utility, in contrast to traditional 'decision utility' (e.g. Kahneman et al. 1997).

³ Research on subjective well-being in economics takes advantage of extensive previous research in psychology. Subjective well-being is the scientific term for an individual's evaluation of his or her experienced positive and negative affect, happiness or satisfaction with life. With the help of a single question or several questions on global self-reports, it is possible to get indications of individuals' evaluation of their life satisfaction or happiness (Diener et al. 1999, Kahneman et al. 1999). Behind the score indicated by a person lies a cognitive assessment to what extent their overall quality of life is judged in a favorable way (Veenhoven 1993).

brought about by e.g. different decision making procedures. Rather, processes and institutions under which people live and act are seen as independent sources of utility.⁴

- (iii) Procedural utility emerges because people have a *sense of self*. The concept thus incorporates a central tenet of social psychology into economics, namely that people care about how they perceive themselves as human beings and how they are perceived by others (see e.g. Baumeister 1998 for a survey).⁵ Procedural utility exists because procedures provide important feedback information to the self. Specifically, they differently address innate psychological needs of self-determination. Psychologists have identified three such psychological needs to be essential: autonomy, relatedness and competence.⁶ The desire for autonomy encompasses the experience to self-organize one's own actions or to be causal. The need for relatedness refers to the desire to feel connected to others in love and care, and to be treated as a respected group member within social groups. And the need for competence refers to the propensity to control the environment and experience oneself as capable and effective. Different procedures can be expected to provide different procedural goods serving these innate needs; in this respect they contribute to individual well-being irrespective of instrumental outcomes traditionally studied by economists.⁷

⁴ Non-instrumental human motives of people who are self-aware and who self-reflect have previously entered economic analysis for example in the form of identity (e.g. Akerlof and Kranton 2000), respect, self-esteem and pride (e.g. Khalil 1996, Köszegi 2002a,b and Lea and Webley 1997), self-signaling, goal completion, mastery and meaning (e.g. Loewenstein 1999) or status (e.g. Frank 1985).

⁵ An alternative way of describing that individuals have a reflexive consciousness is that beliefs about oneself enter the utility function directly (e.g. Akerlof and Dickens 1982).

⁶ The concept of procedural utility draws heavily on insights concerning the understanding and the motives of the self contributed by psychologists. A comprehensive view of most of these aspects is provided in self-determination theory by Deci and Ryan (e.g. 2000). However, underlying theories are manifold and comprise, for instance, people's urge to master their environment for its own sake (White 1959) and of being an origin (DeCharms 1968), people's resistance to loss of control (Brehm 1966) and the reflection of perceived control in more effective behavior and higher positive affects (Bandura 1977, Peterson 1999 and Seligman 1992).

⁷ Based on similar reasoning on human functioning there are several categorizations of the dimensions of well-being, for instance, self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life and personal growth (Ryff and Keyes 1995), subjective well-being, personal growth and religiosity (Compton 2001) or eudaimonic and hedonic happiness (Waterman 1993).

Procedural utility thus can be defined as the well-being people gain from living and acting under institutionalized processes as they contribute to a positive sense of self, addressing innate needs of autonomy, relatedness and competence.

An example

The general concept of procedural utility might be illustrated with one of the most prominent studies in the field of *procedural fairness*, which can be considered as the best investigated aspect of procedural utility (e.g. Lind and Tyler 1988). Lind et al. (1993) investigate a situation where real life litigants are involved in an arbitration process. At the end of arbitration, the court orders an award; the parties can decide whether they want to accept this award or reject it and go to trial. Economists would typically study such a situation by considering the costs and benefits of accepting an award. Indeed, their likely predictions are borne out: Award acceptance depends on instrumental outcomes like the ratio between the actual award and the amount originally demanded, or the litigants evaluation of whether the outcome was favorable or unfavorable (which can be seen as a good proxy for the expected net benefit of going to trial). But overall, the fairness of the arbitration procedure is found to be much more important for acceptance than instrumental outcomes. Litigants who judge the arbitration process as fair are much more likely to accept the court-ordered award, irrespective of instrumental outcomes. This result emerges because procedures convey important feedback information to the self, thereby affecting individuals' well-being. Procedures which are seen as fair are for example those that give individuals 'voice'. Being given a say in issues concerning oneself generates procedural utility because it addresses innate needs of self-determination like autonomy and competence, and because it is an important signal about one's standing in a group, it affects innate needs of relatedness.

Is utility from procedures not also an "outcome"? And does it merit a new category?

The proposed concept of procedural utility might be questioned in two directions.

First, it could be argued that procedural utility is not different from what economists would call an ‘outcome’, and therefore it is nothing new that would warrant special consideration. Indeed, this stance can be taken as long as one defines everything that individuals value as an ‘outcome’. Procedural utility as proposed here has the flavor of an ‘outcome’ in the sense that procedures are supposed to importantly affect human well-being. However, in our view procedural utility is a new concept, because it clearly differs from what economists consider to be relevant outcomes in practice and in their models. In general, ‘outcomes’ in economics are understood to be ‘instrumental’, and are often defined in monetary terms (like, e.g., income).

Second, while procedural utility might be different, it is unclear whether it is different enough to merit a new category. This paper precisely intends to make the case that procedural utility warrants a category of its own. It argues, and empirically shows, that procedural utility allows one to better organize the determinants of human well-being, thereby leading to a better understanding of what individuals value. A comparison can be drawn with the concept of ‘transaction costs’. Although one could plausibly argue that transaction costs are like any other kind of costs, and that economics already encompassed these costs before they were given a name, the concept of transaction costs has turned out to be useful in explaining economic phenomena.

To give an example for the potential value of the concept of procedural utility, consider the economic analysis of institutions as it is undertaken by New Institutional Economics (NIE). NIE studies institutions as decision-making mechanisms that lead to different instrumental outcomes for the parties involved. The category of procedural utility in contrast allows one to highlight aspects disregarded by this kind of analysis, namely that institutions also directly contribute to people’s well-being when they serve innate needs of autonomy, relatedness and competence. This, in turn, has potentially important implications for the design of institutions. If individuals’ overall evaluation of a situation (in the sense of overall satisfaction or utility) depends on utility from instrumental outcomes as well as utility from the procedure used, one cannot just focus on instrumental outcomes alone. An unfavorable instrumental outcome is more likely to be accepted if the procedure applied was ‘good’, and a favorable outcome might provide little overall satisfaction

if the procedure that brought it about was 'bad'. The concept of procedural utility thus sheds new light on the study of institutions.

III. The Sources of Procedural Utility

A. General Remarks

The sources of procedural utility can be classified into two broad categories:

First, there is the procedural utility people get from institutions as such. People have preferences about how allocative and redistributive decisions are taken. At the level of society, the most important formal systems for reaching decisions are the price system (market), democracy, hierarchy, and bargaining (Dahl and Lindblom 1953). People may gain procedural utility from these institutions because they express judgements about the people involved. For example, a constitution that secures civil liberties like freedom of speech may greatly contribute to people's self-worth. In contrast, a constitution that denies offenders their political rights may be deeply disturbing to the people's sense of self, irrespective of instrumental outcomes. Institutions thus have a direct effect on individuals' well-being by addressing innate needs of autonomy, relatedness, and competence.

