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Working Papers

BEYOND BENTHAM – MEASURING PROCEDURAL UTILITY

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BEYOND BENTHAM – MEASURING PROCEDURAL UTILITY

Abstract

We propose that outcome utility and process utility can be distinguished and empirically measured. People gain procedural utility from participating in the political decision-making process itself, irrespective of the outcome. Nationals enjoy both outcome and process utility, while foreigners are excluded from political decision-making and therefore cannot enjoy the corresponding procedural utility. Utility is measured by individuals' reported subjective well-being or happiness. We find that participation rights provide more procedural utility in terms of a feeling of self-determination and influence than actual participation.

JEL Classification: D60, D63, D72, H73, I31

Keywords: Procedural utility, subjective well-being, political participation, participation rights

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BEYOND BENTHAM – MEASURING PROCEDURAL UTILITY

Bruno S. Frey and Alois Stutzer

I. 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 hedonic outcomes, such as Bentham's ideas on pleasure and pain, or instrumental outputs such as in a traditional utility function.¹ Individuals may, for instance, experience a higher subjective well-being when they are treated in a way they consider to be just and fair. Procedural utility resulting from activities is obviously important on the labor market. As Scitovsky (1976) argued in his *Joyless Economy*, intrinsic work enjoyment is a major source of utility. Scitovsky even proposed that "[...] the difference between liking and disliking one's work may well be more important than the differences in economic satisfaction that the disparities in our income lead to" (p. 103). People may get satisfaction from acting in a fair way or by being honest, quite independent of the outcome (see e.g. Rabin 1993, Tooby and Cosmides 1994). Thus, utility is reaped from the process itself over and above the outcome generated.

A theoretical literature reflects economists' interest in procedural utility. In particular, procedural utility has been useful to model a specific utility for gambling (see Le Menestrel 2001). Pascal (1670) was well aware of the fact that people derive utility from the mere act of engaging in an activity such as gambling, and so were Marschak (1950), von Neumann and Morgenstern (1953) and Harsanyi (1993). Simon (1976, 1978)² and Sen (1995, 1997) argued more generally that economic choice models should combine preferences for outcome as well as for processes. But such amalgamation is not easy to undertake. Harsanyi (1993: 314) states that procedural utility is incompatible with expected utility theory, and Rabin (1993: 1285), in game theory, believes that procedural utility certainly cannot be analyzed by appropriately transforming the payoffs of a conventional game. Other scholars, in particular Hammond

¹ Bentham ([1789] 1948: 34-35) distinguished between fourteen different kinds of pleasure - the pleasure of sense, wealth, skill, amity, a good name, power, piety, benevolence, malevolence, memory, imagination, expectation, relief and the pleasures dependent on association.

² Simon's concept of procedural rationality was further developed in game theory by Osborne and Rubinstein (1999).

(1988, 1996), simply deny the specific existence of process utility beyond expected utility. In contrast to theoretical considerations, there is a significant lack of empirical evidence in economics.³

Related research has been conducted in other social sciences. Psychologists have done extensive studies on “procedural fairness” (in particular Lind and Tyler 1988, Tyler and Blader 2000). They suggest that people are at least as concerned with procedural justice as with the outcomes of those procedures. They evaluate procedures not only by the results they yield, but by the relational information that they convey, such as assessments of impartiality, trustworthiness of superiors and authorities, and the extent to which individuals feel they are treated with dignity (see also the empirical research reported in Shafir and Tversky (1992), Gärling, Axhausen and Brydsten (1996), Donaldson and Shackley (1997)). Many intrinsic pleasures of a procedure have been identified, among them the utility gained by facing and meeting challenges, expressing oneself, using one’s talents, and reporting experiences over and above any instrumental value they may have. But procedures may also lower utility, for instance by being cognitively taxing or by forcing one into taking a decision⁴. Political scientists have looked at the question of whether governmental institutions produce fair processes and, if so, how (Lane 1988).

This paper intends to contribute to the empirical analysis of outcome and process utility. It shows that the two types of utility can be measured in a particular, but important, context, namely participatory decision-making. We study participation in democratic decision-making, and its effect on utility in the form of satisfaction with life. Satisfaction with life, or subjective well-being, is by now a well established proxy measure of utility in economics (for surveys see Frey and Stutzer 2001 and Oswald 1997). In order to distinguish between the two types of utility, which result from participation in democratic decision-making, and to measure their relative size, we investigate differences between nationals and foreigners. National citizens are allowed to participate politically, and therefore may enjoy satisfaction from both outcome and process, while foreigners have no political participation rights (and therefore do not enjoy procedural utility from this source).

³ There are two exceptions in the literature: the first is compensation differentials in wage rates reflecting the nonmonetary benefits of work (see e.g. Rosen 1986, Viscusi 1993), and the second is process benefits in studies of the use of time (see e.g. Juster and Stafford 1985).

Section II discusses outcome and process utility with regard to two aspects of participation in democratic decision-making: the *right* to participate and *actual* participation. Testable hypotheses are put forward, and the empirical estimation is undertaken in section III. The last section offers conclusions.

II. Utility from Participation

A large literature in the social sciences, especially in psychology, political science and sociology, attributes a positive value to participation, as it enhances individuals' perception of self-determination (for an extensive survey see Lane 2000, chapter 13). Participation is thereby considered as an activity, as well as a characteristic of an institution. People can have preferences about both of these procedural aspects of participation, which go beyond the outcome of a participatory decision-making mechanism. In the following analysis we distinguish between the procedural utility from participation as a characteristic of a state of being, i.e. living and acting under democratic institutions that grant participation *rights*, and the procedural utility from the activity, i.e. *actual* participation.

The *right* to participate in political decisions is a crucial characteristic of any democratic institution. People can gain procedural utility from this state of being as they may have preferences about the democratic institutions within which they live, and act beyond the outcome that is generated by democratic decision-making. They may feel that the political sphere takes their wishes seriously into account in a fair political process, or they may feel alienation and apathy towards the political institutions installed. Moreover, they may have a firm or weak belief that the democratic process is responsive to them, independent of the goods and services they are provided with by the state.⁵ Participation rights in the political mechanism of decision-making, ranging from voting in elections, launching and voting on referenda, to running for a seat in parliament, may thus provide a feeling of being involved and having political influence, and a notion of inclusion, identity and self-determination. It may even be hypothesized that the right to participate in political decision-making accords the

⁴ Many people seem to prefer not to have to decide between two newly available alternatives (e.g. new job offers) even if both of them are superior to the status quo.

⁵ A different view is proposed in the literature on voice in procedural justice. In the early work of Thibaut and Walker (1975), it is argued that people want the right to participate so that they can influence the outcome of a process. This work argues for a purely instrumental model of participation.

citizens more encompassing self-determination than actual participation, because political participation rights are a comprehensive characteristic of political institutions and affect people's well-being not only during a restricted period of political activation. With the rights to participate, the decision is left up to the individual of whether to actually participate. Persons may value the right to participate even if they rarely or never exercise it themselves.

