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Do Workers Enjoy Procedural Utility?

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Abstract: People are likely to obtain utility not only from actual outcomes, but also from the conditions which lead to these outcomes. This paper empirically tests the notion of procedural utility for the context of work relationships. Using a large survey among British workers, we find substantial procedural effects on the utility workers derive from their pay. Utility from pay is not only strongly influenced by economic outcomes (the pay levels workers get for given inputs), but also by the way pay is determined. The findings are robust to a series of alternative explanations.

Keywords: outcome utility, procedural utility, pay procedure, work relationship, pay satisfaction

JEL-codes: D60, D63, J28, J30, M12

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1 INTRODUCTION

People are likely to obtain utility not only from actual outcomes, but also from the conditions which lead to these outcomes. This *procedural utility* is quite a different source of an individual's well-being than instrumental outcomes, such as those included in a traditional utility function in economics. While outcomes are important, the notion that people can have preferences about *how* outcomes are generated points to noninstrumental sources of utility and driving forces behind individual behavior. Procedural utility is likely to be important in many areas and in different forms although it is largely ignored in economic analysis (see Frey, Benz and Stutzer 2003 for a survey). In this paper, we focus on work relationships, and empirically investigate whether workers enjoy procedural utility.

Work relationships are a setting where the existence of procedural utility seems obvious. For example, it is very plausible that workers enjoy some procedural utility from how they are treated by superiors and management, irrespective of the outcomes thereby produced. A dismissal or a promotion decision is likely to be judged differently by workers depending on whether they see the process leading to the decision as acceptable or not. Proponents of 'industrial democracy' in economics or of the 'human relations movement' in management have long been arguing that how workers are treated, e.g. whether they are given a say in decisions concerning the workplace, has some value in itself. It is thus not only the instrumental aspects of work that matter (e.g., the pay workers get for a given work input), but also how these outcomes at work are determined. Although this view has received considerable attention, the underlying assumption that workers gain procedural utility has barely been studied empirically in economics.

In order to identify procedural utility, we focus on a specific, but important, aspect of work life: the utility workers derive from their pay. Utility from pay is well suited to distinguish outcome and process utility, because it is relatively straightforward to define and measure outcome utility in this context. On an individual basis, outcome utility is derived from the pay level a worker gets for a given work input (job carried out, hours worked, overtime, education, tenure, etc.): the higher the pay level ceteris paribus, the higher outcome utility. The relevant variables are regularly collected in labour force surveys and thus allow assessing outcome utility. To identify procedural utility, we test whether workers enjoy utility stemming from the *processes by which pay is determined* over and above outcome utility. We find substantial evidence that workers experience procedural utility from being regularly given the opportunity to express their views on pay issues towards superiors and management.

A crucial question in this context is how utility from pay can be assessed empirically. From a traditional economic view, utility cannot be measured directly, but has to be inferred from observed behaviour. Here, we take a different approach. We measure utility from pay directly by using self reported pay satisfaction measures as a proxy. Although this is not (yet) standard in economics, satisfaction measures are increasingly accepted as useful proxy measures for utility (e.g., for accounts of the discussions on life satisfaction as a proxy for individual well-being, see Frey and Stutzer, 2002c and Oswald, 1997). As reported satisfaction measures are based on individuals‘ self-assessments, they can be biased in several ways. We therefore conduct an extensive sensitivity analysis to take account of such biases and to rule out alternative explanations.

The traditional way to identify procedural utility would be to consider it as a compensating wage differential. If workers value processes, they should be prepared to accept a lower wage, ceteris paribus. However, it is not straightforward to apply the framework of compensating wage differentials to the study of procedural utility. Even if

procedures have the expected direct effects on utility, this is not necessarily reflected in a corresponding wage differential: procedures can also exert indirect and countervailing effects on workers' productivity (e.g. via changes in work motivation). Studying wage differentials, it is difficult to separate the various positive and negative effects of procedural differences that are reflected in a net effect on income. Thus, it seems warranted to take a more direct approach to identify procedural utility by using pay satisfaction as a proxy for the utility workers derive from their compensation.

The paper is organised as follows. Section 2.1 takes a broad look at procedural utility and proposes that three varieties of procedural utility relevant for economics can be distinguished. Section 2.2 introduces measures of reported satisfaction as proxies for utility. Section 2.3 and 2.4 briefly discuss previous work related to procedural utility in work relationships, set out in what respect our study differs from previous investigations and put forward two hypotheses. Section 3 presents the data and the operationalisation of the hypotheses. Section 4 contains the empirical analysis. Section 5 offers conclusions.

2 PROCEDURAL UTILITY IN WORK RELATIONSHIPS

2.1 The idea of procedural utility in economics

Standard economic theory is based on the simplifying assumption that individuals derive utility from instrumental outcomes only. In contrast, procedural utility means that people also value the conditions, which lead to these outcomes. People can have preferences about a multitude of different conditions or procedures. They may range from basic constitutional institutions, like the right to participate in democratic decision making, to the structures of bilateral exchange relationships, or the context in which individual behaviour takes place. We propose to classify the sources of procedural utility into two broad categories which are relevant in economic contexts.

(i) There is procedural utility people get from institutions as such. People have preferences about *how* allocative and redistributive decisions are taken. They may, for example, appreciate the market place for the freedom it provides in individual choice and democracy for the equality it provides in political decision-making. In an empirical application, Frey and Stutzer (2002a) study procedural utility that emerges when individuals are granted the possibility to participate in decision making. They empirically show that people gain procedural utility from having extended political participation rights. Procedural utility, in this case, is mediated through institutions of direct democracy like initiatives and referenda. The utility effects of these institutions thereby seem not to come so much from people's opportunity to impose outcomes closer to their preferences; much more, individuals seem to value the possibility to participate *per se*. Thus, people get utility from living and acting under particular institutions over and above outcomes.