Second, it may be argued that procedural utility is involved in the interactions between people. People evaluate actions towards them not only by their consequences, but also by how they feel treated by other persons. Such treatment is importantly shaped by institutions: they provide incentives for people in exchange relationships on how to treat each other in everyday interactions. For instance, labor law and company statutes are shaping the interaction between managers and employees. Or, the organization of the health care system is guiding the relationship between medical suppliers and patients. Institutions thus also have an indirect effect on individuals' well-being by motivating and restricting how people are treated, thereby affecting their sense of self.

There is, of course, often a smooth transition between the two categories. Institutions on the one hand select and motivate people how to treat their fellow workers, citizens and consumers. On the

other hand, people who evaluate institutions, processes or authorities usually base their judgement on the treatment experienced by the specific people involved.

Procedural utility thus may emerge at different, and sometimes hard to distinguish levels. Nevertheless, the multitude of sources does not mean that the concept could be applied arbitrarily. Whether procedural utility emerges from institutions like the market mechanism, democratic decision making, or hierarchy as such, or whether it stems from procedural differences on a smaller scale, e.g. from procedural differences within an organization, a political system or a legal framework, there is a common ground to all these channels of impact: individuals judge processes positively to the extent that they address innate needs of self-determination. Theoretical hypotheses can therefore be derived. With respect to procedural differences on a smaller scale, there is a clear understanding from the large literature on ‘procedural fairness’ or ‘procedural justice’ about what constitutes a good procedure (e.g. Lind and Tyler 1988). As procedures on this level often involve how authority is exercised in organizations, public administrations or legal contexts, innate needs are mainly affected by relational information that procedures convey, such as assessments of impartiality, trustworthiness of superiors and authorities, the extent to which individuals feel they are treated with dignity, and the extent to which individuals are given voice (see also Tyler et al. 1997). When institutions at a larger scale are considered, like democracy or hierarchy, one can derive similar hypotheses. For example, democracy can be expected to have positive procedural utility effects because it enhances individuals’ perception of self-determination. Hierarchy, in contrast, is likely to produce procedural disutility because it interferes with individuals’ self-determination. In the following section of this paper, arguments and results along these lines will be discussed in detail.

In the end, whether procedural utility is a fruitful category rests on its empirical relevance. We therefore review empirical evidence from a broad range of areas where procedural utility has been shown to matter: the economy, the polity and society, organizations, and law.

B. Economy

There are many areas in which individuals in their capacity as economic subjects derive procedural utility. Two areas are discussed here in order to demonstrate the quantitative importance of the utility gained depending on the process used. The first relates to instances where individuals act as consumers, and the second to situations where people act as income earners.

Consumption

Consumption is probably the area where procedural utility would be least expected: it generally takes place on well functioning markets where transactions are focused on instrumental outcomes. Nevertheless, procedural utility has also been found to play a role in consumer decisions. First evidence was presented by Kahneman, Knetsch and Thaler (1986). The authors investigated customers' reactions to a situation where the price for a good (snow shovels) was increased in a well-defined excess demand situation (the morning after a large snowstorm). 82% of the individuals surveyed considered the price increase to be unfair, and thus rated a normal functioning of the market mechanism as unacceptable (p. 729). The reaction can be interpreted in terms of procedural utility: People are emotionally negatively affected when they perceive behavior towards them as exploitation because it undermines their status as consumers (who are presumed to be on an equal standing with the suppliers).⁸ Similar reactions to price increases have been found for the US (Konow 2001), Switzerland and Germany (Frey and Pommerehne 1993), and Russia (Shiller, Boycko and Korobov 1991). All these studies place individuals in a situation of excess demand, and find that a consistently high percentage of consumers see a price increase to be an unfair means to overcome the shortage. Thus, the price mechanism seems under these particular circumstances

⁸ Note that the reaction indeed involves procedural concerns. The authors find that price increases are not always rated as unfair. For example, if firms have to raise prices to protect themselves from losses, e.g. because input prices have gone up, customers generally accept price increases (in contrast to situations where firms try to *exploit* excess demand). Such differences in acceptance cannot be rationalized with distributional concerns, i.e. outcome considerations. It is noteworthy, however, that the authors themselves do not interpret the differences in procedural terms, but refer to a principle of "dual entitlement": "Transactors have an entitlement to the terms of the reference transaction and firms are entitled to their reference profit." (p. 729) Nevertheless, we think that also a concept of "reference terms" would require individuals to have some notion of what constitutes a fair process of price increase. See also Thaler's closely related concept of "transaction utility" (Thaler 1991, p. 33 f.).

not to be considered a fair procedure of allocation by the general population in many countries. Anand (2001), applying a similar questionnaire methodology, documents procedural fairness effects for different economic choice situations. If consumers have procedural concerns, this can impose a constraint on profit maximization by suppliers, affecting market equilibrium.

People's concerns with the market mechanism, however, should not be studied in isolation. Rather, different institutions of allocation should be compared. Frey and Pommerehne (1993) contrast the utility individuals attribute to the price system with alternative mechanisms of allocation. When doing this, a somewhat lower percentage of the respondents (73%) find a similar price increase to be unfair. Nevertheless, the market still fares worse than other mechanisms of decision-making. For example, an allocation by "tradition" (first come, first served) is considered by far less people to be unfair (24%), and similarly an allocation by administrative procedures (by the local authorities) was reckoned unfair by 57%. Only a random allocation (which assigns the goods with equal probability to everybody and has therefore been suggested as a particularly rational allocation mechanism, see Intriligator 1973, Mueller 1978) fares worse than the price system; only to 14% of the respondents it appears to be fair. Institutions thus seem to play an important role in consumer decisions. People care about their perceived treatment as customers beyond instrumental outcome considerations.

Of course, these studies undertaken to evaluate the utility individuals attach to processes can only be a first step. With appropriate care, the findings can be generalized as the studies mentioned consider different situations, and are partly undertaken for different countries. They do, however, not test actual behavior. It cannot be excluded that people react differently when confronted with the same, or a similar, situation in real life.⁹ In the same vein, there is not yet much evidence about what allocation procedures are seen as acceptable under what circumstances. Nevertheless, what the

⁹ Laboratory experiments present an intermediate case. They study behavior, but not in real life, so that the problem of external validity remains. Nevertheless, economic experiments are beginning to provide important evidence on these issues. For example, Tyran and Engelmann (2002) study consumer boycotts in reaction to price increases in an experimental market. They show that "boycotts are mainly called and executed for expressive reasons. That is, consumer boycotts serve to punish sellers for apparently 'unfair' price increases" (p. 3). The authors find that boycotts do not primarily serve an instrumental goal. For example, boycotts are undertaken although they often fail to hold down prices and are not profitable for consumers. They are also undertaken irrespective of whether collective action problems prevail (successful boycotts are a public good).

studies make clear is that consumers' overall evaluations of allocations are not just dependent on instrumental outcomes. Rather, the allocation procedures by which instrumental outcomes are brought about seem to play an independent role.

Income earners

When individuals act as income earners, they are often confronted with the institution of hierarchy. Hierarchy means that production and employment are integrated into an organization, and decisions are characterized by some degree of authority. Hierarchy can be considered to be the most fundamental institution by which decisions are taken in society with respect to work organization and production, and is thus an essential and widespread feature of the economy.

Does hierarchy involve procedural utility aspects? The theoretical arguments discussed in section II lead to a clear proposition: Individuals prefer independence to being subject to hierarchical decision making. Hierarchy constitutes a procedural disutility because it interferes with innate needs of self-determination: autonomy and the experience of competence are generally restricted under hierarchy, and strongly related to independence.