In most countries, the status of being a national fundamentally differs from that of being a foreigner by providing the right to vote and to participate in political decision-making in general. In many other ways, the law demands that they are treated equally. Thus, for example, they have the same human rights and, once admitted into the country, they have (with few exceptions) the same rights to participate in economic affairs. It cannot, of course, be denied that the national legislation and political decisions tend to be rigged in favor of nationals. However, it follows that, on average, the nationals derive *more utility* from political participation rights than foreigners do, provided that nationals enjoy both outcome and process utility, while the foreigners only enjoy outcome utility.

The distinction between nationals and foreigners is largely exogenous. Whether a person may become a citizen or not is determined by law, in particular the requirement of having stayed in the host country for a sufficient number of years, having sufficient mastery of the local language and the content of the constitution. Only after these stringent requirements are met, does an individual have the choice of becoming a citizen. Of course, whether those persons eligible for citizenship indeed accept it, also depends *inter alia* on their expected procedural utility, i.e. their wish to become a community member with full participation rights. Some will decide not to change their citizenship. Becoming a citizen is more or less automatic for young persons and spouses, once the head of the household has decided to do so. In contrast, resident citizens have no possibility of choosing their status of citizenship. They cannot give up their current citizenship without relocation. The distribution of residents in a country between the two categories, foreigners and citizens, thus strongly reflects formal exogenous criteria for citizenship, and not revealed preferences for procedural goods. As a result of these considerations, one may assume that the distinction between nationals and foreigners influences the extent to which one benefits from outcome and process utility, while the reverse causation can safely be neglected.

Actual participation is the second aspect of participatory political decision-making which may provide procedural utility. The standard calculus of voting based on expected utility maximization solely considers outcome utility (see Mueller 1989, Aldrich 1997). It concludes

that rational voters never participate in political decisions, because the probability of affecting the outcome is close to zero with most sizes of electorates, while there are participation costs. However, this prediction is at odds with the empirical observations that citizens do indeed cast their votes, even if their expected influence is virtually nil. This throws doubt on the rational choice approach as traditionally formulated. Some authors therefore have identified various procedural utilities which voters may derive from political participation, for instance a utility from compliance with their sense of civic duty or from the value of expressing an ideological view (Hardin 1982, Brennan and Buchanan 1985, Brennan and Lomasky 1993, Schuessler 2000).

Two hypotheses about procedural utility resulting from political participation rights, as well as from actual participation, are formulated in the next section. It is taken into consideration that actual participation, which affects people's well-being only during a restricted period of political activation, is less comprehensive than political participation rights.

In this paper, utility is measured in terms of reported satisfaction with life. Thus, a proxy measure for utility is applied in order to directly analyze the questions discussed above. Satisfaction with life, or happiness, is increasingly studied and more and more accepted in economics as a reliable measure of individual utility (e.g. Clark and Oswald 1994, Di Tella et al. 2001, Easterlin 1974, Frey and Stutzer 2000, 2001, Kahneman, Diener and Schwarz 1999, Oswald 1997). Subjective well-being is generally assessed in large-scale surveys. In a number of studies, the validity of these survey measures has been documented. Happy people are for example more often smiling during social interactions (Fernández-Dols and Ruiz-Belda 1995) and are rated as happy by friends and family members (Sandvik et al., 1993), as well as by spouses (Costa and McCrae, 1988). Furthermore, the measures of subjective well-being reflect life-changes (Ehrhardt, Saris and Veenhoven 1999), a person's recall of positive versus negative life-events (Seidlitz, Wyer and Diener 1997), and are to a large extent unbiased with regard to social desirability (Konow and Earley 1999). But there is, of course, room for methodological concerns (e.g. Diener et al. 1999, pp. 277-8).

III. The Model and Its Empirical Estimation

A. Hypotheses

On the basis of our discussion, the following empirically testable hypotheses can be formulated:

Hypothesis 1: The utility derived from the *right* to participate in the political process (measured by the extent of direct democratic rights across regions) supports the subjective well-being of the citizens. The foreigners living in the same region, who are excluded from this process, experience lower levels of happiness than the citizens.

Hypothesis 2: *Actual* political participation (measured by the differential participation rates between regions in national ballots) is less connected with procedural utility than is the *right* for political participation.

In both hypotheses, the strategy used to identify procedural utility is based on the formal distinction between citizens and foreigners. The corresponding statistical approach is in analogy to the differences-in-differences estimator for time series. In a crude formulation, procedural utility is the additional positive effect of more extended participation *rights* on citizens' well-being compared to that on foreigners' (Hypothesis 1). For *actual* participation, procedural utility is the difference between the increase in reported subjective well-being of citizens and non-citizens due to higher participation rates, respectively (Hypothesis 2).

B. Data and Descriptive Analysis

1. Subjective well-being

We study the proposed hypotheses using a survey based on more than 6,000 interviews with residents of Switzerland, collected by Leu, Burri and Priester (1997).⁶ The proxy measure for individual utility is based on the answers to the following question: 'How satisfied are you with your life as a whole these days?' Simultaneously, the respondents were shown a table with a 10 point scale, of which only the two extreme values ('completely dissatisfied' and 'completely satisfied') were verbalized. The survey found a high general life satisfaction in Switzerland, with an average of 8.2 out of 10 points.

⁶ The survey data were collected between 1992 and 1994 in order to investigate the problem of poverty in Switzerland. The information contained in the data set is based on personal interviews and tax statistics.

Data for Switzerland is studied because of unique variation in political participation rights as well as in actual participation. This variation can be linked to outcome and process utility in the form of happiness.

2. Participation rights

The first source of procedural utility proposed is that of the individual *rights* of political participation. In Switzerland, in addition to elections, there are several different ways of engaging directly in the political process at three state levels. Most important are the direct democratic instruments. They exist at a national level as well as at the level of the 26 cantons (states). Here the cantonal level is considered because participation rights at the national level apply equally across the country. In cantons, the major direct democratic instruments are the popular initiatives to change the canton's constitution or laws, a compulsory and optional referendum to prevent new laws, or the changing of existing laws, and an optional financial referendum to prevent new state expenditure. Due to the federal structure of Switzerland, major areas of competence are held by the cantons and, thus, there is a high potential influence of direct legislation on the outcome of the political process in Swiss cantons. However, citizens' access to these instruments differs substantially from canton to canton. Thus, for example, the number of signatures required to launch an initiative or an optional referendum, or the time span within which the signatures have to be collected, varies. The referendum on public expenditures may be launched at different levels of additional outlays. We constructed an index designed to reflect the extent of direct democratic participation rights in the 26 cantons (for details of the index construction, see Appendix A). This index is defined using a six point scale, with 1 indicating the lowest, and 6 the highest degree of participation rights for the citizens.

