BEING INDEPENDENT IS A GREAT THING: SUBJECTIVE EVALUATIONS OF SELF-EMPLOYMENT AND HIERARCHY

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Abstract

One can be independent, or subject to decisions made by others. This paper empirically tests whether individuals attach an intrinsic value to the institutional difference between independence and hierarchy. Taking self-employment as an important case of independence, it is shown that the self-employed derive more utility from their work than people employed by an organization, irrespective of income gained or hours worked. This is evidence for procedural utility: people do not only value outcomes, but also the conditions and processes leading to these outcomes.

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1. Self-Employment Provides Procedural Utility

The economic research on happiness has identified the major determinants of self-reported subjective well-being or happiness. Among the many factors systematically influencing it, employment stands out.[1] Persons who are unemployed are much less happy than other persons, even when other influences such as lower income are controlled for. Being employed seems to be a value over and above the income it generates.

This paper argues that there is another, so far neglected, but also very important aspect linking happiness and employment: self-employment provides "procedural utility". Procedural utility means that people not only value outcomes, but also the conditions and processes leading to outcomes. Individuals derive utility from being self-employed because it gives them a higher measure of self-determination and freedom. In contrast, persons in dependent employment have to obey orders given by their superiors. Independence and hierarchy are fundamentally different institutional processes, and individuals may value independence as such. Clearly, such procedural utility differs from outcome utility[2] which in the case of work relates in particular to income and working hours. As around 10 percent of all individuals gainfully employed in Western countries are self-employed, a substantial share of workers is affected.

We claim that procedural utility is a useful concept to analyse the labor market and provide strong empirical evidence of its existence and size for self-employed persons. While we believe that it is an important and in economics so far disregarded phenomenon, this does not mean that (self-)employment would not provide any outcome utility. Indeed, we empirically demonstrate that outcome utility is provided positively by income, and negatively by working hours.

This paper wants to show that procedural utility plays a relevant and independent role. For the three countries of our study, Germany, the United Kingdom and Switzerland, self-employed people show higher job satisfaction (our proxy measure for utility from work). The raw difference is smallest in the case of West Germany (0.21 index points on a job satisfaction scale from 0-10) and reaches a similar magnitude in Britain (0.21 index points on a job satisfaction scale from 1-7) and Switzerland (0.41 index points on a job satisfaction scale from 0-10). These differences, however, might reflect a multitude of characteristics that distinguish self-employed people from employed people. Accounting for outcome aspects of

[1] The work by Clark and Oswald (1994), Winkelmann and Winkelmann (1998), Clark, Georgellis and Sanfey (2001) and Clark (2002) is fundamental.
[2] See, more fully, the introductory survey by Frey, Benz and Stutzer (2002).

work is therefore essential to assess the procedural differences in satisfaction correctly. For example, it could be that self-employed people work in less stressful jobs and industries, which makes them more satisfied with their jobs. On the other hand, it is known that the self-employed tend to earn less and work more than similar employed people (Hamilton 2000). This would lead to an underestimation of procedural utility gained from being self-employed if instrumental aspects of work are not controlled for. The multivariate econometric regressions presented in this paper are consistent with the hypothesis that the self-employed are more satisfied with their jobs than employees, even when instrumental aspects of work are controlled for. For all three countries, substantial and highly significant effects are found. The results indicate that self-employed persons do not reap more utility from their work so much because the outcomes are different. There are non-instrumental reasons at work that make the self-employed happier with their jobs.

We try to look carefully at whether these results are robust. First, it is tested whether the utility differences between the self-employed and other workers are due to selection effects. It may be that happier persons choose to be self-employed. But we can empirically show that this is unlikely to be the case. In order to further bolster our claim that procedural utility matters in employment, we advance the related hypothesis that satisfaction is (ceteris paribus) the lower the larger the hierarchy an employee is subject to. The results of our econometric analysis are consistent with this proposition. We find that individuals value independence, and the relative absence of hierarchy, for purely non-instrumental reasons closely connected with notions of process.

Our study not only provides a more general view of the utility gained from work, but is also relevant for policy. Following the results reached here, the government should at least not restrict self-employment opportunities. The respective laws and regulations should be less restrictive and the bureaucratic barriers for engaging in self-employment should be lowered, because this would provide individuals with added procedural utility.

Section 2 of this paper discusses the concept of procedural utility and puts it into a theoretical context. Section 3 presents the data composed of three comprehensive surveys of information relating to work in Germany, the United Kingdom and Switzerland. The first two surveys have a panel structure and cover data from 1984 to 2000 and from 1991 to 1999. The fourth section presents the econometric estimates and results. Section 5 draws conclusions for economic theory and policy.

2. Procedural Utility and Employment

2.1. The concept of procedural utility in economics

Procedural utility means that people not only value actual outcomes, but also the conditions and processes which lead to these outcomes. Procedural utility thus represents a completely different approach to human well-being than the standard approach applied in economics. The economic concept of utility is outcome-oriented: individual utility is seen as a result of benefits and costs associated with instrumental outcomes and consequences. In contrast, procedural utility refers to the non-instrumental pleasures and displeasures of processes. This kind of utility has hardly been included in economic theory or empirical research.

Obviously, individuals care a lot about outcomes; economics has derived a powerful model of human behavior based on this insight (Becker 1976, Frey 1999, Lazear 2000). Thereby, the notion that outcomes are not the only source of utility and not the only driving force behind behavior, was almost completely lost in economic analysis. A rare exception is the utility gained from gambling, which was already considered by Pascal (1670), and later by Marschak (1950) and by von Neumann and Morgenstern (1953). Sen (1995, 1997) has repeatedly argued that economic choice models should combine preferences for outcome with those for processes. Recently, Le Menestrel (2001) established axioms for a model of rational behavior combining processes and consequences. Research on intrinsic values of processes, however, has mainly been carried out in other social sciences, especially by social psychologists. Most prominently, the fairness or justice of procedures as a value as such has been studied by Lind and Tyler (1988), Tyler (1990), and Tyler and Blader (2000).

This research from other social sciences suggests that there is something beyond instrumental outputs as captured in a traditional economic utility function. People can have preferences about how outcomes are generated. These preferences about procedures generate procedural utility.

Procedural utility may come from several different sources. It is useful to distinguish two broad categories. First, there is the procedural utility people get from institutions. People have preferences about how allocative and redistributive decisions are taken. They get utility from living and acting under particular institutions over and above outcomes. Second, it may be argued that procedural utility is involved in the interaction between people. People evaluate actions towards them not only based on the consequences, but also on how they feel treated by other persons. 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, quite irrespective of the outcome. This aspect of procedural utility is generally referred to as procedural justice or procedural fairness in the literature (Thibaut and Walker 1975, Lind and Tyler 1988).