Frey and Benz (2002) present an empirical test of whether individuals enjoy procedural utility from independence vs. hierarchy. They exploit the idea that earnings can in principle be generated in two ways: in a hierarchy (as an employee) or independently (as a self-employed person). Using individual panel data from the United Kingdom, Germany and Switzerland, they find that self-employed people indeed enjoy higher utility from their work (measured via job satisfaction) than employees, even if important instrumental outcomes like pay level, working hours, and many others are controlled for.¹⁰ The self-employed seem to appreciate the autonomy of not being subject to a hierarchy irrespective of the instrumental outcomes that result. The study also finds evidence for the

¹⁰ Similar results on job satisfaction of self-employed people have been found by Blanchflower and Oswald (1998), Blanchflower, Oswald and Stutzer (2001) and Blanchflower (2000). It is, however, impossible to hold outcomes perfectly constant using such an approach, as many of the job characteristics of self-employed and employed people are not observable. For example, self-employment allows one to be one's own boss; this freedom of choice could also be interpreted as outcome utility (there are less choice restrictions). Certainly, it constitutes a non-monetary benefit. As this non-monetary benefit stems from two fundamentally different decision-making procedures, we prefer to interpret it in procedural terms.

related hypothesis that satisfaction is (*ceteris paribus*) the lower the larger the hierarchy an employee is subject to: people working in large firms are less satisfied with their jobs than people working in small organizations. This indicates that procedural utility is of great importance in employment.

Procedural aspects within hierarchies have also been studied in other contexts. It is, for example, a well-known fact that workers often resist nominal pay cuts. The resulting downward wage rigidity has macroeconomic consequences because it can cause excess unemployment in recessions (e.g. Bewley 1999, Fehr and Götte 2001). For workers' resistance to pay cuts, not only issues of outcome or distributional fairness seem to be crucial, but also process considerations. It has been shown, for example, that employees' reactions to pay cuts are less averse if this happens through fair processes, e.g. when management thoroughly and sensitively explains the basis for the pay cuts (Greenberg 1990a). In a case study, it is shown that Hewlett Packard was able to temporarily lower wages by 20 percent. The employees' support for this measure can be attributed to HP's traditionally strong emphasis on procedural fairness in determining organizational outcomes (Weibel and Rota 2001, p. 180).

C. Polity and Society

In their capacity as citizens, people are subject to different political and societal procedures generating procedural utility. This subsection discusses democratic institutions, public good allocation procedures, taxation, and issues of redistribution and inequality.

Democratic participation

A large literature in the social sciences, especially in psychology, political science and sociology, attributes a positive value to participation, as it enhances individuals' perception of self-determination (for an extensive survey see Lane 2000, chapter 13). The rights to participate in political decisions are a crucial characteristic of any democratic institution. They range from voting in elections, launching and voting on referenda, to running for a seat in parliament. Citizens may gain procedural utility from such participation rights over and above the outcome generated in the

political process, because they provide a feeling of being involved and having political influence, as well as a notion of inclusion, identity and self-determination. By being able to participate, citizens may feel that the political sphere takes their wishes seriously into account in a fair political process; if participation is restricted, they may feel alienation and apathy towards the political institutions installed.

Frey and Stutzer (2002a) try to empirically identify such procedural utility from political participation rights, basing their analysis on the fact that the status of being a national fundamentally differs from that of being a foreigner. Nationals have the right to vote and to participate in political decision-making, while foreigners do not have these rights. Nationals should thus derive more utility from political participation rights than foreigners if they enjoy procedural utility.

This hypothesis is tested econometrically using a survey based on more than 6,000 interviews with residents of Switzerland. Data for Switzerland is studied because there is a unique variation in the political participation rights among citizens. In addition to elections, citizens have access to direct democratic instruments (initiatives, referenda) which differ substantially from canton to canton. As a proxy measure for utility, an index of reported subjective well-being is used as the dependent variable. The estimated overall utility effect from more extended political participation rights, as reflected in reported life satisfaction, is in itself sizeable. Citizens, as well as foreigners, living in jurisdictions with more developed political participation rights enjoy higher levels of subjective well-being. The positive effect on reported satisfaction with life is, however, smaller for foreigners, reflecting their exclusion from procedural utility. The positive effect of participation rights is about three times larger for the citizens than it is for the foreigners, i.e. a major part of the welfare gain from favorable political procedures seems to be due to procedural utility. The results hold *ceteris paribus*, i.e. when a large number of determinants or correlates of subjective well-being (in particular socio-demographic characteristics, employment status and household income) are controlled for.

Public good allocation

One of the most pressing problems of government policy is to find ways and means to overcome the resistance of individuals to so-called NIMBY-projects. They refer to public undertakings generally considered important and desirable, such as finding suitable locations for hospitals for the mentally deranged or handicapped, for airports or for nuclear waste. The term NIMBY indicates that in many instances individuals strongly support such projects – except that they do not want to see them in their neighborhood (hence ‘Not In My Back Yard’).¹¹ Traditional economic theory offers a straightforward solution to this problem. As in the aggregate, the benefits are larger than the costs, the prospective gainers must be taxed and the revenue must be redistributed to the prospective losers. The most elegant and efficient procedure is to undertake an appropriate auction (see Kunreuther and Kleindorfer 1986, O’Sullivan 1993). Yet it has turned out that the use of the price system in that case meets with much resistance, and that the procedure based on the price system indeed rarely, if ever works. The individuals expecting to lose from a particular siting project tend to consider the monetary compensation offered to them as a bribe, to which they fundamentally object. Bribing disregards people’s sense of self as decent citizens and thus generates negative procedural utility.¹² Indeed, it has been empirically demonstrated (Frey and Oberholzer-Gee 1997) that offering monetary compensation to the inhabitants of the nearby village to induce them to accept a site leads to a counterproductive reaction: the support for the site falls instead of increases. If instead the compensation is offered in a way addressing the concerns of the individuals affected, the proposed project has a better chance of being accepted. Thus, for example, if people fear that the location of a nuclear refuse plant produces health risks they should be offered improved medical facilities; if they fear the noise generated by an airport, they should be helped with insulating their homes. Such material compensation along a predetermined dimension is inefficient according to

¹¹ See Rabe (1994), Gerrard (1994) and Easterling and Kunreuther (1995) on the problems associated with NIMBY-projects.

¹² The general theory behind this effect is crowding-theory (Frey 1997). Like the concept of procedural utility, crowding-theory is based on the notion that people care for issues of self-determination (e.g. Deci and Ryan 1985). Monetary rewards (or external interventions more generally) are expected to undermine voluntary behavior when they impair self-determination and self-esteem. Persons previously acting in a self-determined way lose the possibility to satisfy innate needs of autonomy, relatedness and competence when outside interventions are perceived as controlling.

traditional welfare theory. Individuals thus seem to be prepared to accept a worse instrumental outcome if they feel that the process does justice to their concerns.

Institutional differences also play a role. Oberholzer et al. (1995) investigated the acceptability of different decision making procedures for siting a noxious facility. The 900 persons interviewed ranked procedures in the following order: negotiations (bargaining) were seen by 79% as an acceptable procedure of siting, 39% found referenda (democracy) to be acceptable, 32% a decision by lottery, and only a few saw the price system as an acceptable procedure (20% in the form of willingness to accept, and 4% in the form of willingness to pay).¹³

The treatment of taxpayers

Individuals may value procedural differences in their role as taxpayers. This is an aspect that has been completely neglected by economic research on taxpayer behavior. Public economics or neoclassical public finance uses a model of taxpayer behavior (initiated by Allingham and Sandmo 1972) that is based only on outcome considerations: the extent of tax evasion depends negatively on the probability of being caught and the size of the punishment if caught (see Andreoni, Erard and Feinstein 1998: 824 – 835; and Slemrod and Yitzhaki 2002 for overviews).