(ii) Procedural utility is involved in the interaction between people. On the one hand, people can get satisfaction from acting in a fair way or by being honest with other people, quite independent of the outcome.[1] On the other hand, people evaluate actions towards them not only by their consequences but also by the intentions behind these actions.[2] An individual is, for example, emotionally affected in a negative way by an action when he or she attributes the actor with a criminal motive rather than a neutral motive.[3] How people perceive a particular treatment,

[1] In the last few years experimental economics has unambiguously shown that people derive utility from behaving fairly. Individuals often choose to follow social norms like fairness or reciprocity, although this leads to inferior economic outcomes for them (see e.g. Fehr and Gächter, 2000 for an overview of the experimental literature).

[2] Economic models of behaviour that include the underlying motivation of people are for example Falk and Fischbacher (2000) and Rabin (1993). In a series of experiments, Falk, Fehr and Fischbacher (2000) find that individuals value how they are treated by other persons. People seem to experience lower utility when they are treated intentionally badly, even if economic outcomes are the same.

[3] Rabin (2002) emphasises the need for an extended utility concept if these aspects of individual interaction beyond narrow outcome oriented self-interest are to be integrated in welfare analysis: "[...] players in games behave systematically differently as a function of previous behaviour by other players.

for example by a member of the public administration or by their superiors at work, is, of course, often also depending on the institutional setting.

Procedures as a source of individual utility cannot easily be integrated into traditional economic theory, even if they are themselves reflected in behaviour. This is because the traditional framework excludes non-instrumental concerns when analysing people's choices.[4] The idea of procedural utility thus goes beyond the narrow consequentialism of standard economics. This makes it vulnerable to the accusation of being tautological: ex post, every situation can be redefined to involve 'procedural goods' in order to explain puzzling behaviour. However, this objection also applies to traditional economics to the extent that every observed change in behaviour is assumed to reflect changes in relative (opportunity) costs or prices (Becker, 1976). In order to be a fruitful concept that makes testable predictions, it is necessary (i) to specify conditions under which procedural utility is expected to be higher (or lower) than otherwise and (ii) to have a proxy measure for utility.

2.2 Measuring utility

With respect to measuring utility, economics has experienced a change in recent years. Utility is increasingly seen as *directly measurable* by using self-reported satisfaction measures as a proxy. Measures of subjective well-being (or happiness) have been successfully applied in economic research e.g. by Clark and Oswald (1994), Di Tella et al. (2001), Easterlin (2001), Frey and Stutzer (2000) and Kahneman et al. (1997) (for surveys see Frey and Stutzer, 2002b,c and Oswald, 1997).[5] The existing state of research suggests that measures of reported satisfaction are a satisfactory empirical

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This shows that people care not only about outcomes, but also how they arrived at those outcomes. The fact that preferences cannot be defined solely on outcomes can be reconciled with preference theory, but requires an expansion of the notion of what enters the utility function" (p. 666).

[4] This is actually done for good reasons; otherwise, the standard expected utility model could not be applied (Harsanyi, 1993).

[5] In labour economics, satisfaction measures were used prominently for the first time by Hamermesh (1977) in a paper on economic determinants of job satisfaction.

approximation to individual utility (Frey and Stutzer, 2002c). It is thus possible to study procedural effects on individual well-being directly, which makes the notion of procedural utility empirically tractable. Here, we propose that self-reported pay satisfaction can serve as an indicator for the utility people derive from their pay.

As subjective survey data are based on individuals' judgements, they are prone to a multitude of systematic and non-systematic biases. Reported satisfaction with job domains may depend on the order of questions, the wording of question, scales applied, actual mood and the selection of information processed. The relevance of these errors, however, depends on the intended usage of the data. Here, we seek to identify the determinants of pay satisfaction. For that purpose, it is neither necessary to assume that reported pay satisfaction is cardinally measurable nor that it is interpersonally comparable. In the latter case, equal intrinsic pay satisfaction would have to translate into equal scores. However, in our study, anchoring is only a problem to the extent that individual anchors are systematically correlated with the determinants of interest in the empirical analysis. If they are random like other mistakes in people's answers (e.g., due to the order of questions, the wording of questions or actual mood) they do not bias the estimation results.

2.3 Related research for work organisations

With respect to theoretical underpinnings, the study of procedural utility can be informed by several strands of literature.

The concept of procedural utility is related to research on *fairness* in economics and in other social sciences. In field, experiment and survey studies, it has been shown that pro-social preferences influence market behaviour (for the labour market, see e.g. Bewley, 1999; Fehr and Schmidt, 2002 and Kahneman, Knetsch and Thaler, 1986). People are for instance willing to bear the costs of taking revenge if they perceive themselves to be treated in an unfair manner. Thereby, perceived fairness can depend strongly on the applied procedures for decision-making. However, in most of the

previous research, concerns for procedural fairness or justice have been seen as almost exclusively instrumental, i.e. people have preferences for fair procedures because they expect desirable outcomes (Thibaut and Walker, 1975).

Theories of procedural fairness, in which an *intrinsic value is attributed to the process itself*, have mostly been advanced by psychologists (see e.g. Lind and Tyler, 1988). Several theories in psychology can provide a psychological underpinning of procedural utility in the work setting and in general. In the *group-value or relational model* of Lind and Tyler (1988), procedural utility emerges because fair procedures build group solidarity and strengthen the members' good standing in a group. Accordingly, people join groups not only for instrumental reasons (attracting economic advantages) but also in order to obtain psychological rewards associated with group affiliation, which are mainly determined by procedural factors. In an extension of the model, the value of procedural justice for workers is tied to intellectual and emotional recognition by superiors (Kim and Mauborgne, 1998). In *self-determination theory* the latter ideas are captured in the notions of relatedness and competence. The theory says that participation and autonomy in decision-making provide procedural goods that serve innate needs of competence, autonomy and relatedness and thus contribute to individual well-being, irrespective of instrumental outcomes (Deci and Ryan, 2000).