According to Hypothesis 1, more developed participation rights are expected to increase reported satisfaction with life, due to a larger increase in procedural utility. In Table 1, the utility difference between residents living in cantons with weak participation rights (the index is lower than 4⁷) and with strong participation rights is reported. On average, residents with strong participation rights report a 0.22 point higher level of well-being. However, this difference may also be due to a favorable outcome of the political process. There is ample evidence that in more direct democratic jurisdictions the outcome of the political process is

⁷ A cut-off point of 4 is selected in order to split the sample into two sub-samples with an approximately equal number of individual observations.

closer to the wishes of the residents (see e.g. Frey 1994 and the survey by Kirchgässner, Feld and Savioz 1999). To differentiate between outcome and procedural utility, the proposed identification criteria of people's nationality is considered. As foreigners are excluded from political participation rights, but not from the outcome of the political process, differences in levels of satisfaction between citizens and foreigners in cantons with weak and with strong participation rights have to be compared. Where participation rights are weak, a difference in well-being between Swiss citizens and foreigners of 0.55 points is measured. The respective difference in cantons with extended direct democratic rights is 0.80 points. Both gaps in subjective well-being are due to differences in individual characteristics, incomplete assimilation and, above all, the citizens' opportunity to reap procedural utility. The differences-in-differences between cantons with weak and strong participation rights then reflects the gain in procedural utility of citizens due to more extended participation rights. The raw data show a large effect of procedural utility in terms of reported satisfaction with life of 0.25 points.⁸ A multiple regression analysis has to test whether this result still holds if individual characteristics are controlled for. An ordered probit estimation and extended discussion of the result is provided in subsection C.

Table 1 about here

3. Actual participation

Actual participation is hypothesized to contribute to people's sense of self-determination and thus their experienced procedural utility. Here participation in national ballots is considered, in order to keep the content of the ballots equal for all the voters. This does not mean that the expected outcome utility of the voting decision is equally distributed across jurisdictions.

⁸ An alternative differences-in-differences interpretation considers the rows in Table I instead of the columns. Given that foreigners cannot reap procedural utility from the democratic process because they are formally excluded, the difference in reported life satisfaction between people living in cantons with weak and with strong participation rights is due to a difference in outcome utility. For the raw data, the difference in outcome utility is close to zero. In the case of Swiss citizens, the difference includes procedural as well as outcome utility. The raw effect of stronger participation rights is on average 0.2 points on the satisfaction scale. Considering both foreigners and Swiss citizens, the differences-in-differences due to procedural utility is 0.2 points.

Consequently, we again use a differences-in-differences approach to conduct a descriptive analysis of Hypothesis 2.

The participation rate is measured at the cantonal level. Average actual participation is calculated from 45 national ballots on referenda and initiatives. These ballots were held between February 19, 1992 and December 4, 1994, i.e. during the same years that the personal interviews were conducted. An overview of the variation in actual participation rates across cantons is presented in Appendix B. For the analysis in Table 2, the data set is divided into two sub-samples. In the left-hand column, the sub-sample consists of people living in cantons with an average participation rate below 49.1 percent; in the right-hand column with an average participation rate above 49.1 percent.⁹ For the whole sample, a higher reported well-being of 0.14 points is measured in jurisdictions with more active voters. This positive relationship between actual participation and life satisfaction can either be due to spatially different material consequences of the legislative proposals that stimulated participation, or due to procedural utility. If the difference in well-being is calculated separately for foreigners and citizens, the effects of outcome and procedural utility can be distinguished. As foreigners have no direct democratic participation rights, their procedural utility is expected to be close to nil. Therefore, foreigners' higher life satisfaction of 0.13 points in cantons with high participation rates, compared to those living in cantons with low participation rates, is attributed to outcome utility. For citizens, a similar positive difference of 0.13 is computed. A first empirical test thus gives no evidence of procedural utility resulting from more active political participation. The differences-in-differences is -0.01 points, and thus close to zero. In the next section, a detailed analysis of the relationship between participation rates and subjective well-being is presented. A multiple ordered probit regression then allows for the control of other covariates.

Table 2 about here

C. Results of the Econometric Analysis

⁹ A cut-off point of 49.1 is chosen again in order to split the sample into two sub-samples, with an approximately equal number of individual observations.

The descriptive analysis presented above offers preliminary evidence for positive procedural utility caused by stronger participation rights, but no evidence for process utility due to higher actual participation. A multiple regression analysis has to show whether these results are robust. Once again, a differences-in-differences estimation strategy is applied to identify procedural utility. Technically, an interaction term is included in the estimation equation that combines the variable that captures the proposed source of procedural utility with the identifying criteria. Here, the identifying characteristic is being a foreigner.

1. Participation rights

Table 3 refers to Hypothesis 1 and presents the estimated coefficients and marginal effects of a microeconomic happiness function, taking into account participation rights as well as a large set of control variables. In order to exploit the ranking information contained in the originally scaled dependent variable, a weighted ordered probit model is applied. The weighting variable used allows representative results at an individual level for Switzerland.¹⁰ Throughout the remainder of the paper, we use a robust estimator of variance, because random disturbances are potentially correlated within groups or clusters. Here, dependence refers to residents of the same canton.¹¹

Table 3 about here

The estimation results show sizeable effects for both variables considered in Hypothesis 1 (they are shown at the top of Table 3). The overall effect of participation rights on reported satisfaction with life is positive. In the ordered probit estimation, a positive coefficient indicates that the probability of stating well-being greater than any given level increases. The positive effect can be attributed to a gain in outcome or procedural utility in cantons with

¹⁰ Due to clustering and stratification, in contrast to pure random sampling, weights are necessary to get approximately unbiased point estimates. Weights are proportional to the inverse of the probability of being sampled. In addition, the weights are adjusted to the demographic structure in 1992.

¹¹ Ignoring the clustering in the estimation model is likely to produce downward biased standard errors, due to the effects of aggregate variables on individual data (Moulton 1990). To get unbiased standard errors for the aggregate variables “participation rights” and “participation rate”, the 26 cantons are used as sample units.

more extended participation rights. The interaction term in the second row reveals the difference in positive effects for Swiss citizens and foreigners. The negative coefficient indicates that foreigners benefit less from stronger participation rights than the people in the reference group, i.e. the citizens. This result is consistent with Hypothesis 1 that foreigners gain less procedural utility from direct democratic participation rights than Swiss nationals. It has to be noted that the difference in the average subjective well-being of foreigners and citizens is captured in a separate control variable, which is not interpreted in terms of procedural utility.

If it is assumed that foreigners do not reap any procedural utility at all, but cannot be excluded from the outcome of the political process, the relative size of procedural utility can be assessed. Comparing the negative coefficient of the interaction variable, which captures procedural utility under these assumptions, with the coefficient for the variable participation rights, gives the result that two thirds of the positive effect of more extended direct democratic participation rights are due to procedural utility and one third stems from outcome utility.

An absolute interpretation of the size of the effects is provided by the marginal effect. The marginal effect indicates the change in the proportion of persons belonging to a stated satisfaction level when the independent variable increases by one unit.¹² In the case of dummy variables, the marginal effect is evaluated with regard to the reference group. For simplicity, only the marginal effects for the top rating of complete satisfaction with life (score 10) are shown in Table 3. An increase in the index of participation rights by one point raises the proportion of persons indicating very high satisfaction with life by 3.3 percentage points. For foreigners, however, this effect is smaller, as the interaction term has to be considered. 2.3 percentage points of the increased probability of reporting maximum subjective well-being cannot be reaped by the foreigners. In our interpretation, this is because they are excluded from the political process and thus from procedural utility.