From an empirical point of view, this model is faced with two major problems. First, it is difficult, if not impossible, to account for the level of tax evasion. In view of the low deterrence applied in most countries, taxpayers should evade much more than they actually do, i.e. compliance is too high. For the United States, Alm, McClelland and Schulze (1992: 22) argue: “A purely economic analysis of the evasion gamble implies that most individuals would evade if they are ‘rational’, because it is unlikely that cheaters will be caught and penalized“. Second, the econometric parameter estimates are unsatisfactory. Often, they turn out to be not statistically significant, and

¹³ A more detailed analysis revealed that “acceptability” was seen by respondents as consisting of three components: “security”, “local influence” and “fairness”. It transpired that the ranking in terms of “fairness” exactly mirrored the above given ranking in terms of acceptability. Thus, the results can clearly be interpreted in procedural terms; it is not only the implication for the outcomes that causes people to find a procedure more or less acceptable.

sometimes their signs are inconsistent with the theory (see e.g. Pommerehne and Weck-Hannemann 1996).

Thus, new insights on tax compliance and tax evasion may be gained by taking issues of procedural fairness into account. Taxpayers may respond, for example, in a systematic way to how the tax authority treats them: when the tax officials treat them with respect and dignity, their willingness to pay taxes may be supported or even raised. In contrast, when the tax officials consider taxpayers merely as 'subjects' who have to be forced to pay their dues, the taxpayers may respond by actively trying to avoid taxation.

Using a sample of Swiss cantons in the years 1970-1995, Feld and Frey (2002) and Frey and Feld (2002) find econometric evidence that taxpayers indeed act according to these predictions. Individuals seem to experience higher utility when they are more respectfully treated in the taxation process, and are thus more willing to pay their taxes. Moreover, tax authorities in Switzerland behave as if they were aware of the reaction of taxpayers to being treated with respect or not. Deterrence is only one of the motivational forces used by the authorities; often, they rely on respectful procedures of tax collection.

Redistribution and inequality

Social inequality is a phenomenon that many individuals and governments are concerned with. People's unhappiness with inequality often depends on the extent to which the income distribution in a society is unequal, and also on their own position in this distribution. However, this may not be the whole picture. A given social inequality can also be judged with respect to the societal processes that brought it about. For example, if social processes provide everyone with a fair chance to 'make it', inequality might be seen as less of a problem than when social processes are biased and unfair. Social inequality may thus not only be a problem of outcome distribution, but also of fair social procedures.

Alesina, Di Tella and MacCulloch (2001), Alesina and LaFerrara (2001) and Fong (2001) provide empirical evidence that underscores such a role of social processes. Fong (2001) shows that

people's attitudes towards redistribution depend on their perception of the causes for the primary distribution. Survey evidence indicates that people prefer more redistribution if they believe that poverty is caused by circumstances beyond individual control. Alesina, Di Tella and MacCulloch (2001) find that there is a large negative effect of income inequality on happiness in Europe, but not in the US. The authors argue that it is not a difference in inequality aversion that explains this result, i.e. that Europeans would prefer more equal societies. Rather, it seems that it is the lower social mobility in Europe that makes its citizens more concerned with inequality. Similar results are reported by Alesina and LaFerrara (2002) who study individuals' preferences for redistribution across US states. They find that support for redistributive policies is not only determined by an individual's income position (and many other determinants), but also strongly influenced by the extent of social mobility in a state.¹⁴ Higher social mobility lowers people's support for redistribution. This, of course, can be interpreted in outcome terms: if the probability that someone gets rich is high, an individual will be less likely to support redistributive policies, because he or she might become a net payer.¹⁵ But social mobility can as well be interpreted in procedural terms: if people see that society offers equal opportunities, on average and in an objective sense of actual income mobility, they may be less concerned with inequality because they see social processes as fair. Indeed, Alesina and LaFerrara report evidence that lends support to this second interpretation. Although the extent of social mobility on average lowers support for redistribution, its effect substantially depends on individuals' fairness perceptions of the mobility process. Those who feel that equal opportunities really exist are less concerned with inequality when mobility is higher, i.e. they judge the 'objective condition' of higher mobility as indeed offering everybody a chance and thus withdraw their support for redistribution. In contrast, those who see social mobility generally as a biased process do not lower their redistributive support in the light of higher mobility, probably

¹⁴ The authors derive measures of social mobility for each state and year from 1978-1991 using income data from the General Social Surveys and the Panel Study of Income Dynamics. The two main measures they use are 'expected future income' and 'relative mobility', which indicates the probability that an individual in a certain income decile will move above mean income a year later.

¹⁵ This is the interpretation favored by Alesina and co-workers.

because they feel that even objectively higher mobility generates opportunities only for some and not for all.

D. Organizations

Organizations are the field where aspects of procedural utility have been most intensively studied. In hierarchies, many decisions are taken in an ‘authoritarian’ way. Under such circumstances, individuals’ concerns with procedures must be expected to be high. The literature on procedural fairness or justice in organizations is so large that there already exist meta-analyses (e.g. Cohen-Charash and Spector 2001). The studies consistently find that concerns for procedural fairness are a highly relevant and widespread phenomenon in the employment relationship. It has been shown to matter for employees’ behavior, satisfaction, and attitudes in areas like change (mergers and acquisitions, layoffs, restructuring, strategic planning) and human resources (personnel selection, performance evaluation, and compensation, see Konovsky 2000 for an overview). Procedural aspects that researchers have identified as important include organizational policies and rules, e.g. providing advance notice for decisions and opportunities for voice (see Greenberg 1990b and Lind and Tyler 1988), but they also encompass the interpersonal treatment of people (Bies and Moag 1986). Individuals have been found to generally value fair procedures over and above organizational outcomes. Procedural fairness effects prevail when individual outcomes as well as aspects of distributional fairness are controlled for in the analysis. Thus, procedural utility is without doubt a relevant part of what individuals value when working in organizations.

E. Law

Similar to organizations, procedural aspects are expected to be important in law because people often are subjected to decisions by authorities. Law is thus an area where procedural fairness has been thoroughly studied. Many studies find that people react adversely to unfair legal procedures, irrespective of the objective judgment made by a court. Unfair procedures lead individuals to rate the legitimacy of authorities and their satisfaction with a trial lower, and it also affects subsequent compliance behavior (see Tyler 1997 for an overview).

One study has already been summarized as an example in section II, because it investigates real life behavior and thus will be of most interest to economists. Lind et al. (1993) studied the acceptance of awards from court-ordered arbitration by real life litigants, which included corporate and individual litigants in Federal Courts. The authors find that litigants who judge the arbitration process as fair are much more likely to accept the court-ordered award (irrespective of the objective outcome). The decision to go on to have a formal trial was most strongly influenced by procedural fairness considerations. This is remarkable, as the disputes considered involved amounts of money of up to US\$800'000. The objective size of the award and other instrumental factors also predicted acceptance, although to a much lesser extent. Thus, the study shows that utility from procedures plays a role in lawsuits over and above outcome utility.

IV. Relationships Between Procedural and Outcome Utility

Given that procedural utility exists, how can it be fruitfully integrated into the existing economic approach? This section explores theoretical relationships between procedural utility and standard outcome utility.

Are procedures and outcomes independent of each other?