In sum, psychological theories suggest that procedures are evaluated by the relational information that they 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 (e.g. Lane, 1988; Tyler et al., 1997; Tyler and Blader, 2000). This allows to derive hypotheses under which conditions procedural utility is expected to be higher (lower). Previous research on work organisations has thereby not so much focused on objective differences between procedures, but has mainly relied on subjective fairness evaluations of the procedures applied e.g. at a workplace. Justice perceptions in the work realm have so far been

linked to work performance, organisational citizenship behaviour, counterproductive work behaviour, withdrawal behaviour and organisational commitment (see recent contributions in Greenberg and Cropanzano, 2001 and Cohen-Charash and Spector, 2001 for a meta-analysis). Procedural utility can be seen as the attitudinal counterpart to these behavioural responses that is reflected – loosely speaking – in workers' 'satisfaction'.

2.4 An application: procedural utility from pay procedures

In this study, we try to identify procedural utility directly by studying the effects of pay procedures on utility from pay. Pay is a well suited subject of study, because it constitutes an important outcome for workers with respect to their job. In a purely instrumental view, pay is the only outcome of interest, because every aspect of a job or work relation is evaluated with respect to the pay it generates for an employee. Moreover, the pay level a worker gets for a given work input is commonly understood as the source of outcome utility in this context. It is essential that outcome utility is properly controlled for when assessing procedural effects. It has to be ruled out that procedures are only valued by workers because they generate better outcomes for them.

Pay procedures determine how firms set, adjust, administer and communicate individual employees' compensation for their engagement in the job. They reflect an important aspect of a firm's 'constitution' and employees may gain procedural utility from these institutions that form the pay process as such. Moreover, pay procedures form the interaction between superiors and subordinates in questions of compensation. They may have a substantial effect on how employees feel that they are treated. A major characteristic of procedures that are perceived as fair is the admission of voice to both sides (see section 2.3). Differences in voice convey important relational information, which is expected to result in differences in procedural utility. Thus, we advance Hypothesis I:

The more frequently employees have the possibility of voice in the pay process the more procedural utility they gain over and above the outcome utility from their compensation.

In hypothesis I, the determinants of outcome and process utility are assumed to be independent. However, evidence suggests that there are interesting interactions between process judgements and the perceived favourability of outcomes (Brockner and Wiesenfeld, 1996). In particular, procedures seem to be especially important when an outcome is not personally beneficial; in contrast, when outcomes are relatively good, people are less concerned with the quality of procedures. Thus, procedural utility can be expected to be higher for relatively bad outcomes, ceteris paribus. Following this basic idea of interaction, we formulate hypothesis II:

The less favourable the outcome of the pay process, the more the possibility of voice in the pay process is contributing to procedural utility.

In order to test these hypotheses empirically, we use satisfaction with pay as a domain specific proxy measure for utility. Pay satisfaction is a very well established measure for employees' evaluation of their compensation (e.g. Heneman and Schawb, 1985; Mulvey et al., 1992). There is also substantial previous research that has studied the effects of participation on pay satisfaction (starting with Lawler 1976). However, the observed relationships between work place institutions and pay satisfaction have hardly been analysed on systematic differences between instrumental and non-instrumental aspects. The studies most closely related to ours (Martin and Bennett, 1996; Tremblay et al., 2000) have studied how reported perceived fairness of pay procedures correlates with pay satisfaction. In contrast to this work, the present study does not refer to proxy measures of perceived fairness. Instead, institutional variation in pay procedures as such is analysed empirically. Compared to most of the previous research on pay satisfaction or on procedural justice, we can rely on a large and representative data set. Moreover,

the survey design allows for the rigorous controlling of confounding outcome effects and testing of various alternative explanations.

3 DATA

The empirical analysis is based on the 1998 Workplace Employee Relations Survey (WERS), which can be considered to be the most authoritative source of information on employee relations in Great Britain. In the WERS, a nationally representative sample of over 28,000 British employees working in 2,200 different firms participated in a anonymous self-completion survey about their workplace.[6] Apart from being a large scale, representative survey, the WERS is especially suited for the empirical analysis because it contains some unique questions that allow identifying process and outcome utility at the individual level.

As the dependent variable, we use pay satisfaction as a proxy for the utility workers derive from their compensation. Whereas other large worker surveys only assess general work satisfaction (if at all), the WERS assesses satisfaction separately in different dimensions. With respect to compensation, workers had to answer the following question: "How satisfied are you with the following aspects of your job? [...] The amount of pay you receive." Answers were coded on a five point scale ranging from "1=very satisfied", "2=satisfied", "3=neither satisfied nor dissatisfied", "4=dissatisfied" to "5=very dissatisfied". We recode answers so that the highest satisfaction score of 5 means "very satisfied" and the lowest score of 1 means "very dissatisfied".[7] A look at descriptive statistics shows that British workers are only moderately satisfied with their pay on average (an overview of descriptive statistics of all variables is given in Table A in the Appendix). The people included in our final sample indicate a mean pay

[6] As there is a considerable number of missing values, we are left with a final data set of 22,622 employees working in 1,774 different firms for which all required information is available.

[7] The other areas where satisfaction was assessed included "the amount of influence you have over your job", "the sense of achievement you get from your work" and "the respect you get from supervisors". These dimensions were coded equally and are used later in the sensitivity analysis section.

satisfaction value of 2.85, which is just below the category "neither satisfied nor dissatisfied". There is substantial variation in pay satisfaction (st.d. = 1.10), indicating that British workers differ considerably in the utility they derive from their pay. Table A in the Appendix includes descriptive statistics for the pay satisfaction variable and most other variables used in the empirical analysis.