The effect of procedural utility, as reflected in reported life satisfaction itself, is sizeable. This can be seen when the total variation in participation rights is considered, i.e. when citizens in canton Basel Land (with the highest democracy index of 5.69) are compared to citizens in canton Geneva (with the lowest direct participation rights of 1.75). The former benefit from

¹² Alternatively, the marginal effect indicates the change of probability belonging to a stated satisfaction level when the independent variable increases by one unit.

procedural utility, which increases their probability of being completely satisfied by approximately 11.6 percentage points. This effect for procedural utility is larger than the effect of being in the top income category (> Sfr. 5,000) rather than in the bottom income category (< Sfr. 2,000).

The results discussed so far hold *ceteris paribus*, i.e. if a number of determinants or correlates of happiness are controlled for. Most important are individual socio-demographic characteristics. In the estimation equation, the respondent's age, gender, health status, educational level, civil status, employment status and household income are considered. The results for these variables are discussed in Frey and Stutzer (2000) and are similar in size and direction to those found in other microeconomic happiness functions (see e.g. Blanchflower and Oswald 2000). In addition, four variables are included that control for three potential alternative explanations. Firstly, a dummy variable for people's participation in clubs or associations is used to test whether citizens in cantons with stronger participation rights may have accumulated more Putnam (2000) style social capital and thus enjoy higher subjective well-being than citizens in cantons with less extended democratic rights. Secondly, a dummy variable for living in an urban area is included to investigate the argument that direct democratic rights could be weaker in urban areas where most of the foreigners live, and thus the raw effect may reflect urbanization. Thirdly, dummies for the language that is spoken in the canton are included in order to test whether the patterns in the descriptive statistics may capture cultural differences within Switzerland instead of institutional variation. However, as presented in Table 3, even controlling for these factors, participation rights have a sizeable effect on individual procedural utility.

2. Actual participation

Participation in political decision-making is often explained by the procedural utility gained (e.g. Riker and Ordeshook 1973). Hypothesis 2, however, argues that citizens value the right to participate even more. Here, in a first step, the effect of average actual participation across cantons on subjective well-being is evaluated. In the test performed, ballots at the national level are considered in order to guarantee that participation rights are equal for all citizens.

Table 4 shows the results for an ordered probit model. The first variable tests for a partial correlation between average participation rate and reported satisfaction with life. According to the very small and statistically insignificant coefficient, there is no such relationship in the data set at hand. Whether this negligible correlation is due to a net effect that equalizes a

positive effect due to procedural utility, and a negative effect caused by low outcome utility in cantons with high participation rates, is tested with the interaction variable. The interaction term between participation rate and being a foreigner identifies the contribution of active participation on subjective well-being that is independent of any outcome considerations. However, the coefficient of the interaction term is quantitatively unimportant and gives no evidence of any procedural utility reaped from actual participation.¹³ It is, therefore, superfluous to combine the two measures of political participation to test Hypothesis 2. There is clear evidence consistent with sizeable procedural utility gained from the possibility of participating in the directly democratic political process. However, no statistical evidence is found for procedural utility resulting from actual participation.

Table 4 about here

D. Robustness Analysis

To check the reliability of the results, two robustness tests are performed. In the main estimations presented above, characteristics that are known for each individual are considered in order to control for correlated and contextual effects. Now, additional aggregate variables are included in the estimation equation to test two alternative hypotheses. As there is no evidence for procedural utility in actual participation, we do not perform any robustness tests on that result.

The first alternative hypothesis refers to the distribution of foreigners across cantons: foreigners report lower life satisfaction than citizens in cantons with stronger participation rights, because they are a smaller minority in these cantons.¹⁴ In order to test this hypothesis, two variables are additionally included in the regression model: the average proportion of foreigners in a canton and an interaction term between proportion of foreigners and being a foreigner. The overall percentage of foreigners in the total population for Switzerland was

¹³ The estimation results for a sample excluding observations from canton Schaffhausen - the canton with compulsory voting - neither differ qualitatively nor quantitatively from the ones reported in the text.

¹⁴ The correlation between the average proportion of foreigners in a canton and the index for participation rights is -0.594.

18.5 percent between 1992 and 1994. It varied greatly from one canton to another, the highest percentage being in canton Geneva with 37.5 percent, the lowest in canton Nidwalden with 7.9 percent. The estimation results in Panel A in Table 5 show that the coefficient which identifies procedural utility is changing very little (from -0.067 in Table 3 to -0.077). Thus, the distribution of foreigners across cantons cannot explain the different effects of participation rights on subjective well-being for citizens and foreigners.

Table 5 about here

In a second alternative hypothesis the assumption is relaxed that foreigners cannot be discriminated against on the outcome of the political process: cantons with higher income per capita provide public services that serve the citizens' preferences to a greater extent. In order to test this alternative explanation, estimation B in Table 5 includes a variable for national income per capita for each individual canton, as well as an interaction variable combining income per capita and being a foreigner. The estimation results reveal that the institutional influence on subjective well-being is not affected. The gain in life satisfaction restricted to citizens due to more extended participation rights is thus a fairly robust result.

E. Alternative Interpretations

The empirical evidence presented is interpreted in terms of outcome utility and procedural utility that enhance citizens' subjective well-being. However, one may consider three alternative interpretations of the empirical regularities found, which rely on procedural as well as purely outcome oriented considerations.

Firstly, the procedural aspect of utility that is gained from direct democratic participation rights may be closer connected with the outcome of the process: as people in more direct democratic jurisdictions become more attached to the public sphere, they may appreciate the same quality of the publicly provided goods more.

Secondly, the difference in the benefits from democratic participation rights between foreigners and citizens may not be a gain for the citizens but a procedural disutility for the foreigners, as they are explicitly excluded from the process. Whether rights as a characteristic of institutions are experienced as a certificate of inclusion or a signal of exclusion depends on

the salience of them for the two groups. It may be argued that democratic participation rights are more important for the “marked group”, i.e. the excluded foreigners.

Thirdly, the direct democratic process considered may generate a different bundle of publicly provided goods for Swiss and foreigners, or at least a bundle that corresponds better to citizens’ preferences.

Do these alternative interpretations correspond to procedural utility in a direct democracy, as considered in our empirical analysis? The essence of procedural aspects in direct democracy lies in the discussion endogenously brought about by initiatives and referenda (see Bohnet and Frey 1994). Direct democracy produces the conditions for a serious discursive process (see Habermas 1992, for a philosophical background, and Dryzek 1990 and Elster 1998, for politics) which, in principle (unlike most other discussions), is open to the whole population, and which ends in a well-defined act of decision. Citizens value this possibility of engaging themselves directly with politically relevant issues, quite irrespective of the outcome. This emphasis on voice in the relationship between citizens and the democratic authorities parallels findings in the literature on social justice (Tyler et al. 1997). People want to be respected and to know that the authorities will listen to their concerns.