2.2. Institutions as sources of procedural utility

This paper is mainly concerned with procedural utility from institutions. Institutions are understood as rules or procedures with which decisions are taken in society. The price system (market), democracy, hierarchy, and bargaining are generally seen as the most important formal systems for reaching decisions (Dahl and Lindblom 1953). Previous research has pointed to the possibility that individuals value institutions as such. For example, Kahneman, Knetsch and Thaler (1986) suggested that individuals have some intrinsic concerns with the market mechanism that go over and beyond outcome considerations. When put in a situation of excess demand, a consistently high percentage of consumers in their surveys saw a price increase to be an unfair means to overcome the shortage, thus rating a normal functioning of the price system as unacceptable (similar results have been found for Switzerland and Germany (Frey and Pommerehne 1993), the US (Konow 2001) and Russia (Shiller, Boyocko and Korobov 1991). Other studies have been concerned with the institution of democracy. 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, ranging from voting in elections, launching and voting on referenda, to running for a seat in parliament. Citizens may reap 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. Frey and Stutzer (2002a) empirically show for the case of Switzerland that citizens reap such procedural utility from extended democratic participation rights.

2.3. Procedural utility from independence vs. hierarchy

With respect to work organization and production, hierarchy is the most fundamental institution by which decisions are taken in society. Hierarchy means that production and employment is integrated into an organization, and decisions are characterized by some

degree of authority. Hierarchy is an essential and widespread feature of the economy. Individuals may well attach an intrinsic value to it as an institutional procedure.

We hypothesize that this intrinsic value is a negative one. Extensive theoretical research by psychologists suggests that individuals prefer characteristics of independence to being subject to hierarchical decision making. For example, Ryan and Deci (2000) attribute an intrinsic value to self-determination, which is strongly related to independence and generally restricted under hierarchy. Self-determination is seen to provide procedural goods that serve innate needs of competence, autonomy and relatedness. Similar approaches attach utility to the actualization of human potentials (Ryff and Singer 1998) or to personal control (Grob 2000; Peterson 1999; Seligman 1992). These approaches see the possibility to act independently as a value in itself, i.e. individuals do not necessarily expect better instrumental outcomes from it.

This paper presents an empirical test of whether individuals enjoy procedural utility from independence vs. hierarchy. As an important empirical application, self-employment is chosen. Self-employment presents in many respects a suitable field of study. People who are self-employed or employed are essentially engaged in the same labor markets and production activities. This makes the two groups very comparable. Of course, self-employed people face some other external constraints, in particular those directly imposed by the market, but also by government laws and regulations. With respect to work, however, the main difference between the two groups is that the self-employed work independently and employees are subject to a hierarchy.[3] We therefore propose that self-employed individuals derive higher procedural utility from work than persons employed by organizations, over and above the outcome utility from gaining income and other instrumental aspects of work. We will also investigate a related hypothesis that directly follows from this first proposition. If the absence of a hierarchy is intrinsically preferred to being subject to a hierarchy, people should also prefer smaller hierarchies to larger hierarchies, if procedural utility has normal properties.

There already exists some research by economists indicating that self-employment provides a utility premium. Blanchflower and Oswald (1998), Blanchflower (2000) and Blanchflower, Oswald and Stutzer (2001) present evidence that the self-employed are more satisfied with their jobs. Hamilton (2000) convincingly shows that self-employment does not pay, i.e. that

[3] The differences in external constraints imposed by the market and regulations can plausibly be disregarded, because they make the life of self-employed rather harder than easier. For example, acting as an independent contractor on the market carries more risk, and government regulations impose more administrative work on the

the self-employed are willing to forego income in exchange for being independent. Although this is strong evidence that self-employment provides (non-monetary) benefits, these authors do not further study what these benefits exactly consist of. A study by Hundley (2001) addresses this question in more detail and finds that the self-employed are happier with their work because of more autonomy, flexibility, skill utilization, and to some extent also higher job security. The evidence found in previous studies is thus overall consistent with our hypothesis. Nevertheless, the studies have not explored in depth whether the utility premium from self-employment reflects procedural utility from independence vs. hierarchy. The present study places this question at the core of analysis.

2.4. Measuring utility

In order to make procedural utility a fruitful concept, it is not only necessary to specify the conditions under which procedural utility is expected to be higher (or lower), but it is also necessary to have a proxy measure for utility. In this paper, utility from work is measured by using self-reported job satisfaction as a proxy variable. Job satisfaction has been increasingly used by economists as a meaningful concept to analyse the labor market (e.g. Hamermesh 1977, Clark and Oswald 1996, Blanchflower and Oswald 1999, Clark 2001; for a survey see Warr 1999). Its growing use reflects a more general change that economics has experienced in recent years. Utility is increasingly seen as directly measurable by using self-reported satisfaction measures as a proxy. For example, 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 and Oswald 1997). The existing state of research suggests that measures of reported satisfaction are a satisfactory empirical approximation to individual utility (Frey and Stutzer 2002b). It is thus possible to study procedural effects on individual well-being directly, which makes the notion of procedural utility empirically tractable. With respect to (self-)employment, we propose that self-reported job satisfaction can serve as an indicator for the utility people derive from their work.

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self-employed. To the extent that these are valued negatively by individuals, one tends to underestimate the utility premium of being independent when simply comparing the self-employed and the employed.

3. Data

The empirical analysis is based on three major data sets from European countries: the German Socio Economic Panel Survey (GSOEP), the British Household Panel Survey (BHPS), and the Swiss Household Panel Survey (SHP). The three surveys can be considered the most comprehensive sources of information on work related aspects, income, and other socio-economic variables in Europe. Germany, the United Kingdom and Switzerland are the only European countries that regularly conduct detailed socio-economic surveys of their population. The data sets have several advantages. First, compared to other data sets previously used to test the effects of self-employment on job satisfaction (see e.g. Blanchflower 2000), they contain much more detailed information on important work aspects, such as income, working hours, occupation, education, industry and other individual and firm-related characteristics. This allows us to more precisely hold the instrumental aspects of work constant when assessing the procedural utility from independence vs. hierarchy. Second, the European surveys include measures on job satisfaction which, for example, comparable US surveys like the Panel Study of Income Dynamics or the Current Population Survey do not. Job satisfaction, however, is needed as a proxy for utility from work. Third, two of the three surveys have a panel structure that can be exploited in the empirical analysis: the GSOEP covers the years from 1984-2000 and the BHPS the years from 1991-1999, and individuals can generally be observed over several waves. Fourth, the surveys contain some unique information that allows for a more detailed investigation of procedural utility from independence vs. hierarchy than previous studies have been able to undertake. And fifth, the use of surveys from three different countries gives a broader picture of the robustness of the estimated effects than when just one country is looked at. Although the three surveys come from different sources, they have a similar structure, which makes it possible to make meaningful comparisons of the respective results.

As the dependent variable in the empirical analysis, job satisfaction is used as a proxy for the utility people derive from their work. In the German GSOEP, job satisfaction is assessed using the following question: “How satisfied are you today with the following areas of your life: your job?“ Individuals are asked to state their job satisfaction on a scale from 0 (totally unhappy) to 10 (totally happy). The question asked in the British BHPS is similar: “All things considered, how satisfied or dissatisfied are you with your present job overall?” Answers are coded here on a somewhat narrower scale from 1 (not satisfied at all) to 7 (completely satisfied). In Switzerland, the related question is “On a scale from 0 ‘not at all satisfied’ to 10

'completely satisfied', can you indicate your degree of satisfaction with your job in general?" The question was only asked in 1999, which leaves one year of observation available for Switzerland.