The main aspect of our empirical investigation is to disentangle outcome and process effects on pay satisfaction. Thereby, a worker's salary – while controlling for a wide range of work inputs - is applied as determinant of outcome utility. The higher a worker's wage is for the same work input, the higher outcome utility is expected to be. In the WERS, workers' pay levels are assessed using twelve income categories.[8] As these categories are relatively broad, we apply two different approaches to identify outcome utility. First, we compute an hourly wage rate for each worker by taking the mean wage of the wage category a worker is in and dividing it by the regular and overtime hours a worker regularly works.[9] The resulting hourly wage rate variable contains 1320 different categories instead of 13. As a second strategy, the twelve wage categories in the WERS are included directly as dummy variables (while correcting for hours and overtime hours worked). A categorised variable is very flexible in order to capture nonlinearities in the relationship between wage and outcome utility. Both earnings variables will only adequately reflect outcome utility, however, if work inputs are held constant. The WERS contains information on the following work

[8] The exact question is "How much do you get paid for your job here, before tax and other deductions are taken out?" The categories are "less than £2,600 per year", "£2,601-£4,160 per year", "£4,161-£7,280 per year", "£7,281-£9,630 per year", "£9,631-£11,440 per year", "£11,441-£13,520 per year", "£13,521-£16,120 per year", "£16,121-£18,720 per year", "£18,721-£22,360 per year", "£22,361-£28,080 per year", "£28,081-£35,360 per year", "£35,361 or more per year".

[9] Specifically, we divided average weekly earnings by the average hours worked each week. Thereby, average overtime hours worked reported by the workers were weighted by a factor 1.5, but only if workers indicated that they were paid extra for the overtime hours (in Britain, paid overtime hours have to be compensated by a factor of 1.5 of normal hourly wages). If workers indicated that they were sometimes compensated for overtime hours and sometimes could take off later, we weighted overtime hours by a factor 1.25. For the top wage category a mean wage of £765/week (£39,780/year) is assumed. The resulting variable has a mean of £7.64 (st.d. £6.42), and its natural logarithm a mean of 1.89 (st.d. 0.50).

characteristics: tenure (5 categories), type of contract (3 categories), age (7 categories), highest educational qualification (6 categories), job carried out (9 categories), industry (12 categories), establishment size (5 categories), marital status (4 categories), race (9 categories), gender and the existence of a union at the establishment. These variables are included as control variables to correct outcome utility estimates for differences in work inputs between workers.

In order to identify *procedural utility*, the WERS offers a unique variable that captures specifically how pay is handled at a workplace. Workers were asked: “How often are you and others working here asked by managers about your views on the following: […] Pay issues?”[10] Answers can be grouped into two categories: "frequently" and "not frequently".[11] The resulting dummy variable takes on the value 1 when workers are asked frequently about their views on pay issues, and 0 when this is not the case. The variable is well suited to study procedural utility, because it captures two conditions, which we have connected to procedural utility. On the one hand, the variable contains the notion of participation possibilities. The more workers are given the possibility to express their views on pay issues, the higher is their potential say in decisions concerning this important aspect of work. On the other hand, the frequency of being asked on pay issues gives an indication of how workers are treated by their superiors and management with respect to pay determination. So workers may gain procedural utility from the institution as such as well as from the quality of interaction. The descriptive statistics show that on average, British workers are not given much opportunities for voice. The mean value in the sample is 0.058, indicating that about 6%

[10] There were four other areas for which workers had to state how often they were asked by management for their views: “Future plans for the workplace“, “Staffing issues“, “Changes to work practices“, “Health and safety at work“. These variables are used in the sensitivity analysis section.

[11] In the original survey, answers were coded on a four point scale including “frequently”, “sometimes”, “hardly ever” and “never”. However, the research team of the WERS98 recommends that the categories "sometimes", "hardly ever" and "never" are taken together into a single category "not frequently", because ordering of these three codes was incorrect on the printed questionnaire. The categories "frequently" and "not frequently" contain useful information according to the validation undertaken by the research team (Cully et al. 1999, p. 165).

of all workers are frequently consulted on pay issues (see also footnote 11). While this is a relatively small proportion of employees that is strongly involved, the variable seems to contain useful information.[12] For example, the answers on pay consultation are correlated more for employees working in the same firm than for employees working in different firms.[13] This indicates that the variable is reflecting to some extent a firm's pay determination policy as well as procedural aspects in individual employee-supervisor relationships.

In our view, the data and variables used have several advantages compared to related research on work relationships. First, the WERS is to our knowledge the only large scale, representative employee survey that asks workers in such a precise and specific way to give information on the procedures surrounding pay determination. This is important, because most previous research has been done with nonrepresentative and rather small samples of employees working in a small number of firms (for a survey see Tyler and Blader 2000). While this research has greatly advanced the understanding of the *detailed* psychological mechanisms that lead to procedural fairness perceptions, it is important whether procedural utility is a *representative* phenomenon relevant for a broad class of workers, irrespective of job, industry, or the size of the firm they work in. Second, the process variable is captured 'plain', i.e. without an assessment of perceived fairness. This reduces biases due to reverse causation.[14] Third, the survey design allows for the rigorous controlling of outcome utility because, along with wage rates, it also contains essential work input variables.

[12] Moreover, there are other intensively researched groups with a specific labour market status like, e.g., unemployed or self-employed people that make for a similar proportion of the population.

[13] The standard deviation of answers by employees working in the same firm is on average 0.17, whereas the standard deviation of answers by employess not working in the same firm is 0.23 ($p<0.001$).

[14] The possibility of reverse causation is discussed and empirically tested in section 4.3.