In order to address the alternative interpretations on empirical grounds, it is necessary to extend the identifying criteria. Either a category of foreigners who suffers more than other foreigners by being excluded has to be identified, or a category of citizens who may not gain the procedural utility due to a lack of integration has to be isolated. To identify the latter, people with dual citizenship can be considered. Switzerland allows its citizens to become citizens of another country or to keep their former citizenship once they accept Swiss citizenship. If the status of dual citizenship either reflects a weak preference for procedural goods or only partial integration, the alternative interpretations that refer to exclusion and differences in outcomes can at least tentatively be tested against the concept of procedural utility. Provided the results in Table 3 reflect procedural utility, then people who care less for procedural goods are expected to report lower life satisfaction in jurisdictions with more developed participation rights. However, if the results reveal some kind of discrimination of foreigners in the outcome of the political process, people with dual citizenship are expected to be as satisfied with life as persons of Swiss nationality.

Table 6 presents the results for the effect of democratic participation rights on reported satisfaction with life for three categories of residents: Swiss, Swiss with dual citizenship and

foreigners. In comparison to the estimation presented in Table 3, an additional interaction term (Swiss with dual citizenship times the extent of participation rights) and an additional dummy variable (Swiss with dual citizenship) is included. The coefficient for the additional interaction variable shows that Swiss with dual citizenship do not benefit from more developed participation rights. This empirical finding is not compatible with utility differences based on discrimination between Swiss and foreigners in jurisdictions with more extended participation rights.

Table 6 about here

The evidence thus suggests that the right to participate as a characteristic of democratic institutions offers benefits in the form of procedural utility.

IV. Conclusions

The concept of procedural utility represents a different approach to human well-being from the standard outcome-oriented approach in social science research. Research in the latter approach is based on Bentham's concept of "experienced utility" and modern economics usage of "decision utility" inferred from observed choices (Kahneman et al. 1997: 375). Procedural utility refers to the utility that people gain from the decision-making process itself, irrespective of the outcome.

In this paper, participatory decision-making in politics is considered a possible source of procedural utility. People may have a preference for participation as an activity as well as a characteristic of an institution. If so, the right to directly participate in the democratic process give citizens a sense that their preferences are seriously taken into account in a fair political process. Foreigners who are excluded from political decision-making cannot gain such procedural utility. The results of our empirical analysis are consistent with this notion of procedural utility. Citizens, as well as foreigners, who live in jurisdictions with more developed political participation rights, enjoy higher levels of subjective well-being. The positive effect on reported satisfaction with life is, however, smaller for foreigners, reflecting their exclusion from procedural utility. It is thus empirically feasible to distinguish between outcome and process utility. It is also possible to get a notion of the relative size of outcome and process utility. The positive effect of participation rights is three times as large for the

citizens as it is for the foreigners, i.e. a major part of the welfare gain from the favorable political process is due to procedural utility. Moreover, if the full range of participation rights is considered, procedural utility accounts for larger differences in subjective well-being than the full range of individual income.

Actual political participation is often rationalized by individuals' experience of procedural utility. Here it is argued that participation *rights* are more important in terms of a feeling of control, self-determination or influence on the political sphere than *actual* participation is. This hypothesis is not rejected, as we neither find statistically significant nor sizeable positive effects of high participation rates on individual well-being.

Overall, "going beyond Bentham" helps us to better understand what individuals value. We submit that individuals value both outcomes *and* procedures and, in particular, that they derive substantial utility from political participation rights.

References

- Aldrich, John H. (1997). When Is It Rational to Vote? In: Dennis C. Mueller (ed.) *Perspectives on Public Choice. A Handbook*. Cambridge: Cambridge University Press: 373-390.
- Bentham, Jeremy (1789). *An Introduction to the Principles of Morals and Legislation*. Reprinted 1948, Oxford, UK: Blackwell.
- Blanchflower, Daniel G. and Andrew J. Oswald (2000). Well-Being Over Time in Britain and the USA. NBER Working Paper No. 7487. Cambridge, MA: National Bureau of Economic Research.
- Bohnet, Iris and Bruno S. Frey (1994). Direct-democratic Rules: The Role of Discussion. *Kyklos* 47(3): 341-354.
- Brennan, Geoffrey and James M. Buchanan (1985). *The Reason of Rules. Constitutional Political Economy*. Cambridge: Cambridge University Press.
- Brennan, Geoffrey and Loren Lomasky (1993). *Democracy and Decision: The Pure Theory of Electoral Preference*. Cambridge: Cambridge University Press.
- Clark, Andrew E. and Andrew J. Oswald (1994). Unhappiness and Unemployment. *Economic Journal* 104(424): 648-659.
- Costa, Paul T. and Robert R. McCrae (1988). Personality in Adulthood: A Six-Year Longitudinal Study of Self-Reports and Spouse Ratings on the NEO Personality Inventory. *Journal of Personality and Social Psychology* 54(5): 853-863.
- Di Tella, Rafael, Robert J. MacCulloch and Andrew J. Oswald (2001). Preferences over Inflation and Unemployment: Evidence from Surveys of Happiness. *American Economic Review*, forthcoming.
- Diener, Ed, Eunkook M. Suh, Richard E. Lucas and Heidi L. Smith (1999). Subjective Well-Being: Three Decades of Progress. *Psychological Bulletin* 125(2): 276-303.
- Donaldson, Cam and Phil Shackley (1997). Does "Process Utility" Exist? A Case Study of Willingness to Pay for Laparoscopic Cholecystectomy. *Social Science Medicine* 44 (5): 699-707.
- Dryzek, John S. (1990). *Discursive Democracy: Politics, Policy and Political Science*. Cambridge: Cambridge University Press.
- Easterlin, Richard A. (1974). Does Economic Growth Improve the Human Lot? Some Empirical Evidence. In: Paul A. David and Melvin W. Reder (eds.) *Nations and Households in Economic Growth: Essays in Honour of Moses Abramowitz*. New York and London: Academic Press: 89-125.
- Ehrhardt, J. J., W. E. Saris and Ruut Veenhoven (1999). Stability of Life-Satisfaction over Time. Mimeo. Erasmus University Rotterdam and University of Amsterdam.
- Elster, Jon (ed.) (1998). *Deliberative Democracy*. Cambridge: Cambridge University Press.
- Fernández-Dols, José-Miguel and Maria-Angeles Ruiz-Belda (1995). Are Smiles a Sign of Happiness? Gold Medal Winners at the Olympic Games. *Journal of Personality and Social Psychology* 69(6): 1113-1119.
- Frey, Bruno S. (1994). Direct Democracy: Politico-Economic Lessons from Swiss Experience. *American Economic Review* 84(2): 338-348.
- Frey, Bruno S. and Alois Stutzer (2000). Happiness, Economy and Institutions. *Economic Journal* 110(466): 918-938.