In general, individuals in the countries considered seem to be quite satisfied with their jobs. In West Germany[4], over the period from 1984-2000, average job satisfaction of all individuals in the workforce was 7.25 (st.d. 2.00) on a scale from 0 to 10.[5] In Britain, from 1991-1999, workers were even somewhat more satisfied with their jobs, indicating an average value of 5.43 (st.d. 1.36) on a scale from 1-7. Job satisfaction was highest in Switzerland in 1999, where the average worker stated a job satisfaction score of 8.10 (st.d 1.72) on a scale from 0 to 10.

The main purpose of the empirical investigation is to identify the procedural utility individuals reap from independence vs. hierarchy. The first step of the analysis is focussed on self-employed people, and the question is asked whether they reap procedural utility from not being subject to a hierarchy. The dummy 'self-employed' takes on the value 1 when individuals state that they are self-employed in a given year, and is 0 when people in the workforce are employed by an organization. In West Germany, an average 8.3 percent of the total workforce sampled in the GSOEP was self-employed in the years from 1984-2000, and this ratio was relatively constant over the period (min 7.5%, max. 9.9%). In Britain, an average 12.0 percent of the workforce was self-employed during the years from 1991-1999 (min. 11.0 %, max 12.5 %). In Switzerland the ratio amounted to 10.5 percent in 1999.[6]

The three surveys contain detailed information on important control variables. Income and working hours are core instrumental aspects of work and have to be controlled for when

[4] The GSOEP is split into the subsamples of West Germany and East Germany, which are used seperately in the later empirical analysis. The characterstics of the East German economy were still very different from West Germany over the period covered from 1990-2000. It thus seems warranted to use two subsamples. Average job satisfaction for East german workers was 6.86 (st.d. 2.12) in the years from 1990-2000.

[5] For all three countries, the mean job satisfaction values are computed from the final samples as used in the empirical analysis of section 4. This only produces minor differences compared to using the full samples, but it makes the descriptive statistics more comparable and consistent across the different stages of empirical analysis. The surveys contain a substantial number of missing values for the variables of interest in the empirical analysis. This leaves a sample size of 70'229 observations from 11'700 individuals in West Germany from 1984-2000, 20'064 observations from 4'254 individuals in East Germany from 1990-2000, 52'022 observations from 13'380 individuals in Britain from 1991-1999, and 3'431 observations from 3'431 individuals in Switzerland 1999.

[6] The ratios of self-employed people indicated are computed using the full samples of all people in the workforce. In the case of Germany, the actual ratio of self-employed people in the final sample is somewhat lower than in the full sample (5.6%), essentially because self-employed people seem to be more reluctant to state their income. This potentially induces problems of measurement error which are discussed in the empirical section. For the BHPS and the SHP, self-employment ratios in the final samples are similar to those in the full samples. Overall, the ratios are comparable to those presented in other studies, e.g. Blanchflower, Oswald and

assessing non-instrumental utility from work. In the empirical analysis, the total personal income of an individual is used to account for effects of income on job satisfaction. The influence of working hours is measured by using the total hours an individual works in an average week (including overtime hours). Apart from these core control variables, the surveys include information on tenure, age, gender, education, whether people work part-time or full-time, and which occupation and industry they work in. This creates a large and detailed set of control variables on the objective aspects of work. In the GSOEP, for example, there is information on 7 categories of education, 88 categories of different occupations, and 45 industry categories. Similar sets of control variables are available for the BHPS and the SHP. Descriptive statistics for each of the three different data sets are given in the appendix (Table A).

In the second step of the empirical analysis, additional information is used that is somewhat less comparable across the different data sets than the variables already described. For example, the size of the organization that individuals work in will be incorporated in a further analysis of procedural utility effects from hierarchy. This data is contained in all three surveys, but the scaling of the variable differs to some extent. Some of the further empirical analysis will also be carried out using the BHPS only, because this survey contains some interesting questions on particular aspects of people's jobs that the other two surveys do not contain.

4. Empirical Analysis

4.1. Basic regressions

Table 1 presents descriptive statistics on the differences in job satisfaction between self-employed and employed individuals, and it contains the basic regressions on the effects of self-employment on job satisfaction. For all three countries considered, the raw differences show significantly higher job satisfaction for self-employed workers. The difference is smallest in the case of West Germany (0.21 index points on a scale from 0-10) and reaches similar magnitude in Britain (0.21 index points on a scale from 1-7) and Switzerland (0.41 index points on a scale from 0-10). These differences, however, might reflect a multitude of characteristics that distinguish self-employed individuals from employed people. The

Stutzer (2001), which indicate self-employment ratios of 10.1% for West Germany, 13.6% for Britain and 13.6% for Switzerland.

question whether higher job satisfaction among the self-employed can be attributed to procedural utility gained from being independent has thus to be investigated in more detail.

Table 1: Procedural Utility from Independence vs. Hierarchy: Self-Employment and Job Satisfaction in Germany, Britain and Switzerland

Dependent variable: job satisfaction

	West Germany		**United Kingdom**		**Switzerland**	
Variable	mean job satisfaction (scale 0-10)	ordered logit regression	mean job satisfaction (scale 1-7)	ordered logit regression	mean job satisfaction (scale 0-10)	ordered logit regression
Self-employed	7.45** (1.92)	0.196** (0.064)	5.61** (1.31)	0.278** (0.056)	8.47** (1.77)	0.432** (0.116)
Employed	7.24 (2.01)	ref. group	5.40 (1.37)	ref. group	8.06 (1.71)	ref. group
Total net income (log)		0.374** (0.035)		0.081** (0.021)		0.051 (0.060)
Working hours per week		-0.022** (0.004)		-0.007° (0.004)		-0.037** (0.011)
(Working hours)^2		0.0001** (0.0000)		0.0001° (0.0000)		0.0004** (0.0001)
Working part-time		-0.035 (0.032)		0.401** (0.064)		-0.365** (0.123)
Tenure		-0.013** (0.004)		-0.029** (0.006)		0.009 (0.012)
Tenure^2		0.0003* (0.0001)		0.0007** (0.0002)		-0.0002 (0.0003)
Age		-0.035** (0.009)		-0.066** (0.007)		-0.038° (0.020)
Age^2		0.0004** (0.0001)		0.001** (0.0001)		0.0006** (0.0002)
Sex (Female)		0.079* (0.039)		0.308** (0.041)		0.289** (0.092)
Education		7 categ.		12 categ.		10 categ.
Job dummies		88 categ.		73 categ.		31 categ.
Industry dummies		45 categ.		10 categ.		14 categ.
Year dummies		17 categ.		9 categ.		-
No. of observations		70‘229		52‘022		3‘431
No. of individuals		11‘700		13‘380		3‘431
Time period		1984 - 2000		1991 - 1999		1999
F		5.85**		13.84**		3.44**

Notes: Weighted ordered logit regressions. Robust standard errors in parentheses (corrected for repeated observations on individuals). Significance levels: ° $0.1 < p < 0.05$, * $0.01 < p < 0.05$, ** $p < 0.01$.
Data sources: GSOEP 1984-2000, BHPS 1991-1999, SHP 1999.