If processes generate utility, a first question to ask is how this changes our understanding of the relationship between processes and outcomes. This is of particular importance for the study of procedures which are employed at the level of society (decision-making mechanisms like the market, democracy, or hierarchy) and the evaluation of the outcomes they produce. The question touches on fundamental issues of social choice, i.e. the study of how a society can sensibly arrive at aggregate social welfare judgements. The following thoughts draw mainly on Sen (1995), who brilliantly summarizes the issues in his presidential address to the American Economic Association (see also Sugden 1981, 1986).

Most of the economic (and also political science) approaches to social welfare are purely outcome-oriented. The most extreme form is probably embodied in the 'New Welfare Economics'. Its

criterion for social decision-making is the Pareto principle: a social improvement is achieved (e.g. by a public project, regulation or deregulation) if at least the utility of one person is increased while nobody's utility is reduced. Procedures do not play any genuine role in this approach, and certainly it attaches no intrinsic value to procedural aspects such as whether a given outcome is achieved by e.g. preserving fundamental rights or freedoms of individuals or not. The same criticism can be made with respect to the Public Choice approach, or Institutional Economics more generally. Although these approaches are very concerned with the study of procedures, they still are mainly interested in them for the outcomes they produce. If, for example, different democratic decision making procedures are studied or production in hierarchies is compared to markets, institutions are always evaluated with respect to the outcomes they produce. Thus, these approaches disregard a potentially large source of human well-being by not taking experienced pleasures and displeasures of processes into account. As Sen (1995) puts it: „[...] it is hard to be convinced that we can plausibly judge any given utility distribution ignoring altogether the process that led to that distribution (attaching, for example, no intrinsic importance whatever to whether a particular utility distribution is caused by charity, or taxation, or torture)“ (p. 12). Thus, judgements on social welfare outcomes should not be made independently of the procedures by which a society arrives at these outcomes; rather, the procedural utility stemming from different socio-economic decision mechanisms should seriously be taken into account.¹⁶

Implicitly, this view is already present in some parts of economic analysis. Economists often seem to favor markets as allocation mechanisms not only because markets produce better outcomes, but also because markets institutionalize a favored treatment of trading partners in interaction. An example is the support of market systems by liberal economists like Buchanan (1986, p.22, cit. in Sen, 1995): „To the extent that voluntary exchange among persons is valued positively while coercion is valued negatively, there emerges the implication that substitution of the former for the latter is desired, on the presumption, of course, that such substitution is technologically feasible and

¹⁶ This is also reflected in the famous 'Impossibility of the Paretian Liberal' (Sen, 1970): even minimal procedural requirements of personal liberty (which can be interpreted as sources of procedural utility) can conflict with principles of outcome orientation like Pareto superiority.

is not prohibitively costly in resources“ (p. 11). It is, however, an empirical question whether and under what conditions individuals gain procedural utility from market mechanisms, or whether they attach, as other economists would argue, rather an intrinsic value to egalitarian decision-mechanisms such as democracy.

In contrast, can procedures be reasonably evaluated ignoring the outcomes they produce? An affirmative extreme position in this respect is taken by libertarians such as Nozick (1974). In his treatment of ‚right rules‘, personal liberties as well as rights of property are given a high intrinsic value almost irrespective of the outcomes a system based on these rights and liberties produces. Nevertheless, even a pure procedural approach has to consider the possibility that the consequences of such a liberal society might be catastrophic: „Indeed, it can be shown that even gigantic famines can actually take place in an economy that fulfills all the libertarian rights and entitlements specified in the Nozick system“ (Sen, 1995, p.12).

In summary, there are good reasons for taking procedural and outcome concerns simultaneously into consideration when analyzing socio-economic decision mechanisms. It follows that the relative importance of ‚right procedures‘ and ‚good outcomes‘ is most effectively studied within the same empirical framework for individual well-being.

Is there a trade-off between process and outcome concerns?

Evidence discussed in section III has indicated that there are institutional arrangements which satisfy process concerns and outcome concerns simultaneously: for example, in the case of democratic participation rights, the procedure seems to produce positive procedural utility as well as better outcomes.¹⁷ This can be seen as a fortunate instance where a socio-economic decision mechanism is valued positively by individuals as a desirable process as well as for its good outcomes. A more general analysis, however, has obviously to take into account that there is often a

¹⁷ See Frey and Stutzer (2002a). This holds at least for a certain range of democratic participation possibilities. It is quite conceivable that an extreme form of direct democracy has welfare costs by imposing such high transaction costs on a society that economic activity is seriously damaged. Then, the trade-off between procedures and outcomes re-emerges.

trade-off between procedural and outcome concerns. Sen's Impossibility of a Paretian Liberal, for example, shows that individual liberty rights and criteria of social welfare maximization often contradict each other. This section explores this aspect on a more individual level, moving the analysis away from social choice considerations.

In a simple microeconomic analysis, procedural utility enters the utility function in addition to any instrumental arguments of utility. Thus it is possible to trade-off procedural utility against the other arguments. This can be practiced in the equilibrium approach of compensating variation: if, for example, workers intrinsically value a specific organizational procedure, they should be willing to accept a lower wage (a worse instrumental outcome) in order to work in an organization that is applying it. There is, however, not a simple trade-off, as outcome and process utility are not perfectly separable.

Psychological research on procedural utility emphasizes the subtle cross-effects between outcome and process evaluations (and almost completely neglects equilibrium considerations). In general, the quality of procedures is seen as more important when outcomes are bad, and less relevant when outcomes are good. One area where such trade-offs have been thoroughly studied are lawsuits (see Lind and Tyler 1988: chapter 4). Many studies find that people react adversely to unfair judicial procedures especially when the result of the lawsuit is bad for them; when the outcome is good, individuals do not care so much about procedural qualities (although they still do to some extent).

However, unfair procedures are sometimes self-protecting. Consider for instance the case of an organizational procedure like pay determination. If you get less pay in a year because your performance was weak, but the procedure of pay determination was extremely fair, would you really be more satisfied with your pay? In part yes, because you would still favor a fair over an unfair procedure. But there is a countervailing effect. If a procedure is fair, an unfavorable outcome has to be attributed to oneself; if it is unfair, one can blame the authority for the bad outcome (Brockner and Wiesenfeld 1996, Schroth and Shah 2000, van den Bos et al. 1999). This attribution effect predicts a complementary relationship between processes and outcomes: fair procedures are more valued when outcomes are good. The net relationship between procedural and outcome utility

then depends on the relative strength of the substitutive and complementary effects. The two effects have been studied, for instance, in a representative sample of British workers for the case of procedural utility from pay determination procedures (Benz and Stutzer 2002). It is found that i) workers report higher pay satisfaction when they are involved in compensation questions and ii) the gains in pay satisfaction are of equal magnitude for workers who get a high wage as for those who get a relatively low wage.

To understand the trade-offs between outcome and process concerns attribution theory enters into the picture. Attribution theory can help to specify under which conditions particular cross-effects prevail. There are interesting implications, and theoretical work by economists integrating attribution phenomena into models of human behavior has already been undertaken (see e.g. Falk and Fischbacher 2000 and Rabin 1993 on intentions). Empirically, attribution can well be tractable. In some situations, attribution can be unambiguous (for an experiment of this kind, see Falk, Fehr and Fischbacher 2000). In others, it might be proxied, for example, by religious orientation. One can hypothesize that non-religious persons are more likely to attribute outcomes to themselves or to secular society, while religious persons would see them more as a matter of fate or divine will. MacCulloch and Pezzini (2002) offer interesting related evidence with respect to citizens' support for revolutions in 61 countries over the years from 1981-1997. First, they find an effect which can be interpreted in procedural terms: revolutionary support by individuals is significantly lower in politically free countries, even when GDP per capita, GDP growth, individual income position and many more outcome variables are controlled for. Second, they find that religious persons are indeed less likely to support revolt. It is worth noting, however, that the interaction effect between political freedom and religiosity turns out to be the opposite of what one would expect: religious people react even more strongly to bad procedures (no political freedom) than non-religious persons. Nevertheless, the results indicate that empirical tests of trade-offs between procedural and outcome concerns and their interaction with attribution issues are well feasible.