- Frey, Bruno S. and Alois Stutzer (2001). *Happiness and Economics: How the Economy and Institutions Affect Human Well-Being*. Forthcoming with Princeton University Press.
- Gärling, Tommy, Kay Axhausen and Monika Brydsten (1996). Travel Choice and the Goal/Process Utility Distinction. *Applied Cognitive Psychology* 10(1): 65-74.
- Habermas, Jürgen (1992). *Faktizität und Geltung: Beiträge zur Diskurstheorie des Rechts und des demokratischen Rechtsstaates*. Frankfurt: Suhrkamp.
- Hammond, Peter J. (1988). Consequentialist Foundation of Expected Utility. *Theory and Decision* 25: 25-78.
- Hammond, Peter J. (1996). Consequentialism, Rationality and Game Theory. In: Kenneth J. Arrow, E. Colombatto, M. Perlman and Christian Schmidt (eds) *The Rational Foundations of Economic Behaviour*. New York: St. Martin Press; London: Macmillan Press.
- Hardin, Russell (1982). *Collective Action*. Baltimore: John Hopkins University Press.
- Harrington, Josef E. (1995). Cooperation in a One-shot Prisoners' Dilemma. *Games and Economic Behavior* 8(2): 364-377.
- Harsanyi, John C. (1993). Normative Validity and Meaning of von Neumann-Morgenstern Utilities. In: Binmore Ken, Kirman Alan and Tani Piero (eds) *Frontiers of Game Theory*. Cambridge & London: MIT Press: 307-320.
- Juster, F. Thomas and Frank P. Stafford (eds) (1985). *Time, Goods, and Well-Being*. Ann Arbor: Institute for Social Research, The University of Michigan.
- Kahneman, Daniel, Ed Diener and Norbert Schwarz (eds) (1999). *Well-Being: The Foundation of Hedonic Psychology*. New York: Russell Sage Foundation.
- Kahneman, Daniel, Peter P. Wakker and Rakesh Sarin (1997). Back to Bentham? Explorations of Experienced Utility. *Quarterly Journal of Economics* 112(2): 375-405.
- Kirchgässner, Gebhard, Lars Feld and Marcel R. Savioz (1999). *Die direkte Demokratie: Modern, erfolgreich, entwicklungs- und exportfähig*. Basel: Helbing und Lichtenhahn and Munich: Vahlen.
- Konow, James and Joseph Earley (1999). The Hedonistic Paradox: Is Homo Economicus Happier? Mimeo, Department of Economics, Loyola Marymount University, Los Angeles.
- Lane, Robert E. (1988). Procedural Goods in a Democracy. *Social Justice Research* 2(3): 177-192.
- Lane, Robert E. (2000). *The Loss of Happiness in Market Economies*. New Haven and London: Yale University Press.
- Le Menestrel, Marc (2001). A Process Approach to the Utility for Gambling. Forthcoming in Theory and Decision.
- Leu, Robert E., Stefan Burri and Tom Priester (1997). *Lebensqualität und Armut in der Schweiz*. Bern: Haupt.
- Lind, E. Allan and Tom R. Tyler (1988). *The Social Psychology of Procedural Justice*. New York: Plenum Press.
- Marschak, Jacob (1950). Uncertain Prospects, and Measurable Utility. *Econometrica* 18: 111-141.
- Moulton, Brent R. (1990). An Illustration of a Pitfall in Estimating the Effects of Aggregate Variables on Micro Units. *Review of Economics and Statistics* 72(2): 334-338.
- Mueller, Dennis C. (1989). *Public Choice II*. 2nd edition, Cambridge: Cambridge University Press.

- Osborne, Martin J. and Ariel Rubinstein (1998). Games with Procedurally Rational Players. *American Economic Review* 88 (4): 834-847.
- Oswald, Andrew J. (1997). Happiness and Economic Performance. *Economic Journal* 107(445): 1815-1831.
- Pascal, Blaise (1670). *Pensées*. Paris: Port-Royal.
- Putnam, Robert D. (2000). *Bowling Alone: The Collapse and Revival of American Community*. New York, NY: Simon and Schuster.
- Rabin, Matthew (1993). Incorporating Fairness into Game Theory and Economics. *American Economic Review* 83 (5): 1281-1302.
- Riker, William H. and Peter C. Ordeshook (1973). *An Introduction to Positive Political Theory*. Englewood Cliffs, NJ: Prentice Hall.
- Rosen, Sherwin (1986). The Theory of Equalizing Differences. In: Orley Ashenfelter and Richard Layard (eds) *Handbook of Labor Economics*, Volume 1. Amsterdam, Oxford and Tokyo: North-Holland: 641-692.
- Sandvik, Ed, Ed Diener and Larry Seidlitz (1993). Subjective Well-Being: The Convergence and Stability of Self-Report and Non-Self-Report Measures. *Journal of Personality* 61(3): 317-42.
- Schuessler, Alexander A. (2000). Expressive Voting. *Rationality and Society* 12: 87-119.
- Scitovsky, Tibor (1976). *The Joyless Economy: An Inquiry into Human Satisfaction and Dissatisfaction*. Oxford: Oxford University Press.
- Seidlitz, Larry, Robert S. Wyer and Ed Diener (1997). Cognitive Correlates of Subjective Well-Being: The Processing of Valenced Life Events by Happy and Unhappy Persons. *Journal of Research in Personality* 31 (1): 240-256.
- Sen, Amartya K. (1995). Rationality and Social Choice. *American Economic Review* 85: 1-24.
- Sen, Amartya K. (1997). Maximization and the Act of Choice. *Econometrica* 65 (4): 745-779.
- Shafir, Eldar and Amos Tversky (1992). Thinking through Uncertainty: Nonconsequential Reasoning and Choice. *Cognitive Psychology* 24: 449-474.
- Simon, Herbert A. (1976). From Substantive to Procedural Rationality. In: S. J. Latsis (ed.) *Methods and Appraisal in Economics*. Cambridge MA: Cambridge University Press.
- Simon, Herbert A. (1978). Rationality as a Process and Product of Thought. *American Economic Review* 68(May): 1-16.
- Stutzer, Alois (1999). Demokratieindizes für die Kantone der Schweiz. Working Paper No. 23, Institute for Empirical Research in Economics, University of Zurich.
- Swiss Federal Statistical Office (ed.) (various years). *Statistisches Jahrbuch der Schweiz*. Zurich: Neue Zürcher Zeitung.
- Thibaut John and Laurens Walker (1975). *Procedural Justice: A Psychological Analysis*. Hillsdale, NJ: Erlbaum.
- Tooby, John and Leda Cosmides (1994). Better than Rational: Evolutionary Psychology and the Invisible Hand. *The American Economic Review* 84: 327-332.
- Trechsel, Alexander and Uwe Serdült (1999). *Kaleidoskop Volksrechte: Die Institutionen der direkten Demokratie in den schweizerischen Kantonen 1970-1996*. Basel, Genf, München: Helbling & Lichtenhahn.
- Tyler, Tom R. and Steven L. Blader (2000). *Cooperation in Groups: Procedural Justice, Social Identity, and Behavioral Engagement*. Philadelphia, PA: Psychology Press.

- Tyler, Tom R., Robert J. Boeckmann, Heather J. Smith and Yuen J. Huo (1997). *Social Justice in a Diverse Society*. Boulder, CO: Westview Press.
- Viscusi, W.Kip (1993). The Value of Risks to Life and Health. *Journal of Economic Literature* 31(4): 1912-1946.
- von Neumann, John and Oskar Morgenstern (1944). *Theory of Games and Economic Behavior*. Princeton: Princeton University Press.

APPENDIX A

Index for participation rights in Swiss cantons

Participation rights are measured here in terms of direct democratic participation possibilities. In Switzerland, at the national level, these rights apply equally to all citizens. However, these rights become very heterogeneous at the cantonal level. An index is constructed to measure the different barriers preventing citizens from entering the political process, apart from elections, in the year 1992. The index is based mainly on data collected in Trechsel and Serdült (1999) (for details see Stutzer, 1999).