In a first step, multivariate regressions are run that include the control variables discussed in the last section. Accounting for instrumental aspects of work is essential to assess the non-instrumental satisfaction differences correctly. For example, it could be that self-employed people work in less stressful jobs and industries, which makes them more satisfied with their jobs. On the other hand, it is known that the self-employed tend to earn less and work more than similar employed people (e.g. Hamilton 2000), which leads to an underestimation of the procedural utility from being self-employed if such instrumental aspects are not controlled for. The basic regressions presented in table 1 are estimated using an ordered logit model, as job satisfaction is an ordinally scaled dependent variable. The weighting variables applied allow representative results on the subject level for the respective country.[7] Moreover, in the case of the German and British panel, the estimated robust standard errors are corrected for repeated observations on the individual level over time.

The multivariate regressions confirm that the self-employed are more satisfied with their jobs than employees, even when instrumental aspects of work are controlled for. For all three countries, substantial and highly significant effects are found. Their size is comparable to the raw differences indicated in table 1.[8] This corroborates and at the same time extends results previously reported by Blanchflower (2000), Blanchflower, Oswald and Stutzer (2001) and Blanchflower and Oswald (1998). Whereas these authors have presented first evidence that self-employed people are more satisfied with their jobs, they did not investigate whether this is for *instrumental or non-instrumental reasons* (e.g. instrumental aspects such as income and working hours are not controlled for). The results presented here indicate that self-employed people do not reap more utility from their work because instrumental outcomes are different.[9]

[7] The weights used are panel weights controlling for panel attrition in case of the GSOEP, and cross-sectional weights in case of the BHPS and the SHP.

[8] Strictly, the results have to be interpreted by looking at the marginal effects for each variable, as the estimated coefficients of an ordered logit regression do not have any intuitive interpretation. The marginal effects for the variable "self-employed", indicating the change of the probability that an individual is more satisfied with work by one point when he or she is self-employed rather than employed, are 2.0% for Germany, 4.5% for UK and 8.7% for Switzerland (probability change for the highest score of the job satisfaction variable). The magnitude of the marginal effects can more easily be assessed, however, if, for simplicity, one uses an OLS estimator rather than ordered logit. The estimated coefficients for the variable „self-employed" from OLS-regressions are 0.22 for Germany, 0.16 for UK, and 0.28 for Switzerland.

[9] One caveat to be made is that potential measurement errors might bias the results. As already indicated in footnote 6 in the data section, self-employed people are relatively more reluctant to state their income than employed people, and it has also been found that they tend to underreport their incomes (e.g. Joulfaian and Rider 1998 for the US). However, such measurement errors seem not to be a major problem for our estimates. If the regressions in table 1 (and all the other regressions in this paper) are estimated excluding the income and working time variables, the self-employment results remain qualitatively very similar. This is also important because income and wages have to be considered as endogenous variables in the context of this study. If procedural utility from self-employment is completely reflected in a compensating wage differential, one should not include income and working time variables in the regression, because otherwise the utility differential from self-employment is overestimated.

If the satisfaction differences cannot be attributed to outcome considerations, however, this suggests that there are non-instrumental reasons at work that make the self-employed happier with their jobs. In the following sections, it is further investigated whether it is procedural utility from being independent vs. being subject to a hierarchy that explains this result.

4.2. Analyzing job satisfaction effects of self-employment in depth

Before further investigating procedural utility, it seems warranted to more precisely address the question of whether higher job satisfaction among self-employed persons is indeed a robust result. For example, the regressions in table 1 do not consider the possibility that self-employed people may be a selection of people that have a natural tendency to be more satisfied with their jobs, or are in other respects different than employees. The estimated coefficients would then not reflect non-instrumental benefits from being self-employed, but merely personality differences between the two groups. This concern is addressed using two different methodologies.

Fixed effects estimates

First, individual fixed effects regressions are run for West Germany and Britain, where the panel structure of the surveys allows one to observe the same persons moving into self-employment or out of it. The results from these linear fixed effects regressions[10] indicate that the job satisfaction effects of self-employment are a robust phenomenon. Table 2 contains three different specifications for each country. In a first step, the same specifications as in table 1 are estimated including individual fixed effects (model I). The results show that people who either move in or out of self-employment are on average more satisfied with their jobs when they are self-employed. The estimated coefficients for the variable 'self-employed' are of somewhat smaller magnitude than those reported in table 1, but still statistically significant.[11]

[10] As ordered logit fixed effects estimators are not yet commonly available, the analysis is carried out using an OLS fixed effects estimator.

[11] Note that the variable ‚self-employed' only captures job satisfaction changes for people that either move from employment into self-employment or from self-employment into employment. People that change from unemployment (or non-employment) into self-employment and vice versa are not included in the sample, basically because there are no job satisfaction measures available for individuals that do not have a job.

Table 2: Self-Employment and Job Satisfaction: Fixed Effects Regressions for Germany and the United Kingdom

Dependent variable: job satisfaction

Variable	West Germany			United Kingdom		
	Model I	Model II	Model III	Model I	Model II	Model III
Self-employed (SE)	0.111° (0.058)			0.162** (0.035)		
In-Movers (1=periods when SE)		0.347** (0.098)	0.405** (0.099)		0.350** (0.060)	0.369** (0.060)
Out-Movers (1=periods when SE)		-0.202 (0.156)			-0.059 (0.069)	
Multiple changers (1=periods when SE)		0.043 (0.083)			0.141* (0.062)	
Job changers (1=periods at new firm)			0.142** (0.036)			0.068** (0.023)
Total net income (log)	0.461** (0.030)	0.459** (0.030)	0.454** (0.030)	0.041** (0.011)	0.042** (0.011)	0.039** (0.011)
Working hours per week	-0.007* (0.003)	-0.006° (0.003)	-0.007** (0.003)	-0.0008 (0.002)	-0.0009 (0.002)	-0.0009 (0.002)
$(\text{Working hours})^2$	0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)
Working part-time	-0.015 (0.025)	-0.014 (0.025)	-0.013 (0.025)	0.080* (0.035)	0.080* (0.035)	0.082* (0.035)
Tenure	-0.049** (0.004)	-0.049** (0.004)	-0.046** (0.004)	-0.056** (0.003)	-0.055** (0.003)	-0.054** (0.003)
Tenure^2	0.0008** (0.0001)	0.0008** (0.0001)	0.0008** (0.0001)	0.001** (0.0001)	0.001** (0.0001)	0.001** (0.0001)
No. of obs,	70‘229	70‘229	70‘028	52‘022	52‘022	52‘022
No. of individ.	11‘700	11‘700	11‘668	13‘380	13‘380	13‘380
Avg. obs. per individual	6.0	6.0	6.0	3.9	3.9	3.9
F	14.24**	14.13**	14.32**	9.17**	9.18**	9.29**

Notes: OLS regressions with individual fixed effects. In addition to the variables shown, the regressions include the same variables for age, education, job, industry, and year as in table 1. Significance levels: ° $0.1 < p < 0.05$, * $0.01 < p < 0.05$, ** $p < 0.01$.
Data sources: GSOEP 1984-2000, BHPS 1991-1999.