4 EMPIRICAL ANALYSIS

4.1 Basic regression for procedural utility

In table 1, we present the results for the 'basic' regression that includes all the main explanatory and control variables presented in the last section. As pay satisfaction is ordinally scaled, a weighted ordered probit model is used in order to exploit the ranking information contained in the dependent variable. The weighting variable that is applied allows representative results on the subject level for Britain. Moreover, the estimated standard errors are adjusted to clustering of observations at the firm level. This is necessary because firms have been the primary sampling units and thus observations may not be independent within firms. The workers in our data set work in 1,774 different firms.

The results in table 1 indicate that there are significant outcome and procedural effects on the utility workers derive from their pay. The results can be interpreted as follows: A positive coefficient indicates that the probability of being more satisfied with pay increases, compared to any given level. The marginal effect indicates the change of the probability that an individual is more satisfied with pay by one point when the independent variable increases by one unit. Alternatively, it can be interpreted as an increase in the fraction of persons that derive a certain level of utility from pay. In the case of dummy variables, the marginal effect is evaluated with respect to the reference group. The marginal effects provided indicate the average probability change over all the five scores of the pay satisfaction variable.

TABLE 1 ABOUT HERE

As a main result, we find that workers report higher satisfaction with pay when they are asked on pay issues by their superiors, ceteris paribus. If they are asked frequently

rather than sometimes, hardly ever or never, i.e. the dummy variable ‘frequency of being asked on pay issues’ is equal to one, the probability of a person being one point more satisfied with pay increases by 8.4 percentage points. The effect is sizeable and statistically highly significant, indicating that workers who are frequently given the opportunity to express their views on pay issues towards superiors and management are much more likely to be satisfied with pay than workers who do not have this opportunity. This evidence lends support to hypothesis I that workers gain procedural utility from having the possibility of voice in pay issues.

The procedural effect exists over and above an outcome effect. The outcome factor is itself a statistically highly significant predictor of pay satisfaction. A shift in the log hourly wage by one standard deviation (0.5 points) changes a worker’s pay satisfaction by 5.5 percentage points; in other words, a one st.d. higher pay level (approx. an increase of £3.4 from £5.2 to £8.6) leads ceteris paribus to a 5.5 percent higher outcome utility. This evidence supports the traditional economic view that outcomes provide utility. However, the size of the effect is relatively small.

The estimation results furthermore indicate that it is important to include control variables when assessing procedural and outcome utility in work relationships. Most of the work input and socio-demographic variables exert statistically significant effects on pay satisfaction, and the estimated signs can be plausibly interpreted. For example, it seems natural that workers with higher tenure are less satisfied with their pay given that they get the same pay as otherwise similar colleagues with lower tenure. Along the same lines, the negative effects estimated for higher age and higher education, and the positive effects for temporary workers can be explained. Satisfaction with pay is estimated to be u-shaped in age, indicating that workers are least satisfied with their pay ceteris paribus at ages 25-39. Satisfaction is more or less linearly decreasing in education if wage levels and other work inputs are held constant. An interpretation of this may be that income aspirations are increasing in education and that the negative

effects reflect the discrepancy between actual pay and aspiration level (Stutzer 2003). Temporary workers are found to be more satisfied with their pay ceteris paribus than workers with permanent contracts. We find no correlation between union membership and pay satisfaction.[15] Whereas these previous results are plausible, it seems difficult to explain why some profession groups are less satisfied with their pay ceteris paribus than the higher ranking reference group of managers, and why workers belonging to some non-white races are less satisfied than white workers ceteris paribus (i.e. getting the same pay level). Especially in the latter case, there might be idiosyncratic reasons at work why workers are less satisfied with their pay, e.g. cultural differences.

4.2 Absolute pay, relative pay, and the interaction between procedural utility and outcome favourability

In the basic regression, outcome utility is measured using the variable 'hourly wage' while controlling for work inputs. One might argue that this variable does not correctly measure outcome utility, because individuals might only care for the *absolute* level of their pay and disregard work inputs. Indeed, the outcome variable applied can be interpreted as a measure of *relative income*: as the regression controls for input characteristics, an employee's wage level is already indicating her income position relative to similar workers. In order to investigate whether such differences in the definition of outcome utility affect the results, we first estimate a regression that only includes the absolute hourly wage level and the procedural variable, while disregarding all other work input variables that are included in the basic regression. The results are presented in panel A in table 2. They show that the coefficient of the procedural variable is basically unchanged, while also an effect for outcome utility from absolute wage levels is found. Second, a wage function is estimated that includes all the factors included in table 1 (except the procedural variable). From the wage function, we

[15] One might think that union membership contributes to procedural utility because unions bargain over different aspects of members' jobs. However, this involvement is very indirect compared to the aspects emphasized in this paper.

calculate for each worker his or her positive or negative wage premium relative to equally characterised workers. Panel B of table 2 shows the estimation results when individual wage differentials are included in the regression, together with the absolute wage level and the procedural factor. The results indicate that relative wages exert a positive effect on workers pay satisfaction, and that the absolute wage levels become relatively unimportant. This corroborates previous findings that relative income matters for satisfaction on the job (Clark and Oswald, 1996). Moreover, the procedural effect is only minimally affected by this change in specification.

In hypothesis II, it is argued that workers' experience of procedural utility cannot be considered independent of the outcome of the process: The characteristics of the process matter more in case of an unfavourable outcome. This proposition can be empirically tested with an interaction term that combines the procedural factor with the outcome variable ([frequency of being asked on pay issues]*[relative wage level]). The results are presented in panel C in table 2. We find that the procedural factor is not more important when relative outcomes are unfavourable. If anything, rather the opposite might be the case. The procedural factor might contribute more to pay satisfaction when the wage outcome is relatively favourable. Thus the empirical evidence does not support hypothesis II. An explanation could be that processes and outcomes interact in a more complex way than assumed in hypothesis II. For example, while a procedure that is perceived as fair may be more valuable as such when the outcome is not beneficial for oneself, it may also reduce self-esteem more because an unfavourable outcome is more attributed to oneself (Schroth and Shah, 2000).