The four main legal instruments directly influencing the political process in Swiss cantons are (i) the popular initiative to change the canton's constitution, (ii) the popular initiative to change the canton's law, (iii) the compulsory and optional referendum to prevent new law or changing law and (iv) the compulsory and optional referendum to prevent new state expenditure. Barriers are in terms of (i) the necessary number of signatures needed to launch an instrument (absolute and relative to the number of citizens with the right to vote), (ii) the legally allowed time span to collect the signatures and (iii) the level of new expenditure per head allowing a financial referendum. Compulsory referenda are treated like referenda with the lowest possible barrier. Each of these restrictions is evaluated on a six point scale: 'one' indicates a high barrier, 'six' a low one. From the resulting ratings, a non-weighted average is calculated for the composite index, which represents the measure of participation rights in Swiss cantons. The results are presented in Figure 1.

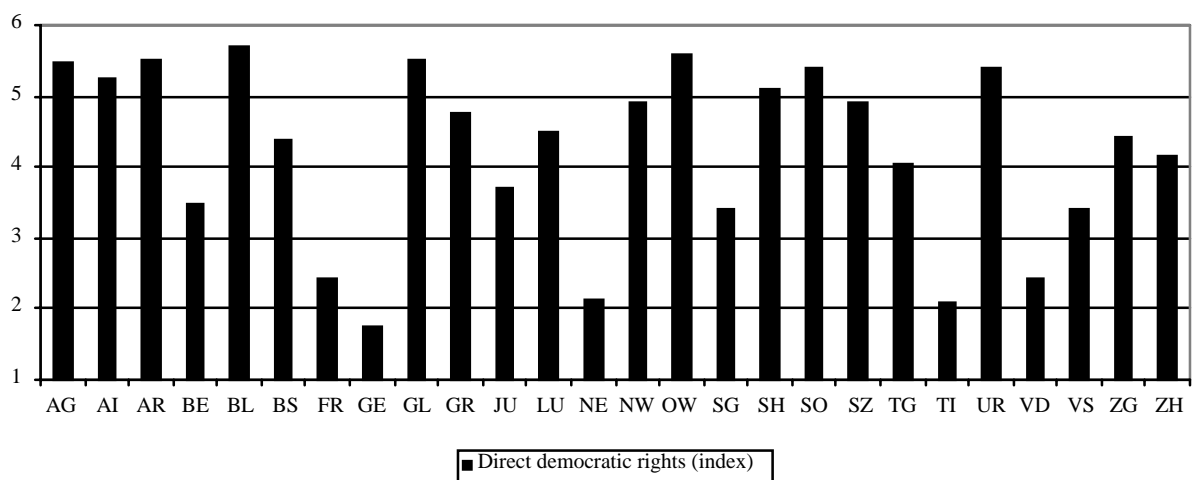


FIGURE 1

PARTICIPATION RIGHTS IN SWISS CANTONS

The figure shows the degree of direct democratic participation rights in the 26 Swiss cantons, namely Aargau (AG), Appenzell i. Rh. (AI), Appenzell a. Rh. (AR), Bern (BE), Basel Land (BL), Basel Stadt (BS), Fribourg (FR), Genève (GE), Glarus (GL), Graubünden (GR), Jura (JU), Luzern (LU), Neuchâtel (NE), Nidwalden (NW), Obwalden (OW), St. Gallen (SG), Schaffhausen (SH), Solothurn (SO), Schwyz (SZ), Thurgau (TG), Ticino (TI), Uri (UR), Vaud (VD), Valais (VS), Zug (ZG) and Zürich (ZH).

APPENDIX B

Actual participation rates across Swiss cantons

The average participation rate is measured at the cantonal level. Actual participation in 45 national ballots on referenda and initiatives is taken into consideration. These ballots took place between February 19, 1992 and December 4, 1994. Figure 2 gives an overview of participation rates.

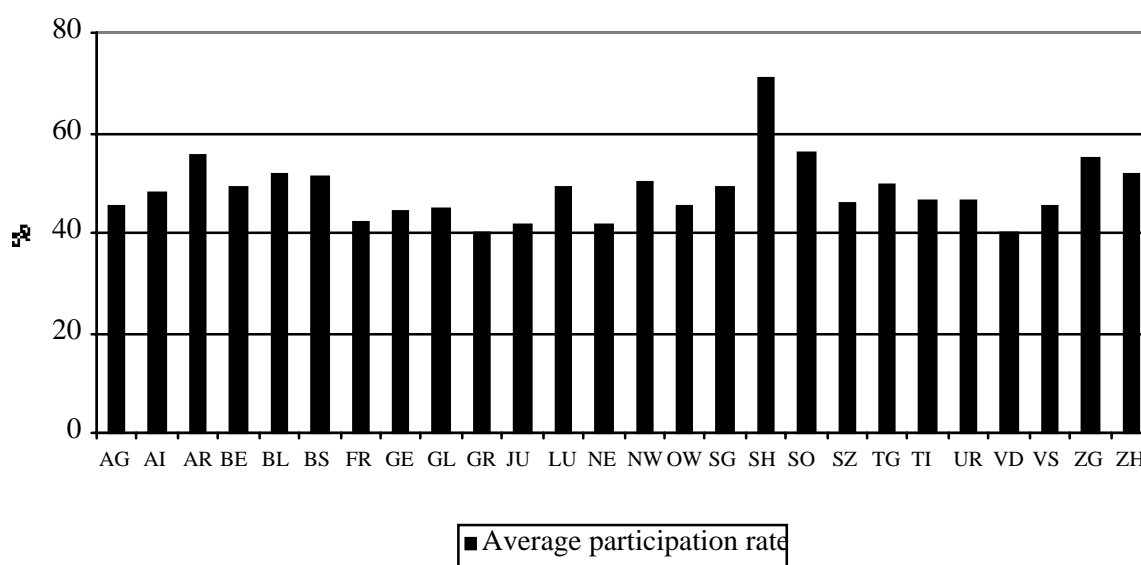


FIGURE 2

ACTUAL PARTICIPATION RATES IN SWISS CANTONS

The figure shows the average actual participation rate in the 26 Swiss cantons between 1992 and 1994. For abbreviations for cantons see Figure 1. The high participation rate in canton Schaffhausen is due to compulsory voting.

TABLE 1
SATISFACTION WITH LIFE AND PARTICIPATION RIGHTS, DESCRIPTIVE STATISTICS

	Participation rights		Difference
	Weak	Strong	
Whole sample	8.099 (0.033)	8.318 (0.029)	0.218** (0.044)
Foreigners	7.625 (0.090)	7.602 (0.104)	-0.023 (0.136)
Swiss citizens	8.176 (0.036)	8.402 (0.029)	0.226** (0.046)
Difference (Swiss citizens-foreigners)	0.551** (0.096)	0.800** (0.092)	0.249* (0.133)

Notes: Standard errors in parentheses. Significance levels: * $0.05 < p < 0.10$, ** $p < 0.05$.
Data sources: Leu, Burri and Priester (1997) and Stutzer (1999).