Does the importance of procedural utility depend on the context of action?

If procedural utility exists, can we indicate under what conditions it will be more important, and under what circumstances it will be less important? A natural approach for economists to answer this question would be to consider the choice alternatives individuals have at hand. Procedural utility always carries the notion that people are subject to a procedure; to some extent, decisions are made by others, and cannot be taken by individuals themselves. A simple hypothesis following from this is that procedural utility is more important when individuals find it more costly to switch to alternatives. Exit can be restricted by law, or it may involve high transaction costs. In such situations, individuals will be especially concerned with the quality of procedures.

This prediction corresponds nicely with empirical findings (see also section III). Procedural utility has been identified to be an important aspect in lawsuits; clearly, individuals have very limited possibilities of opting out when involved in a lawsuit. Similarly, individuals are particularly concerned with the quality of their treatment when faced with a state monopoly. Moving to another jurisdiction often involves high transaction costs.¹⁸ This can explain why people intrinsically value the possibility to participate in democratic decision-making, or fair procedures when they are dealing with the public administration. Procedural quality has also been shown to matter in organizations, where workers often face considerable transaction costs to move to another workplace. In contrast, procedural utility can be expected to play a lesser role on markets, because individuals can more easily switch to alternatives.

The analysis indicates that a host of testable hypotheses on the importance of procedural utility in different institutional settings can be derived using a simple approach of costly choice alternatives. An application will be given with respect to customer markets. Although economic analysis often treats markets as perfect, in reality firms often have some monopoly power (if only because customers face search costs). A straightforward hypothesis then is that customers should have greater procedural concerns – i.e. on their treatment as consumers - when they find themselves in a monopoly situation than when possibilities to switch to another supplier are relatively easy. Evidence reported in Kahneman, Knetsch and Thaler (1986) supports this prediction. As mentioned

before, the authors investigate customers' reactions to a situation where the price for a good was increased in a well-defined excess demand situation. 82% of the surveyed individuals considered the price increase to be unfair (p. 729). However, when individuals were put in another situation where they had explicitly more substitution possibilities, a similar price increase was seen as unfair only by 63% of the people interviewed (p. 734). Similar results have been found by Frey and Pommerehne (1993). Their results show that raising prices in response to a demand increase in a market is more accepted when choice alternatives are less costly, e.g. if the demand shift occurs at predictable intervals, if customers are previously informed and thus have time to look for alternatives, or if alternative suppliers or products exist.

V. Concluding Remarks

Empirical evidence supports the existence and relevance of procedural utility in many areas of the economy and society. Integrating procedural utility into economics both enriches it and allows phenomena to be taken into account that are otherwise difficult or impossible to explain. To some extent, procedural fairness has been acknowledged in economic psychology or behavioral economics, although most attention has been paid to integrating outcome fairness into individual utility functions (Bolton and Ockenfels 1999, Fehr and Schmidt 1999, Konow 2002).

Institutions can be looked at as not only producing particular outcomes but also as framing *decision-making procedures*. The market, under well-known conditions, leads to efficient outcomes but moreover produces procedural utilities and disutilities. The use of market prices to equilibrate supply and demand is sometimes vigorously opposed by the individuals involved. In particular, consumers perceive raising prices to ration demand to be an unfair and disrespectful treatment and prefer other decision-making mechanisms to fulfil this task. While such reactions have often been observed, economists solely concerned with the narrowly instrumental aspects of the price system are ill equipped to deal with this empirical phenomenon. Yet it is important to see that every decision-making mechanism has its advantages and disadvantages with respect to the procedural utility produced. When economists suggest policy actions and are concerned with their acceptability

¹⁸ These costs depend, of course, on the nature of the political system. In systems of fiscal federalism, exit costs are lower than in centralized countries.

they must also pay attention to the procedural utilities attached to the various decision-making systems.

Another aspect enriching economic theory relates to the procedural utility produced by individuals' possibilities to *participate* in social and economic decision-making. The rights to participate in political and economic decisions are important characteristics of modern societies. In politics, participation rights range from running for a seat in parliament to voting in elections or even referenda. In the economy, participation rights may range from exerting influence with respect to one's work place and work organization to full scale co-determination in the management of the firm or even complete self-determination in the form of self-employment. The evidence discussed in this paper shows that individuals gain procedural utility from such participation possibilities over and above the outcome generated, because they provide a feeling of being involved and having influence, as well as a notion of inclusion, identity and self-determination. Formal institutions of worker participation have been enshrined in the constitutions of some countries (the primary example being Germany with its extensive co-determination rights) but economists have mainly analyzed its instrumental effects on outcomes, in particular on productivity and wages. But this should not be all: the purely procedural aspects also play a substantial role, and have to be taken into account.

While evidence discussed in this paper inspires economic analysis and reasoning about economic policy in areas like consumption and work behavior, people's willingness to accept public undertakings or to pay taxes, and issues of social inequality or corporate strategy, there surely is room for promising further research in several so far unexplored directions. For example, in the relationship between public administration and citizens, procedures can be expected to play an important role for people's evaluation of public services. The same is likely to hold for the health care system. For issues of redistribution, it might matter whether transfers are in cash or in kind, or whether they are publicly or privately funded. In the organization of economic activity, non-profit firms can be expected to apply systematically different procedures than for-profit firms for procedural utility reasons. The notion that hierarchy involves procedural disutility might add to our

understanding of the boundaries of the firm. Fair procedures are likely to shape conflict resolution, e.g. in bargaining between unions and firms. Finally, in government policy, further research might be devoted to the relations between procedural discontent and citizens' resistance to public policies as well as their compliance with the law.