TABLE 2 ABOUT HERE

4.3 Sensitivity Analysis

The large and representative survey at hand offers a promising possibility to study outcome and process utility. It provides measures for workers involvement in pay issues, their wage and their satisfaction with pay. Still, the variables are based on *self-reported* measures. Thus, it is possible that workers give systematically biased answers, or that the variables measure something else than they are actually intended to measure. In this subsection, such potential errors in measurement are explored in some detail. The results of the sensitivity analysis are summarised in table 3. It is reported how the coefficient on the procedural factor is changed when alternative specifications are estimated. Panel A in table 3 restates the results for the basic equation in table 1.

First, the procedural variable 'frequency of being asked on pay issues' might not precisely measure procedures surrounding pay determination if workers have the *general relationships between managers and workers* in mind when answering the question. If the atmosphere at work is good, workers can be expected to be more satisfied with a given pay level, but they might also be inclined to overstate the frequency of being asked on pay issues just because general work relations are good. Then, the estimated effect for the procedural factor would not necessarily reflect procedural utility with respect to pay, but could just reflect better outcomes in other work areas associated with good work relationships. To address this problem, a specification is estimated that includes a variable for the general quality of work relationships (and otherwise the same variables as in the basic regression). Workers were asked: "In general, how would you describe the relations between managers and employees here?" Answers were given on a five point scale ranging from 'very good' (5) to 'very poor' (1). The results for the extended specification B in table 3 indicate that indeed part of the process effect in the estimation is due to such an omitted factor of general work quality.[16] Once good general relationships between workers and managers

[16] As the variable "relations between managers and employees" is an ordinally coded variable, it should be entered as a set of dummy variables for each response category in the regression. For reasons of space,

are accounted for, the coefficient on the procedural variable is lowered by about on third of the basic estimate. Nevertheless, it remains considerable in size and statistically highly significant. General work relationships are in itself an important predictor of pay satisfaction.

TABLE 3 ABOUT HERE

Second, the procedural variable might not measure workers involvement regarding pay issues, but could just reflect workers involvement in other issues concerning their workplace. As the interest is in the procedures with respect to pay, this would be a serious mismeasurement. The survey design allows controlling for this alternative explanation because in the WERS, workers were asked about their involvement in four important additional work dimensions. Apart from 'pay issues', workers had to answer the question "How often are you and others working here asked by managers about your views on the following: [...] future plans for the workplace, staffing issues, changes to work practices and health and safety at work?"[17] These four variables are included in specification C. The results show that the estimate for procedural utility is thereby changed in the expected direction. The coefficient is lowered by an additional third, being the involvement in the areas 'change to work practices' and 'health and safety' the variables that capture part of the basic procedural utility estimate. Note, however, that the procedural effect remains statistically highly significant and sizeable. This is remarkable, because in specification C the procedural variable is very likely to capture nothing else than the specific effects of being asked on pay issues. This alone seems to

however, the variable is treated as a cardinal variable; this does not change the results of the sensitivity tests at all. The same procedure is chosen for other ordinal variables used later in the sensitivity analysis.

[17]The dummy variables take on the value 1 for the response category "frequently" and the value 0 for the response category "not frequently".

have a considerable effect on pay satisfaction, regardless of any other involvement at the workplace or general quality of work relationships.

Third, even controlling for the aforementioned measurement issues, there might still be a bias resulting from omitted characteristics that influence the dependent variable 'pay satisfaction' as well as the procedural factor. It could be that people who are by nature more satisfied with any aspect of their work are inclined to rate also the frequency of being asked on pay issues more positively. Alternatively, there could be reverse causality: people who are generally satisfied with their work are simply more frequently asked by their superiors on pay issues, e.g. because they know that these people are less likely to complain. We address these problems by including three additional variables in specification D which measure workers' satisfaction with respect to other work aspects.[18] These are satisfaction with 'the amount of influence you have over your job', 'the sense of achievement you get from your work' and 'the respect you get from supervisors'. Including these variables should lower the estimate for procedural utility to zero if an omitted personal characteristics bias or reverse causality is present in the data. However, the effect for procedural utility is hardly changed. The three additional satisfaction measures are highly correlated with the dependent variable pay satisfaction, but they seem to capture other aspects determining utility from pay.[19] Thus, we are led to conclude that the procedural factor indeed identifies procedural utility of being asked about pay issues in workers' reported satisfaction with pay.

[18] With the robustness check in panel D another claim can be addressed. It might be argued that our residual approach lacks efficient control of unobservable outcomes that are correlated with consultation over pay and are reflected in higher satisfaction. Accordingly, the correlation between our procedural factor and pay satisfaction shoud disappear once we control for satisfaction in these other domains.

[19] Note that the WERS98 does not include a question on overall job satisfaction that could be included in the regression. However, including such a variable would not seem appropriate. If an equilibrium approach holds with respect to job satisfaction (i.e., any satisfaction in a specific area of a job, like pay, is compensated elsewhere in the job, such that in equilibrium, job satisfaction is equalized across workers cet. par.), then our procedural effect would by necessity be lowered to zero when an overall job satisfaction variable is included in the regression. In contrast, the satisfaction measures for other work aspects used can be expected to sufficiently capture unobserved individual characteristics or reverse causality.

Lastly, we conduct some further sensitivity analysis by using a different approach of measuring outcome utility. In panel E in table 3, instead of the hourly wages, the twelve wage categories of the WERS are included as dummy variables, while controlling for average weekly hours and paid and unpaid overtime hours worked. The results indicate that outcome utility is a robust phenomenon; moreover, it is strictly increasing in wage rates, which further indicates that outcome utility is likely to be assessed correctly. The estimate on the procedural utility variable is not affected by this change in specification.