One aspect not captured by model I, however, is that it might make a difference whether one enters or leaves self-employment. Model II allows for such differences by splitting up changers into three subgroups: those who become self-employed and stay self-employed during the observation period (“in-movers”), those who leave self-employment and stay

employed during the observation period ("out-movers"), and those who change more than once between employment and self-employment ("multiple changers"). This partitioning can also address further concerns about selection; arguably, the first group can be considered as those who become entrepreneurs and successfully stay so, while the second group might leave self-employment and stay employed for equally good reasons (e.g. because they somehow failed). The results from model II show that for both West Germany and Britain, the major part of the self-employment effect indeed stems from those people that become self-employed and stay so. "In-movers" report major and highly significant increases in job satisfaction after having moved into self-employment.[12] In contrast, "out-movers" become slightly more satisfied with their jobs after they have left self-employment (although not significantly). The estimates thus indicate that "in-movers" as well as "out-movers" improve their job situation after a change, but the first group much more so than the second, resulting in an average positive effect of being self-employed.

One concern with the estimates for the "in-movers" might be that they just reflect a successful change in the job situation, an effect that also people who simply change jobs possibly experience. To rule this alternative explanation out, model III compares "in-movers" to a group of employed people that changes exactly once to a new firm during the observation period. These "job changers" are likely to be a suitable comparison group because they successfully change jobs, sticking with their new employer. The results from model III show that "job changers" indeed report significantly increased job satisfaction after moving to a new firm. Nevertheless, the positive effects are much smaller than those for people who become self-employed (the coefficients on the variables "in-movers" and "job changers" are significantly different at any conventional levels).[13] Thus, for both West Germany and Britain, we find robust evidence that people moving into self-employment enjoy higher utility from their work, even when unobserved individual heterogeneity, the effects of a shift in the job situation, and changes in instrumental outcomes are controlled for.

[12] "Multiple changers,, also report somewhat higher job satisfaction when they are self-employed, although this result is only statistically significant for the British sample.

[13] Note also that the coefficients for the „out-movers" (model II) are of similar size as the coefficients for „job changers", i.e. people moving out of self-employment do not improve their job satisfaction more than employed people who change jobs.

A "natural experiment" on self-employment creation

The second approach applied here to study the job satisfaction effects of self-employment takes advantage of a unique situation that created a sort of 'natural experiment' on self-employment creation. After the fall of the Berlin wall in 1989, East Germany experienced a fundamental and largely unexpected change in the structure of its economy. Notably with respect to self-employment, the situation changed dramatically: for the first time it became a realistic option for East Germans. Self-employment was severely restricted under the socialist regime in the German Democratic Republic, because it did not fit into a socialist economic system. As a consequence, the ratio of self-employment in the workforce is estimated at a low 2.1% for the last year of the GDR (Hammer 1999, see also Lechner and Pfeiffer 1993). East Germans were first sampled in the GSOEP in 1990 and every year thereafter. The GSOEP thus offers the unique possibility to observe the developments in self-employment and its consequences in the ex-GDR regions after 1989.

Table 3 summarizes the results from this natural experiment on self-employment creation. It can be observed that the sudden absence of restrictions on self-employment indeed created a steady and substantial rise in the ratio of self-employed people in the workforce. Already in 1990, the ratio had risen from 2.1% to 3.4%, and it grew to 7.3% in the three years until 1993. Afterwards the ratio approached a stable 7.5% - 8.5%, converging approximately to the ratios of self-employment found in West Germany at this time. What were the effects on job satisfaction that the people flowing into self-employment experienced? The results presented in table 3 indicate that they are substantial. The ordered logit regressions for the East German workforce presented contain the same variables as the one for West Germany in table 1 and are run separately for every year. For the first year 1990, the group of self-employed people is split into those that were in self-employment already before 1989, and those that became self-employed right after the lifting of the iron curtain.[14] For the years after, only the net effect for all self-employed people is presented.[15] The effects of becoming self-employed can most

[14] This is possible because in the first wave of the GSOEP that sampled East Germans (1990), they were asked some questions about their past in the GDR. Most imporantly, it is known whether individuals had became self-employed only after December 1989, or were self-employed already before. In 1990, about 25% of all self-employed had moved into self-employment after the lifting of the iron curtain.

[15] This seems warranted because after 1990, the distinction between 'old' and 'new' self-employed does not make much sense anymore. First, in the year 1990 the old self-employed might just have experienced a one-time boost in their job satisfaction, because administrative and other restrictions present under the GDR regime ceased to apply, a situation that normalized after 1990. Second, the old self-employed make up a smaller part of the total number of self-employed with the ratio of self-employed sharply rising after 1989. Many people become newly self-employed, or if they are sampled for the first time in the GSOEP and state that they are self-employed, it can plausibly be assumed that they are a 'new' self-employed. At the same time, there are also

strikingly be illustrated by those people who moved into self-employment right in 1990. Their job satisfaction is by a magnitude higher than that of employed East Germans at the time (the estimated coefficient of 1.340 amounts to approx. 1.5 index points on a job satisfaction scale from 0-10). Note that this effect is not due to a generally low job satisfaction among the employed in East Germany working in still mainly socialist firms; in fact, the average job satisfaction in the East German work force was as high in 1990 as in West Germany (7.20 vs. 7.25); it only dropped sharply afterwards (probably because of the onset of privatizations and tougher economic conditions like rising unemployment). Moreover, it is not the case that intrinsically more satisfied people were more likely to become self-employed after the fall of the Berlin wall. The 1990 regression includes a variable on the "life satisfaction five years ago"; it captures the answers of East Germans to the question of how they rated their general satisfaction with life back in the GDR times in 1985. If only intrinsically satisfied (or dissatisfied) people would have become self-employed after the fall of the iron curtain, the inclusion of this variable would lower the estimated coefficient on the 'newly self-employed' to zero.[16] Table 3 furthermore indicates that, for every year, a positive and mostly significant coefficient of being self-employed is estimated; this shows that the large share of people moving into self-employment indeed enjoyed higher subsequent job satisfaction than their counterparts who had remained employed over the period (over and above objective outcomes like income or working hours). The results also hold if a fixed effects model for the whole period from 1990-2000 is estimated (which again only considers observed 'changers' from employment into self-employment in the estimation of the self-employed coefficient).

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some people leaving self-employment after 1990, although the average ratio sharply increases; this is also captured in the estimated net effect of the variable "self-employed„.

[16] The results on the self-employment variables remain qualitatively very similar when the variable on „life satisfaction 5 years ago" is not included in the regression.