References

- Akerlof, George A. and William T. Dickens (1982). The Economic Consequences of Cognitive Dissonance. *American Economic Review* 72(3): 307-319.
- Akerlof, George A. and Rachel E. Kranton (2000). Economics and Identity. *Quarterly Journal of Economics* 115(3): 715-753.
- Alesina, Alberto and Eliana LaFerrara (2001). Preferences for Redistribution in the Land of Opportunities. NBER Working Paper No. 8267.
- Alesina, Alberto, Di Tella, Rafael and Robert MacCulloch (2001). Inequality and Happiness: Are Europeans and Americans Different? NBER Working Paper No. 8198.
- Allingham, Michael G. and Agnar Sandmo (1972). Income Tax Evasion: A Theoretical Analysis. *Journal of Public Economics* 1 (3-4), 323-338.
- Alm, James, Gary H. McClelland and William D. Schulze (1992). Why Do People Pay Taxes? *Journal of Public Economics* 48(1): 21-38.
- Andreoni, James, Brian Erard and Jonathan Feinstein (1998). Tax Compliance. *Journal of Economic Literature* 36(2): 818-860.
- Anand, Paul (2001), Procedural Fairness in Economic and Social Choice: Evidence from a Survey of Voters. *Journal of Economic Psychology* 22(2): 247-270.
- Bandura, Albert (1977). Self-Efficacy: Toward a Unifying Theory of Behavior Change. *Psychological Review* 84: 191-215.
- Baumeister, Roy F. (1998). The Self. In: Daniel T. Gilbert, Susan T. Fiske and Gardner Lindzey (eds). *The Handbook of Social Psychology*, vol. 1. New York and Oxford: Oxford University Press.
- Benz, Matthias and Alois Stutzer (2002). Do Workers Reap Procedural Utility? Working Paper No. Institute for Empirical Research in Economics, University of Zurich.
- Bewley, Truman E. (1999). *Why Wages Don't Fall During a Recession*. Cambridge and London: Harvard University Press.
- Bies, R. J. and J.S. Moag (1986). Interactional Justice: Communication Criteria of Fairness. In: R. J. Lewicki, B. H. Sheppard and B. H. Bazerman (eds.). *Research on Negotiation in Organizations*, vol. 1. Greenwich: JAI Press: 43-55.
- Blanchflower, David G. (2000). Self-employment in OECD Countries. *Labour Economics* 7(5): 471-505.
- Blanchflower, David G. and Andrew Oswald (1998). What Makes an Entrepreneur? *Journal of Labor Economics* 16(1): 26-60.
- Blanchflower, David G., Andrew J. Oswald and Alois Stutzer (2001). Latent Entrepreneurship Across Nations. *European Economic Review* 45(4-6): 680-691.

- Bolton, Gary E. and Axel Ockenfels (2000). ERC: A Theory of Equity, Reciprocity, and Competition. *American Economic Review* 90(1): 166-93.
- Brehm, Jack W. (1966). *A Theory of Psychological Reactance*. New York: Academic Press.
- Brockner, Joel and Batia M. Wiesenfeld (1996). An Integrative Framework for Explaining Reactions to Decisions: Interactive Effects of Outcomes and Procedures. *Psychological Bulletin* 120(2): 189-208.
- Buchanan, James M. (1986). *Liberty, Market and the State*. Brighton: Wheatsheaf.
- Cohen-Charash, Yochi and Paul E. Spector (2001). The Role of Justice in Organizations: A Meta-Analysis. *Organizational Behavior and Human Decision Processes* 86(2): 278-321.
- Compton, William C. (2001). Toward a Tripartite Factor Structure of Mental Health: Subjective Well-Being, Personal Growth, and Religiosity. *Journal of Psychology* 135(5): 486-500.
- Dahl, Robert A. and Charles E. Lindblom (1953). *Politics, Economics and Welfare: Planning and Politico-Economic Systems Resolved into Basic Social Processes*. Harper: New York.
- DeCharms, Richard (1968). *Personal Causation*. New York: Academic Press.
- Deci, Edward L. and Richard M. Ryan (1985). *Intrinsic Motivation and Self-Determination in Human Behavior*. New York and London: Plenum Press.
- Deci, Edward L. and Richard M. Ryan (2000). The "What" and "Why" of Goal Pursuits: Human Needs and the Self-determination of Behavior. *Psychological Inquiry* 11(4): 227-268.
- Diener, Ed, Eunkook M. Suh, Richard E. Lucas and Heidi L. Smith (1999). Subjective Well-Being: Three Decades of Progress. *Psychological Bulletin* 125(2): 276-303.
- Easterling, Douglas H. and Howard Kunreuther (1995). *The Dilemma of Siting a High-Level Nuclear Waste Repository*. Boston: Kluwer.
- Falk, Armin and Urs Fischbacher (2000). A Theory of Reciprocity. Working Paper No. 6. Institute for Empirical Research in Economics, University of Zurich.
- Falk, Armin, Ernst Fehr and Urs Fischbacher (2000). Testing Theories of Fairness - Intentions Matter. Working Paper No. 63. Institute for Empirical Research in Economics, University of Zurich.
- Fehr, Ernst and Lorenz Götte (2001). Robustness and Real Consequences of Nominal Wage Rigidity. Forthcoming in *Journal of Monetary Economics*.
- Fehr, Ernst and Klaus M. Schmidt (1999). A Theory of Fairness, Competition, and Cooperation. *Quarterly Journal of Economics* 114(3): 817-68.
- Feld, Lars P. and Bruno S. Frey (2002). Trust Breeds Trust: How Taxpayers Are Treated. *Economics of Governance* 3: 87-99.
- Fong, Christina (2001). Social Preferences, Self-Interest, and the Demand for Redistribution. *Journal of Public Economics* 82: 225-46.
- Frank, Robert H. (1985). *Choosing the Right Pond*. New York: Oxford University Press.

- Frey, Bruno S. (1997). *Not Just for the Money: An Economic Theory of Personal Motivation*. Cheltenham: Edward Elgar.
- Frey, Bruno S. and Matthias Benz (2002). Being Independent is a Great Thing. Subjective Evaluations of Self-Employment and Hierarchy. Institute for Empirical Research in Economics Working Paper No. 135.
- Frey, Bruno S. and Lars P. Feld (2002). Deterrence and Morale in Taxation: An Empirical Analysis. Mimeo. Institute for Empirical Research in Economics, University of Zurich.
- Frey, Bruno S. and Felix Oberholzer-Gee (1997). The Cost of Price Incentives: An Empirical Analysis of Motivation Crowding-Out. *American Economic Review* 87(4): 746-755.
- Frey, Bruno S. and Werner W. Pommerehne (1993). On the Fairness of Pricing - An Empirical Survey among the General Population. *Journal of Economic Behavior and Organization* 20(3): 295-307.
- Frey, Bruno S. and Alois Stutzer (2002a). Beyond Outcomes: Measuring Procedural Utility. Berkeley Olin Program in Law & Economics, Working Paper No. 63.
- Frey, Bruno S. and Alois Stutzer (2002b). *Happiness and Economics: How the Economy and Institutions Affect Human Well-Being*. Princeton: Princeton University Press.
- Frey, Bruno S. and Alois Stutzer (2002c). What Can Economists Learn from Happiness Research? *Journal of Economic Literature* 40(2): 402-435.
- Gerrard, M.B. (1994). *Whose Backyard, Whose Risk: Fear and Fairness in Toxic and Nuclear Waste Siting*. Cambridge, MA: MIT Press.
- Greenberg, Jerald (1990a). Employee Theft as a Reaction to Underpayment Inequity: The Hidden Cost of Pay Cuts. *Journal of Applied Psychology* 75(5): 561-570.
- Greenberg, Jerald (1990b). Organizational Justice: Yesterday, Today, and Tomorrow. *Journal of Management* 16(2): 399-432.
- Harsanyi, John C. (1993). Normative Validity and Meaning of von Neumann-Morgenstern Utilities. In: Ken Binmore, Alan Kirman and Piero Tani (eds.). *Frontiers of Game Theory*. Cambridge, MA und London: MIT Press: 307-320.
- Intriligator, Michael P. (1973). A Probabilistic Model of Social Choice. *Review of Economic Studies* 40(4): 553-560.
- Kahneman, Daniel, Ed Diener and Norbert Schwarz (eds) (1999). *Well-Being: The Foundation of Hedonic Psychology*. New York: Russell Sage Foundation.
- Kahneman, Daniel, Jack L. Knetsch and Richard H. Thaler (1986). Fairness as a Constraint on Profit Seeking: Entitlements in the Market. *American Economic Review* 76(4): 728-741.
- Kahneman, Daniel, Peter P. Wakker and Rakesh Sarin (1997). Back to Bentham? Explorations of Experienced Utility. *Quarterly Journal of Economics* 112(2): 375-405.
- Khalil, Elias L. (1996). Respect, Admiration, Aggrandizement: Adam Smith as Economic Psychologist. *Journal of Economic Psychology* 17(5): 555-577.