5 CONCLUSIONS

The concept of procedural utility extends the outcome-oriented approach to human well-being in economics. It proposes that people have preferences about *how* outcomes are generated. These preferences about procedures yield themselves procedural utility. In this procedural approach, people's concerns about the conditions under which outcomes are generated are *not* instrumental in a sense that people expect beneficial outcomes.

In this paper, organisational practices at the workplace are considered a possible source of procedural utility. Employees may have a preference for institutions that give them a say in pay issues. They may appreciate the possibility of voice as such as well as the quality of treatment and communication with superiors it imposes. The proponents of 'industrial democracy' as well as the 'human relations movement' have long been arguing that how workers are treated, e.g. whether they are given autonomy and participation possibilities in decisions concerning their workplace, has some value in itself.

The results of our empirical analysis are consistent with this notion of procedural utility. For a representative sample of more than 20,000 British workers, we find that being asked on pay issues contributes to workers' well-being measured by their satisfaction with pay. This effect holds over and above the effects of employees' wage levels and

work inputs on pay satisfaction. The effect is also robust to powerful alternative explanations. In the most conservative estimation we still find a substantial procedural utility effect. If an employee is ‘frequently’ asked on pay issues rather than ‘not frequently’ her wage has to be increased by approximately 30 percent in order to keep her pay satisfaction constant.

We do *not* find that procedural utility is restricted to employees with an unfavourable outcome, i.e. a relatively low wage. This evidence thus contradicts the cynical view that procedural utility is merely used instrumentally by employers to offset poor compensation. Moreover, the finding makes it difficult to reinterpret procedural utility as false consciousness, i.e. that "exploited" workers would wrongly perceive their "objectively" bad working conditions as good because they have some say in pay determination.

While the study of pay satisfaction is not the prime goal of the paper, the empirical findings may also contribute to its understanding. It is shown that organisational practices have a robust effect on pay satisfaction. Pay satisfaction may be a goal in itself as it contributes to people’s well-being. Moreover, the relevance of pay satisfaction for pro-social organisational behaviour is well documented.

Overall, the concept of procedural utility contributes to a better understanding of what individuals value. We submit that individuals gain utility from procedures over and above the outcome that is thereby generated. In particular for work relationships, it is shown that employees’ derive substantial utility from having a say in pay procedures.

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Table 1: Procedural Utility from Pay Procedures

Dependent variable: pay satisfaction

Variable	Weighted ordered probit Std. err. adjusted to clustering at the firm level		
	Coefficient	z-value	Marginal effect (average for all scores)
(1) Procedural factor			
Frequency of being asked on pay issues	0.540**	11.16	0.084
(2) Outcome factor			
Log(hourly wage)	0.715**	16.66	0.110
(3) Variables controlling for work inputs			
Tenure			
less than 1 year		Reference group	
1 to less than 2 years	-0.128**	-3.88	-0.019
2 to less than 5 years	-0.152**	-4.40	-0.024
5 to less than 10 years	-0.202**	-5.82	-0.032
more than 10 years	-0.315**	-8.90	-0.049
Age			
less than 20		Reference group	
20-24	-0.262**	-3.89	-0.041
25-29	-0.344**	-5.17	-0.054
30-39	-0.314**	-4.83	-0.049
40-49	-0.259**	-3.88	-0.040
50-59	-0.266**	-3.85	-0.042
60 or more	0.086	1.05	0.013
Type of contract			
permanent		Reference group	
temporary	0.143**	2.56	0.022
fixed-term	0.032	0.57	0.005
Education			
CSE or equivalent		Reference group	
O level or equivalent	-0.085*	-2.18	0.013
A level or equivalent	-0.163**	-4.30	0.026
Degree or equivalent	-0.266**	-5.69	0.042
Postgraduate degree or equivalent	-0.267**	-4.73	0.042
No of the education levels mentioned	0.002	0.06	0.000
Job carried out			
Manager & senior administrator		Reference group	
Professional	-0.271**	-5.94	0.043
Associate professional & technical	-0.311**	-6.42	0.049
Clerical & secretarial	-0.214**	-4.65	0.033
Craft & skilled service	-0.380**	-6.93	0.060
Personal & protective service	-0.128*	-2.12	0.020
Sales	0.029	0.47	0.005
Operative & assembly	-0.183**	-2.63	0.029
Other occupation	-0.015	0.24	0.002

No union at workplace		Reference group	
Union at workplace	0.003	0.12	0.001
Industry			
Manufacturing		Reference group	
Electricity, gas and water	0.234**	3.68	0.036
Construction	-0.024	-0.42	-0.004
Wholesale and retail	0.007	0.15	0.001
Hotels and restaurants	-0.050	-0.66	-0.008
Transport and communication	-0.216**	-3.81	-0.034
Financial services	-0.029	-0.48	-0.005
Other business services	-0.136*	-2.50	-0.021
Public administration	-0.174**	-2.89	-0.027
Education	-0.143**	-2.66	-0.022
Health	-0.229**	-3.61	-0.036
Other community services	-0.218**	-3.47	-0.034
Establishment size			
Less than 25 employees		Reference group	
25-49 employees	-0.060	-1.19	-0.009
50-99 employees	-0.047	-0.93	-0.007
100-199 employees	-0.039	-0.75	0.006
200-499 employees	-0.089(*)	-1.68	-0.014
500 or more employees	-0.010	-0.17	-0.002
(4) Socio-demographic variables			
Male		Reference group	
Female	0.322**	11.96	0.050
Marital Status			
Single		Reference group	
Living with spouse or partner	0.051	0.53	0.008
Divorced/separated	-0.039	-0.79	-0.006
Widowed	0.011	0.38	0.002
Race			
White		Reference group	
Black Caribbean	-0.365*	-2.31	-0.058
Black African	-0.228	-1.53	-0.036
Black other	-0.507**	-2.71	-0.080
Indian	-0.181	-1.65	-0.028
Pakistani	0.116	0.78	0.018
Bangladeshi	-0.306	-1.54	-0.048
Chinese	-0.252	-1.01	-0.040
Other ethnic group	-0.104	-1.19	-0.016
Observations	22,623		
Number of firms (sampling units)	1,774		
F (56, 1718)	23.27**		
Log likelihood	-31135.522		
Pseudo R^2	0.04		

Notes: Pay satisfaction is measured on a five point scale. White estimator for variance. Significance levels: (*) 0.05 < p < 0.10, * 0.01 < p < 0.05, ** p < 0.01.
Data source: WERS 1998.