Table 3: Self-Employment and Job Satisfaction – Results from a Natural Experiment in East Germany

Dependent variable: job satisfaction

	East Germany												
Year	1989	1990	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Fixed Effects
Ratio self-employed / workforce	2.1%	3.4%	3.4%	5.3%	6.1%	7.2%	7.3%	7.5%	8.0%	8.6%	8.2%	8.4%	8.0%	–
Self-employed (SE)		0.853** (0.256)	–	0.287 (0.273)	0.698** (0.266)	0.462° (0.271)	0.371 (0.263)	0.406° (0.239)	0.546* (0.239)	0.442° (0.243)	0.245 (0.224)	0.376° (0.227)	0.425° (0.225)	0.656** (0.116)
Was SE before "Wende"		–	0.708* (0.290)											
Became SE after "Wende"		–	1.446** (0.432)											
Total income (log)		0.354* (0.142)	0.367** (0.142)	0.585** (0.139)	0.925** (0.137)	0.609** (0.145)	1.031** (0.160)	0.965** (0.137)	0.913** (0.161)	0.556** (0.152)	0.575** (0.117)	0.542** (0.118)	0.613** (0.119)	0.367** (0.050)
Working hours per week		-0.038° (0.021)	-0.038° (0.021)	0.079** (0.018)	-0.010 (0.023)	0.008 (0.023)	-0.070** (0.027)	-0.015 (0.019)	-0.004 (0.024)	0.007 (0.024)	-0.018 (0.018)	0.003 (0.016)	-0.015 (0.022)	0.027** (0.008)
(Working hours)^2		0.0006* (0.0002)	0.0006* (0.0002)	-0.0007** (0.0002)	0.0002 (0.0002)	0.0000 (0.002)	0.0008** (0.0003)	0.0002 (0.0002)	0.0000 (0.0003)	-0.0002 (0.0002)	0.0001 (0.0002)	-0.0001 (0.0002)	-0.0000 (0.0002)	-0.0002* (0.0001)
Life satisfaction 5 years before		–	0.112** (0.015)											
No. of obs.	–	2'675	2'675	2'077	1'917	1'720	1'633	1'716	1'600	1'581	1'767	1'732	1'646	20'064
Chi^2	–	250.9**	310.4**	262.4**	290.7**	267.6**	219.4**	267.0**	202.7**	213.9**	182.8**	176.2**	191.7**	–

Notes: Ordered logit regressions. Standard errors in parentheses. The fixed effects regression is OLS, and the "ratio model" is ordered logit with robust standard errors. In addition to the variables shown, the regressions include variables on age, age squared, sex, and dummies for education, job, industry, and year, as in table 1 for West Germany. Significance levels: ° $0.1 < p < 0.05$, * $0.01 < p < 0.05$, ** $p < 0.01$. Data source: GSOEP 1990-2000.

To summarize results so far, the 'fixed effects' and the 'natural experiment' approaches presented lead us to conclude that self-employed persons are indeed more satisfied with their jobs. Moreover, this can be attributed to non-instrumental benefits from work, as the regressions control for important instrumental variables. The following section explores this issue in more detail.

4.3. Testing the effects of hierarchy size

The main argument of this paper is that the self-employed may be more satisfied with their jobs because there is a fundamental procedural utility difference between "independence" and "being subject to a hierarchy". Assuming for a moment that this argument is correct, it can be expanded to create a more precise empirical test of procedural utility. If self-employed people indeed value the absence of a hierarchy, it would only be consistent to expect that people also prefer smaller hierarchies to larger hierarchies. In fact, complete independence and strict hierarchy are only two extreme points on a potential continuum. If procedural utility has normal properties, it seems natural that procedural utility continuously decreases the more individuals lose their independence, and the more they are subject to a hierarchy. This idea can be empirically implemented by using the size of the organization individuals work in as a proxy for the intensity of hierarchy. Most self-employed people work in small companies.[17] Thus, the inclusion of organization size into the regressions should substantially lower the estimated coefficient for self-employed if procedural disutility from hierarchy plays a role. It would mean that the self-employed are not only more satisfied with their work because they are their own bosses, but also because, compared to their employed counterparts, they tend to work in smaller hierarchies. At the same time, one should observe that job satisfaction decreases the larger the size of a hierarchy employed individuals work in, ceteris paribus.

The results of such an empirical test are presented in table 4. It contains the same job satisfaction regressions as in table 1 for West Germany, Britain and Switzerland, but they are augmented with information on the size of the hierarchy individuals work in. The results show that the job satisfaction premium among the self-employed stems to a considerable extent from procedural utility from independence vs. hierarchy. When including the size of a firm, the coefficient on 'self-employed' is lowered by about one sixth in the case of Germany,

[17] In West Germany, the median employee works in a firm with 100-200 workers, and the median self-employed person in a firm with 5-19 workers. In the United Kingdom, the median employee works in a firm with 50-99 workers, and the median self-employed person in a firm with 1-2 workers. In Switzerland, the numbers are 25-49 workers and 1-4 workers, respectively.

by half in the case of Britain, and by about over a half in the case of Switzerland. This means that the self-employed are substantially more satisfied than employees because the average employee works in a larger hierarchy, which seems to constitute a disutility. Still, the positive and mostly significant coefficients estimated for the variable 'self-employed' in all three countries indicate that the self-employed are more satisfied than employees working in similar small enterprises.[18] Being independent seems to be a value in itself, over and above considerations of hierarchy size.

These results also hold when one considers that the self-employed are often not only their own bosses, but also the bosses of others. To investigate whether self-employed people are more satisfied with their work only because they potentially can exert authority over others, we included several measures on supervisory activity in additional regressions. In the case of Britain, a variable was used that indicated whether an individual (self-employed or employed) supervised other people as part of their job. In the case of Switzerland, we used a variable on the number of people an individual supervises.[19] Although both these variables exert positive and statistically highly significant effects on job satisfaction, the findings for the self-employment variables change only marginally (full results not reported; the coeff. on self-employed for the British sample is 0.137, $p<0.05$, and for the Swiss sample 0.213, $p<0.1$). Thus, individuals seem to derive utility from exerting authority, but this does not explain why the self-employed are happier with their jobs. Indeed, many of the self-employed in the samples considered do not have employees or are only at the top of a small hierarchy; in contrast, there is a substantial amount of employed individuals who have extensive supervisory tasks because they work in the upper ranks of relatively large hierarchies.

The regressions also present clear evidence that job satisfaction is decreasing with the size of hierarchy in all three countries, other things equal. This is an interesting result in itself, which has not been much noted in the literature so far (exceptions are Idson 1990 and Lalive 2002 for the US and Gardner 2001 for the UK). Notably for Britain and Switzerland, the effects of hierarchy size are substantial. Dissatisfaction from hierarchy seems to peak at a firm size of about 200-500, and then slightly decreases again as firms get bigger. These findings

[18] Table 4 shows that the effects are significant for Germany and Britain, but only at the border of statistical significance for Switzerland. The coefficient for the Swiss self-employed is unprecisely estimated because of a group of self-employed people that runs companies in the largest firm size category (>1000 employees). These in total 12 individuals report job satisfaction far below average, for reasons beyond our knowledge. If we remove these 12 individuals from the sample, the coefficient on the variable "self-employed" is statistically significant (coeff.=0.265, $p<0.05$).

[19] For Germany, there was no variable available in the GSOEP that would measure the supervisory activity of self-employed and employed individuals.

correspond nicely to the well established fact that, as a compensating variation, larger firms pay higher wages (Oi and Idson 1999).