- Konovsky, Mary A. (2000). Understanding Procedural Justice and its Impact on Business Organizations. *Journal of Management* 26(3): 489-511.
- Konow, James (2001). Fair and Square: The Four Sides of Distributive Justice. *Journal of Economic Behavior and Organization* 46(2): 137-64.
- Konow, James (2002). Which Is the Fairest One of All?: A Positive Analysis of Justice Theories. Mimeo. Loyola Marymount University, Los Angeles.
- Köszegi, Botond (2002a). Ego Utility and Information Acquisition. Mimeo. University of California at Berkeley.
- Köszegi, Botond (2002b). Ego Utility, Overconfidence, and Task Choice. Mimeo. University of California at Berkeley.
- Kunreuther, Howard and Paul R. Kleindorfer (1986). A Sealed-Bid Auction Mechanism for Siting Noxious Facilities. *American Economic Review* 76(2): 295-299.
- Lane, Robert E. (2000). *The Loss of Happiness in Market Economies*. New Haven and London: Yale University Press.
- Le Menestrel, Marc (2001). A Process Approach to the Utility for Gambling. *Theory and Decision* 50(3): 249-262.
- Lea, Stephen E. and Paul Webley (1997). Pride in Economic Psychology. *Journal of Economic Psychology* 18(2-3): 323-340.
- Lind, E. Allen, Carol T. Kulik, Maureen Ambrose and Maria V. de Vera Park (1993). Individual and Corporate Dispute Resolution: Using Procedural Fairness as a Decision Heuristic. *Administrative Science Quarterly* 38(2): 224-251.
- Lind, E. Allan and Tom R. Tyler (1988). *The Social Psychology of Procedural Justice*. New York: Plenum Press.
- Loewenstein, George (1999). Because It Is There: The Challenge of Mountaineering ... for Utility Theory. *Kyklos* 52(3): 315-343.
- MacCulloch, Robert and Silvia Pezzini (2002). The Role of Freedom, Growth and Religion in the Taste for Revolution. Mimeo. London School of Economics.
- Marschak, Jacob (1950). Uncertain Prospects, and Measurable Utility. *Econometrica* 18: 111-141.
- Mueller, Dennis C. (1978). Voting by Veto. *Journal of Public Economics* 10(1): 57-76.
- Nozick, Robert (1974). *Anarchy, State, and Utopia*. New York: Basic Books.
- Oberholzer-Gee, Felix, Bruno S. Frey, Albert Hart and Werner W. Pommerehne (1995). Panik, Protest und Paralyse. Eine empirische Untersuchung über nukleare Endlager in der Schweiz. *Schweizerische Zeitschrift für Volkswirtschaft und Statistik* 13 (2): 147-177.
- O'Sullivan, Arthur (1993). Voluntary Auctions for Noxious Facilities: Incentives to Participate and the Efficiency of Siting Decisions. *Journal of Environmental Economics and Management* 25(1): 12-26.

- Oswald, Andrew J. (1997). Happiness and Economic Performance. *Economic Journal* 107(445): 1815-1831.
- Pascal, Blaise (1670). *Pensées*. Paris: Port-Royal.
- Peterson, Christopher (1999). Personal Control and Well-Being. In: Daniel Kahneman, Ed Diener and Norbert Schwarz (eds). *Well-Being: The Foundation of Hedonic Psychology*. New York: Russell Sage Foundation: 288-301.
- Pommerehne, Werner W. and Hannelore Weck-Hannemann (1996). Tax Rates, Tax Administration and Income Tax Evasion in Switzerland. *Public Choice* 88(1-2): 161-170.
- Rabe, B. G. (1994). *Beyond NIMBY: Hazardous Waste Siting in Canada and the United States*. Washington, D.C.: Brookings Institution.
- Rabin, Matthew (1993). Incorporating Fairness into Game Theory and Economics. *American Economic Review* 83(5): 1281-1302.
- Ryff, Carol D. and Corey Lee M. Keyes (1995). The Structure of Psychological Well-Being Revisited. *Journal of Personality and Social Psychology* 69(4): 719-727.
- Schroth, Holly A. and Priti Pradhan Shah (2000). Procedures: Do We Really Want to Know Them? An Examination of the Effects of Procedural Justice on Self-Esteem. *Journal of Applied Psychology* 85(3): 462-471.
- Seligman, Martin E. P. (1992). *Helplessness: On Depression, Development, and Death*. New York: Freeman.
- Sen, Amartya K. (1970). *Collective Choice and Social Welfare*. San Francisco: Holden-Day.
- Sen, Amartya K. (1995). Rationality and Social Choice. *American Economic Review* 85(1): 1-24.
- Sen, Amartya K. (1997). Maximization and the Act of Choice. *Econometrica* 65(4): 745-779.
- Shiller, Robert J., Maxim Boycko and Vladimir Korobov (1991). Popular Attitudes Toward Free Markets: The Soviet Union and the United States Compared. *American Economic Review* 81(3): 385-400.
- Slemrod, Joel and Shlomo Yitzhaki (2002). Tax Avoidance, Evasion, and Administration. In: Alan J. Auerbach and Martin Feldstein (eds). *Handbook of Public Economics*, vol. 3. Amsterdam, London and New York: Elsevier.
- Sugden, Robert (1981). *The Political Economy of Public Choice*. Oxford: Martin Robertson.
- Sugden, Robert (1986). *The Economics of Rights, Cooperation, and Welfare*. Oxford: Blackwell.
- Thaler, Richard (1991). *Quasi-Rational Economics*. New York: Russell Sage.
- Tyler, Tom R. (1997). Procedural Fairness and Compliance with the Law. *Swiss Journal of Economics and Statistics* 133(2): 219-240.
- Tyler, Tom R., Robert J. Boeckmann, Heather J. Smith and Yuen J. Huo (1997). *Social Justice in a Diverse Society*. Boulder, CO: Westview Press.
- Tyran, Jean-Robert and Dirk Engelmann (2002). To Buy or Not to Buy? An Experimental Study of Consumer Boycotts in Retail Markets. University of St.Gallen Working Paper 2002-13.

- Veenhoven, Ruut (1993). *Happiness in Nations: Subjective Appreciation of Life in 56 Nations 1946-1992*. Rotterdam: Erasmus University Press.
- van den Bos, Kees, Jan Bruins, Elske Dronkert and Henk A. M. Wilke (1999). Sometimes Unfair Procedures Have Nice Aspects: On the Psychology of the Fair Process Effect. *Journal of Personality and Social Psychology* 77(2): 324-36.
- von Neumann, John and Oskar Morgenstern (1944). *Theory of Games and Economic Behavior*. Princeton: Princeton University Press.
- Waterman, Alan S. (1993). Two Conceptions of Happiness: Contrasts of Personal Expressiveness (Eudaimonia) and Hedonic Enjoyment. *Journal of Personality and Social Psychology* 64(4): 678-691.
- Weibel, Antoinette and Sandra Rota (2001). Fairness as a Motivator. In: Bruno S. Frey and Margit Osterloh (eds). *Successful Management by Motivation*. Berlin and New York: Springer: 171-188.
- White, R. Winthrop (1959). Motivation Reconsidered: The Concept of Competence. *Psychological Review* 66(5): 297-333.