TABLE 2
SATISFACTION WITH LIFE AND RATE OF ACTIVE PARTICIPATION, DESCRIPTIVE STATISTICS

	Rate of active participation		Difference
	Low	High	
Whole sample	8.143 (0.032)	8.287 (0.030)	0.143** (0.044)
Foreigners	7.556 (0.092)	7.688 (0.101)	0.132 (0.137)
Swiss citizens	8.235 (0.033)	8.360 (0.031)	0.125** (0.046)
Difference (Swiss citizens-foreigners)	0.679** (0.092)	0.672** (0.097)	-0.007 (0.134)

Notes: Standard errors in parentheses. Significance levels: * $0.05 < p < 0.10$, ** $p < 0.05$.

Data sources: Leu, Burri and Priester (1997) and Swiss Federal Statistical Office (various years).

TABLE 3
PROCEDURAL UTILITY AND PARTICIPATION RIGHTS
Dependent variable: satisfaction with life

	Weighted ordered probit Std. err. adjusted to clustering on 26 cantons		
	Coefficient	t-value	Marginal effect (score 10)
Participation rights	0.097	3.22	0.033
Participation rights x foreigner	-0.067	-1.75	-0.023
Foreigner	-0.042	-0.29	-0.014
<i>Demographic variables</i>			
Age 30 – 39	-0.089	-1.00	-0.030
Age 40 – 49	-0.013	-0.17	-0.004
Age 50 – 59	-0.009	-0.15	-0.003
Age 60 – 69	0.302	4.24	0.108
Age 70 – 79	0.378	4.51	0.137
Age 80 and older	0.355	3.07	0.130
Female	0.033	1.02	0.011
Bad health	-0.434	-7.63	-0.132
Middle education	0.077	2.22	0.026
High education	0.039	0.88	0.013
Separated, without partner	-0.590	-2.30	-0.162
Separated with partner	-0.664	-1.82	-0.177
Widowed, without partner	-0.204	-4.02	-0.066
Widowed with partner	0.078	0.51	0.027
Divorced, without partner	-0.348	-4.14	-0.106
Divorced with partner	-0.094	-0.74	-0.031
Single, without partner	-0.175	-2.55	-0.057
Single with partner	-0.085	-1.37	-0.028

Socio-economic variables

Self-employed	0.056	1.06	0.019
Unemployed	-0.780	-4.56	-0.200
Student	-0.022	-0.24	-0.008
Housewife	0.119	2.09	0.042
Retired	-0.157	-2.58	-0.053
Other employment status	0.082	0.60	0.029
Equivalence income SFr. 2000 – 3000	0.065	1.86	0.022
Equivalence income SFr. 3000 – 4000	0.121	2.66	0.042
Equivalence income SFr. 4000 – 5000	0.259	4.67	0.093
Equivalence income SFr. 5000 and more	0.184	3.54	0.065

Contextual variables

Member in associations	0.167	6.98	0.056
Urbanization	-0.057	-1.34	-0.020
French speaking canton	-0.075	-0.96	-0.025
Italian speaking canton	0.297	4.30	0.108

Observations	6124
Prob > F	0.0002

Notes: Dependent variable: level of satisfaction on a ten point scale. White estimator for variance. Reference group: ‘Swiss’, ‘people younger than 30’, ‘men’, ‘healthy people’, ‘people with low education’, ‘couples’, ‘employed people’, ‘people with a lower equivalence income than Sfr. 2,000’, ‘people who have no membership in associations’, ‘people living in non-urban areas’ and ‘German speaking people’.

Data source: Leu, Burri and Priester (1997).

TABLE 4
PROCEDURAL UTILITY AND ACTUAL PARTICIPATION

Dependent variable: satisfaction with life

	Weighted ordered probit Std. err. adjusted to clustering on 26 cantons		
	Coefficient	t-value	Marginal effect (score 10)
Actual participation rate/10	0.013	0.16	0.005
Actual participation rate/10 x foreigner	-0.030	-0.34	-0.010
Foreigner	-0.144	-0.34	-0.048
<i>Demographic variables</i>	Yes		
<i>Socio-economic variables</i>	Yes		
<i>Contextual variables</i>	Yes		
Observations	6124		
Prob > F	0.0000		

Notes: Dependent variable: level of satisfaction on a ten point scale. White estimator for variance. Reference group: 'Swiss', 'people younger than 30', 'men', 'healthy people', 'people with low education', 'couples', 'employed people', 'people with a lower equivalence income than Sfr. 2,000', 'people who have no membership in associations', 'people living in non-urban areas' and 'German speaking people'.

Data sources: Leu, Burri and Priester (1997) and Swiss Federal Statistical Office (various years).

TABLE 5
ROBUSTNESS ANALYSIS
Dependent variable: satisfaction with life

	Weighted ordered probit Std. err. adjusted to clustering on 26 cantons			
	A		B	
	Coefficient	t-value	Coefficient t	t-value
Participation rights	0.096	3.13	0.099	3.45
Participation rights x foreigner	-0.078	-1.22	-0.071	-1.81
Foreigner	0.036	0.08	-0.004	-0.01
Share of foreigners	-0.004	-1.09		
Share of foreigners x foreigner	-0.002	-0.15		
National income per capita/1000			-0.006	-2.25
National income p.c./1000 x foreigner			-0.4e-3	-0.06
<i>Demographic variables</i>	Yes		Yes	
<i>Socio-economic variables</i>	Yes		Yes	
<i>Contextual variables</i>	Yes		Yes	
Observations	6124		6124	
Prob > F	0.0000		0.0000	

Notes: Dependent variable: level of satisfaction on a ten point scale. White estimator for variance. Reference group: 'Swiss', 'people younger than 30', 'men', 'healthy people', 'people with low education', 'couples', 'employed people', 'people with a lower equivalence income than Sfr. 2,000', 'people who have no membership in associations', 'people living in non-urban areas' and 'German speaking people'.

Data sources: Leu, Burri and Priester (1997) and Swiss Federal Statistical Office (1995; 2000 personal correspondence).

TABLE 6
PARTICIPATION RIGHTS AND THE PROCEDURAL UTILITY OF PEOPLE WITH DUAL CITIZENSHIP
Dependent variable: satisfaction with life

	Weighted ordered probit Std. err. adjusted to clustering on 26 cantons	
	Coefficient	t-value
Participation rights	0.101	3.38
Participation rights x Swiss with dual citizenship	-0.203	-3.15
Participation rights x foreigner	-0.072	-1.86
Swiss with dual citizenship	0.720	3.43
Foreigner	-0.022	-0.15
<i>Demographic variables</i>	Yes	
<i>Socio-economic variables</i>	Yes	
<i>Contextual variables</i>	Yes	
Observations	6124	
Prob > F	0.0000	

Notes: Dependent variable: level of satisfaction on a ten point scale. White estimator for variance. Reference group: 'Swiss without dual citizenship', 'people younger than 30', 'men', 'healthy people', 'people with low education', 'couples', 'employed people', 'people with a lower equivalence income than Sfr. 2,000', 'people who have no membership in associations', 'people living in non-urban areas' and 'German speaking people'.

Data source: Leu, Burri and Priester (1997).