Table 4: Procedural Utility from Independence vs. Hierarchy – Testing the Effects of Hierarchy Size

Dependent variable: job satisfaction

West Germany			United Kingdom			Switzerland		
Variable	Coefficient on self-employed from table 1	Regression including hierarchy size	Variable	Coefficient on self-employed from table 1	Regression including hierarchy size	Variable	Coefficient on self-employed from table 1	Regression including hierarchy size
Self-employed	0.196**	0.162*	Self-employed	0.278**	0.145*	Self-employed	0.432**	0.187
	(0.064)	(0.066)		(0.056)	(0.066)		(0.116)	(0.128)
Hierarchy size (size of firm)			*Hierarchy size (size of firm)*			*Hierarchy size (size of firm)*		
< 5 persons		ref. group	1-2 persons		ref. group	1-4 persons		ref. group
5-19		-0.016	3-9		0.024	5-9 pers		-0.239°
		(0.045)			(0.056)			(0.144)
20-99		-0.102*	10-24		-0.160**	10-19		-0.433**
		(0.041)			(0.061)			(0.152)
100-200		-0.134**	25-49		-0.132*	20-24		-0.389*
		(0.046)			(0.064)			(0.189)
200-2000		-0.140**	50-99		-0.239**	25-49		-0.502**
		(0.045)			(0.065)			(0.153)
> 2000		-0.114*	100-199		-0.321**	50-99		-0.578**
		(0.051)			(0.068)			(0.152)
			200-499		-0.337**	100-499		-0.795**
					(0.064)			(0.141)
			500-999		-0.315**	500-999		-0.723**
					(0.073)			(0.186)
			> 1000		-0.337**	>1000		-0.590**
					(0.073)			(0.159)
Total net income (log)		0.395**	Total net income (log)		0.103**	Total net income (log)		0.080
		(0.035)			(0.021)			(0.064)
Working hours per week		-0.021**	Working hours per week		-0.005	Working hours per week		-0.034**
		(0.004)			(0.004)			(0.011)

Table 4 continued

(Working hours)^2	0.0001*	(Working	0.0001	(Working	0.0004**
	(0.0001)	hours)^2	(0.0001)	hours)^2	(0.0001)
Working part-	-0.036	Working part-	0.384**	Working part-	-0.388**
time	(0.032)	time	(0.064)	time	(0.127)
Tenure	-0.012**	Tenure	-0.028**	Tenure	0.012
	(0.004)		(0.006)		(0.012)
Tenure^2	0.0002°	Tenure^2	0.0007**	Tenure^2	-0.0003
	(0.0001)		(0.0002)		(0.0003)
Age	-0.035**	Age	-0.065**	Age	-0.035(*)
	(0.009)		(0.007)		(0.020)
Age^2	0.0004**	Age^2	0.001**	Age^2	0.0006**
	(0.0001)		(0.0001)		(0.0002)
Sex (Female)	0.077*	Sex (Female)	0.310**	Sex (Female)	0.295**
	(0.039)		(0.041)		(0.095)
No. of obs.	70'130	No. of obs.	51'925	No. of obs.	3'346
No. of ind.	11'674	No. of ind.	13'372	No. of ind.	3'346
Time period	1984 - 2000	Time period	1991 - 1999	Time period	1999
F	5.74**	F	13.47**	F	3.46**

Notes: Weighted ordered logit regressions. In addition to the variables shown, the regressions include the same dummy variables for education, job, industry, and year as in table 1. Robust standard errors in parentheses (corrected for repeated observations on individuals). Significance levels: ° $0.1 < p < 0.05$, * $0.01 < p < 0.05$, ** $p < 0.01$. *Data sources*: GSOEP 1984-2000, BHPS 1991-1999, SHP 1999.

4.4. What makes hierarchy bad, and independence valuable?

The previous analyses have shown that being self-employed (and working in smaller hierarchies) raises job satisfaction, not because it is connected with obvious instrumental benefits like higher pay or lower working hours, but because issues of independent vs. hierarchical decision-making are involved. Nevertheless, there is still the possibility that more subtle 'outcome' aspects are hidden behind this relationship. For example, being self-employed or working in small hierarchies might be preferred because jobs are more secure, or simply because work is less stressful. Such aspects might not be properly reflected in the income and working time variables used, but they constitute instrumental aspects potentially connected to hierarchy to some extent. On the other hand, self-employment might be preferred because of genuinely non-instrumental aspects of work closely connected to the different processes of independence and hierarchy. This last empirical section investigates in more detail whether individuals value the relative absence of hierarchy for its instrumental or non-instrumental aspects.

The regressions presented in table 5 exploit the fact that in the British Household Panel, employees as well as self-employed people were asked some unique questions on their satisfaction with different aspects of work. The questions can be divided into two rather instrumentally oriented ones, and two concerned with non-instrumental aspects. With respect to the first, individuals were asked to state on a scale from 1-7 their satisfaction with their "job security", and also their satisfaction with their workload ("the hours you work"). With respect to the second, the questions asked how satisfied individuals were with "being able to use their own initiative" and the "actual work itself". Whereas job security and workload are instrumental aspects of work, the use of initiative and the actual work itself are closely linked to notions of process. It is a core characteristic of independence that one can more fully develop one's own initiative, and that the tasks can be chosen more freely. The stricter hierarchical decision-making gets, the more restricted are an individual's possibilities to enjoy these non-instrumental benefits from work.

Table 5: The Sources of Disutility from Hierarchy: Testing for Instrumental and Noninstrumental Aspects

Dependent variable: job satisfaction

	United Kingdom		
Variable	Regression from table 4	Regression including instrumental satisfaction aspects	Regression including non-instrumental satisfaction aspects
Self-employed	0.145*	0.256**	0.037
	(0.066)	(0.056)	(0.063)
Hierarchy size (size of firm)			
1-2 persons	ref. group	ref. group	ref. group
3-9	0.024	-0.062	0.039
	(0.056)	(0.050)	(0.056)
10-24	-0.160**	-0.218**	0.065
	(0.061)	(0.054)	(0.058)
25-49	-0.132*	-0.203**	0.059
	(0.064)	(0.057)	(0.062)
50-99	-0.239**	-0.322**	0.057
	(0.065)	(0.059)	(0.064)
100-199	-0.321**	-0.376**	0.005
	(0.068)	(0.062)	(0.065)
200-499	-0.337**	-0.389**	-0.015
	(0.064)	(0.060)	(0.063)
500-999	-0.315**	-0.338**	-0.018
	(0.073)	(0.068)	(0.075)
> 1000	-0.337**	-0.347**	0.052
	(0.073)	(0.066)	(0.070)
Satisfaction with instrumental aspects of job			
Job security	–	0.400**	–
		(0.009)	
Work load (hours worked)	–	0.747**	–
		(0.011)	
Satisfaction with non-instrumental aspects of job			
Use of initiative	–	–	0.391**
			(0.013)
Actual work itself	–	–	1.070**
			(0.017)
Total net income (log)	0.103**	0.061**	0.067**
	(0.021)	(0.020)	(0.022)
Working hours per week	-0.005	-0.003	-0.018**
	(0.004)	(0.004)	(0.004)
(Working hours)^2	0.0001	0.0002*	0.0001**
	(0.0001)	(0.0001)	(0.0000)
No. of obs.	51'925	51'925	37'220
No. of ind.	13'372	13'372	9'275
Time period	1991 - 1999	1991 - 1999	1991 – 1997
F	13.47**	75.95**	65.17**

Notes: Weighted ordered logit regressions. In addition to the variables shown, the regressions include the same variables on part-time work, age, age squared, sex, and dummies for education, job, industry, and year as in table 1 for UK. Robust standard errors in parentheses (corrected for repeated observations on individuals). Significance levels: ° $0.1 < p < 0.05$, * $0.01 < p < 0.05$, ** $p < 0.01$. *Data source*: BHPS 1991-1999.