Table 2: Absolute Pay, Relative Pay, and the Interaction between Procedural Utility and Outcome Favourability

Dependent variable: pay satisfaction

	Weighted ordered probit Std. err. adjusted to clustering at the firm level		
Variable	A	B	C
Procedural factor			
Frequency of being asked on pay issues	0.589** (0.046)	0.613** (0.046)	0.603** (0.046)
Outcome factors			
Absolute Pay Level (Log(hourly wage))	0.412** (0.028)	0.137** (0.035)	0.136** (0.035)
Relative Pay Level (Residuals from a wage regression)		0.556** (0.053)	0.545** (0.054)
Interaction between process and outcome			
Procedural factor * Relative Pay Level			0.221 (0.141)
No. of observations	22,622	22,622	22,622
Log likelihood	-31952.282	-31721.735	-31718.622

Notes: Standard errors are in parentheses. Significance levels: * $0.01 < p < 0.05$, ** $p < 0.01$.
Data source: WERS 1998.

Table 3: Sensitivity Analysis

Dependent variable: pay satisfaction

	Weighted ordered probit Std. err. adjusted to clustering at the firm level				
Variable	A	B	C	D	E
Procedural factor					
Frequency of being asked on pay	0.540**	0.378**	0.236**	0.231**	0.220**
issues	(0.048)	(0.051)	(0.054)	(0.053)	(0.053)
Outcome factor					
Log(hourly wage)	0.715**	0.717**	0.725**	0.745**	
	(0.043)	(0.041)	(0.042)	(0.045)	
Quality of relations between managers		0.330**	0.315**	0.141**	0.141**
and employees		(0.011)	(0.011)	(0.013)	(0.013)
Involvement in other work areas					
Future plans for workplace			0.021	-0.048	-0.043
			(0.042)	(0.043)	(0.042)
Staffing issues			0.056	0.054	0.058
			(0.053)	(0.050)	(0.049)
Changes to work practices			0.063	0.018	0.019
			(0.045)	(0.044)	(0.042)
Health and safety at work			0.105**	0.056*	0.052(*)
			(0.027)	(0.027)	(0.028)
Satisfaction with other aspects of job					
Amount of influence over job				0.179**	0.177**
				(0.015)	(0.015)
Sense of achievement				0.129**	0.133**
				(0.013)	(0.013)
Respect from supervisors				0.140**	0.137**
				(0.013)	(0.014)
Wage categories					
less than £2,600 per year					Ref. group
£2,601-£4,160 per year					0.102
£4,161-£7,280 per year					0.266**
£7,281-£9,630 per year					0.294**
£9,631-£11,440 per year					0.395**
£11,441-£13,520 per year					0.607**
£13,521-£16,120 per year					0.794**
£16,121-£18,720 per year					1.006**
£18,721-£22,360 per year					1.292**
£22,361-£28,080 per year					1.434**
£28,081-£35,360 per year					1.721**
£35,361 or more per year					2.145**
Regular weekly hours worked					-0.024**
Unpaid weekly overtime hours worked					-0.029**
Paid weekly overtime hours worked					-0.018**

Control variables for work inputs and socio-demographic characteristics			Yes		
No. of observations	22,622	22,622	22,353	21,925	21,925
Log likelihood	-31135.522	-30107.018	-29695.750	-28282.346	-27033.526

Notes: Standard errors are in parentheses. Regressions are weighted ordered probit. They include the same control variables as in table 1. Significance levels: * $0.01 < p < 0.05$, ** $p < 0.01$.
Data source: WERS 1998.

Table A: Descriptive Statistics

Variable	Sample mean or proportion in sample	Std. dev.
Satisfaction with pay	2.849	1.101
Very dissatisfied	0.124	-
Dissatisfied	0.287	-
Neither satisfied nor dissatisfied	0.236	-
Satisfied	0.320	-
Very satisfied	0.033	-
Frequency of being asked on pay issues	0.058	0.233
Log(hourly wage)	1.899	0.500
Tenure		
less than 1 year	0.150	-
1 to less than 2 years	0.122	-
2 to less than 5 years	0.233	-
5 to less than 10 years	0.226	-
more than 10 years	0.265	-
Type of contract		
permament	0.935	-
temporary	0.033	-
fixed-term	0.030	-
Education		
CSE or equivalent	0.105	-
O level or equivalent	0.260	-
A level or equivalent	0.162	-
Degree or equivalent	0.198	-
Postgraduate degree or equivalent	0.070	-
No of the education levels mentioned	0.203	-
Job carried out		
Manager & senior administrator	0.115	-
Professional	0.176	-
Associate professional & technical	0.106	-
Clerical & secretarial	0.209	-
Craft & skilled service	0.082	-
Personal & protective service	0.066	-
Sales	0.072	-
Operative & assembly	0.086	-
Other occupation	0.089	-
Union at workplace	0.579	-
Female	0.487	-

Note: Number of observations is 22,622.
Data source: WERS 1998.