Table 5 presents three regressions. In the first column, the job satisfaction regression for Britain from table 4 is reproduced to facilitate comparison. In the middle column, the regression is re-estimated including the two instrumental domain satisfaction variables as explanatory variables. Although these two variables are highly correlated with job satisfaction, the effects of self-employment and hierarchy size on job satisfaction tend to get larger when these variables are included. This indicates that dissatisfaction from hierarchies does not stem from dissatisfaction with instrumental aspects of work. When the two non-instrumental domain satisfaction measures are included (third column), however, it shows that they explain the self-employment and hierarchy size effects perfectly. This is strong evidence that non-instrumental characteristics of work are the reason why the self-employed and people working in relatively small hierarchies are more satisfied with their jobs.[20] Thus, it can be concluded that it is indeed procedural utility from being independent that makes self-employed people more satisfied with their jobs, and that it is procedural disutility from being subject to a hierarchy that causes dissatisfaction with work among people employed in larger hierarchies.

Of course, organizations could in principle mimic these non-instrumental characteristics, by e.g. implementing work practices that give employees more possibilities to use their initiative, or by enriching work itself. The fact that the self-employment and hierarchy effects reappear when non-instrumental satisfaction aspects are not controlled for indicates, however, that many firms fail to do so. It is most likely that the very procedural nature of hierarchy makes it impossible to run a firm as if it were a group of self-employed people.

5. Conclusions

Procedural utility is a concept that 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 are not instrumental in the sense that people expect beneficial outcomes. Rather, individuals value procedures per se.

[20] The results in table 5 remain qualitatively very similar if the regressions are run using a fixed effects estimator controlling for unobserved individual heterogeneity. Note also that the regression in the third column contains less observations than the ones in the left and middle columns, because the question on the "use of initative" was not asked in 1998 and 1999. The results, however, remain largely unchanged if the regressions in the left and middle column are estimated with the reduced sample of 1991-1997.

In this paper, the concept of procedural utility is applied to institutions. Institutions are a potentially important source of procedural utility, because they constitute the fundamental rules by which decisions are taken in society. With respect to the economy, hierarchy is of paramount importance. Nowadays, most production and employment in developed countries is integrated into organizations based on at least some extent of hierarchical decision-making. Still, a considerable share of employment is independently undertaken in the form of self-employment. We empirically test whether individuals value the independence provided by self-employment as such. Our results confirm that people prefer independence, and the relative absence of hierarchy, for purely non-instrumental reasons closely connected with notions of process.

Our study not only provides a more general view of the utility gained from work, but it also has implications for policy. Following the results reached here, the government should at least not restrict self-employment opportunities. In many countries, bureaucratic barriers for self-employment are high. Djankow et al. (2002), for example, show for a large sample of nations that administrative laws and regulations are often restrictive, making it costly for citizens to set up their own businesses. At the same time, large numbers of people in the industrial countries say they would prefer to be self-employed (Blanchflower, Oswald and Stutzer 2001). Lowering barriers to entry thus seems to be a simple means to promote self-employment, providing individuals with added, procedural, utility.[21] There might also be a case for financial state intervention, as insufficient access to credit seems to be another important reason why many people do not become self-employed (Blanchflower and Oswald 1998). However, such programs also have costs that would have to be balanced against their procedural utility effects.

In a more general view, the results presented in this paper may contribute 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, we show that independence is a value in itself, compared to being subject to a hierarchy.

[21] Indeed, Djankow et al. (2002) show that high barriers to entry are not beneficial from the viewpoint of society. Lowering regulations of entry would thus not only promote self-employment, but is likely to have positive effects also in other respects.

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Appendix

Table A: Descriptive Statistics

	Germany				United Kingdom		Switzerland	
	West		East					
Variable	Empl.	Self-Empl.	Empl.	Self-Empl.	Empl.	Self-Empl.	Empl.	Self-Empl.
Job satisfaction (*see remarks*)	7.25 (2.00)		6.86 (2.12)		5.43 (1.36)		8.10 (1.72)	
	7.24 (2.01)	7.45 (1.92)	6.84 (2.12)	7.12 (2.12)	5.40 (1.37)	5.61 (1.31)	8.06 (1.71)	8.47 (1.77)
Ln of total income (*see remarks*)	8.06 (0.59)		7.71 (0.60)		6.80 (0.87)		10.67 (0.89)	
	8.05 (0.57)	8.20 (0.91)	7.70 (0.58)	7.88 (0.79)	6.84 (0.75)	6.57 (1.45)	10.67 (0.85)	10.75 (1.09)
Working hours per week	39.70 (10.84)		43.26 (13.08)		37.89 (15.71)		36.57 (14.22)	
	39.19 (10.03)	48.41 (17.96)	42.77 (9.14)	52.23 (15.84)	36.98 (14.90)	44.62 (19.47)	35.81 (13.65)	43.30 (17.08)
Working part-time	0.23		–		0.23		0.35	
	0.23	0.24			0.24	0.19	0.36	0.28
Tenure	10.70 (9.20)		–		4.80 (6.49)		8.07 (8.83)	
	10.56 (9.06)	11.31 (11.29)			4.30 (5.85)	8.46 (9.24)	7.74 (8.56)	11.02 (10.57)
Age	39.55 (11.80)		39.46 (10.57)		37.71 (12.51)		39.24 (11.89)	
	39.12 (11.09)	43.31 (11.21)	39.33 (10.62)	41.96 (9.30)	36.93 (12.36)	43.45 (12.12)	38.73 (11.73)	43.77 (12.26)
Sex (Female)	0.38		0.47		0.49		0.48	
	0.39	0.30	0.47	0.36	0.51	0.29	0.49	0.35
Education	7 categ.		7 categ.		12 categ.		10 categ.	
Job dummies	88 categ.		88 categ.		73 categ.		31 categ.	
Industry dummies	45 categ.		45 categ.		10 categ.		14 categ.	
No. of obs.	70’229		20’064		52’022		3’431	
	66’314	3’915	19’029	1’035	45’834	6’188	3’081	350
No. of individ.	11’700		4’254		13’380		3’431	
	10’580	1’120	3’930	324	11’359	2’021	3’081	350
Time period	1984 - 2000		1990-2000		1991 - 1999		1999	

Notes: Unweighted means. Standard deviations in parentheses. Job satisfaction is measured on a scale from 0 to 10 in Germany, 1 to 7 in UK, and 0 to 10 in Switzerland. The total income variable consists of gross monthly income in Germany, net monthly income in UK, and net yearly income in Switzerland. Data on tenure and parttime work is missing for East Germany.
Data sources: GSOEP 1984-2000, BHPS 1991-1999, SHP 1999.

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