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with the Quality of Living; an Analysis of Slovenian
Households**

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ABSTRACT

This article presents an analysis of income satisfaction and satisfaction with the quality of living in Slovenia, based on the Household Expenditure Surveys and Public Opinion Surveys. The analysis of the Household Expenditure Survey is based on three cross-sections of data, i.e. the years 1988, 1993 and 1997-1999, whereas the analysis of the Public Opinion Survey is based on the years 1988, 1993 and 1998. By application of the ordered probit model the effects of disposable income, family size, and other socio-economic characteristics of the household on the subjective perception of income satisfaction and the satisfaction with the quality of living were analysed, and the relative stability of these effects was established. The results of our analysis are in broad agreement with similar studies performed in other countries. However, this stability is somewhat surprising, given the fact that Slovenia has experienced large economic, social and political changes during this period.

1. Introduction

There are several different approaches for using subjective data in welfare measurement. One fairly straightforward approach is in measuring one particular welfare level, i.e. level at which households perceive themselves as being 'poor'. The approach is simply to ask respondents what would be the minimum monthly amount of income they consider necessary to make ends meet; this is the answer to the so-called minimum income question (MIQ). Answers to this type of questions were analysed and applied in Kilpatrick (1973), Goedhart *et al.* (1977), Danziger *et al.* (1984), Kapteyn *et al.* (1988), De Vos and Garner (1989), Stanovnik (1992), and Garner and de Vos (1995) - to quote a selection of the rather extensive literature on the subject. Based on answers to the MIQ, one could construct national poverty lines as a function of family size and other household characteristics. However, a criticism of this approach is that the MIQ is 'too' subjective, in the sense that 'minimum income' does not represent the same feeling of welfare for each respondent. As Van Praag *et al.* (1980) put it, 'some may identify it with the margin of starvation while others may define their minimum income on a less austere basis' (Van Praag, Goedhart and Kapteyn 1980, 462). A more coherent theoretical approach, which is also subject to empirical verification is the one developed by Van Praag and his associates at the Leyden University, first presented in Van Praag (1968) and since then applied in many European countries; in particular, we refer to Van Praag *et al.* (1980), Van Praag *et al.* (1982), Van Praag (1991), and Kapteyn (1994).

The methodology presented in their works is based on certain theoretical notions, which lead to the formulation and construction of the individual welfare function of income, which is actually an operationalization of the cardinal utility function of income. The empirical welfare function of income is obtained by asking the respondent to state the amount of income he associates with various welfare levels ('very bad', 'bad', 'insufficient', 'sufficient', 'good', 'very good'). Based on the equal quantile assumption, a curve can be fitted to these points; furthermore, a lognormal distribution function is assumed. This approach was subject to criticism regarding its theoretical foundations by Hartog (1988), and especially Seidl (1994). One must note that there are problems with the lognormal specification, in that it implies increasing marginal utility of income (albeit only in a certain income range). We also note that, while modelling one parameter of the lognormal curve (μ) did produce meaningful results, a satisfactory modelling of the other parameter (σ) proved to be quite elusive.

The approach we follow is not based on any assumptions regarding the shape of the individual welfare functions of income, but is simply concerned with one point of this individual welfare function: the respondents are asked to assess their current income position, using an ordinal scale, such as 'income very insufficient', 'income insufficient', 'income

sufficient' and 'income very sufficient'. Obviously, the analysis based on this subjective economic welfare question depends on the richness of the survey data. Thus, the assessment of one's income very much depends on relative income, both relative to one's reference group or relative to one's past experience (McBride 2001), and it might be quite sensible to include a relevant variable - provided of course that it is at hand. Furthermore, health, education, employment, wealth and other socio-economic characteristics of the household are important, as well as attitudinal variables. Needless to say, such surveys, containing a long list of 'desirables' are rare, particularly in Central and Eastern European countries in transition. Among those that stand out is the rich socio-economic survey carried out in Russia, i.e. the Russian longitudinal monitoring survey. The subjective economic well-being using this survey has been extensively analysed by Ravallion and Lokshin (2002). Compared to their analysis, ours' is more modest, as the available survey data pose the real constraints.

2. Data and Methodology

The analysis of the perception of income satisfaction and satisfaction with the quality of living was performed on two different data sources. The first one is the Household Expenditure Survey, which is being carried out annually by the Statistical Office of the Republic of Slovenia. Before the implementation of methodological changes in 1997, the Statistical Office was also carrying out Household Expenditure Surveys with larger number of observations in five-year intervals, the last such survey being carried out in 1993. Since 1997 only annual surveys are carried out, and the Statistical office then merges three annual surveys in order to obtain a larger sample. Our second data source is the Public Opinion Survey, which is being carried out annually by the Centre for Research of Public Opinion and Mass Media at the Faculty of Social Sciences in Ljubljana. This survey includes some questions on the perception of the quality of living, as well as some socio-economic and demographic characteristics of the respondent.

The quality of the Household Expenditure Survey data is better than that of the Public Opinion Survey data. Some of this difference can be ascribed to the differences in the survey methodology. We also note that Household Expenditure Survey samples are larger than that of the Public Opinion Survey. Furthermore, the Public Opinion Survey methodology gives the respondent more latitude, i.e. he can be indeterminate or not respond to the income question, which additionally lowers the sample size used in the analysis. Also, there is a problem of accuracy of incomes reported and that of censoring of incomes at the Public Opinion Survey data, i.e. an upper limit is being set to the respondents' answers on income. This in fact does not represent a major difficulty since the limit is set rather high. A somewhat lower quality of

the statistical results obtained by using the Public Opinion Survey can – in our view – at least partly be ascribed to the above stated differences.

The effects of different explanatory variables on the dependent variable and their comparative statics will be examined by the use of the ordered probit model¹. We shall be using the maximum likelihood estimator to obtain the appropriate regression coefficients and the underlying marginal effects at means of other variables².

3. Analysis of Income Satisfaction

Analysis of income satisfaction is based on the following question from the Household Expenditure Survey: ‘In relation to your costs of living, your family income is: (1) very insufficient, (2) insufficient, (3) sufficient, (4) amply sufficient?’ We analysed the data samples for the years 1988 and 1993. With the implementation of the methodological changes in 1997 the question changed as well. It was posed as: ‘Considering your monthly disposable income, is your household able to make ends meet: (1) with great difficulty, (2) with difficulty, (3) with some difficulty, (4) without difficulty, (5) with ease, (6) with great ease?’ Due to small number of observations in the sixth rank (‘ends meet with great ease’) ranks 5 and 6 were merged under the common name ‘ends meet with ease’. The data sample for the years 1997–1999 is therefore being analysed using this modification. Table 1 presents information on the values of some selected variables from the sample.

¹ We refer the reader to Amemiya (1981), Greene (1997), or McKelvey and Zavoina (1975) for more detail on the quantitative response models.

² More detail on the estimation of these models and computation of the underlying marginal effects can be found in Greene (1997), or Johnston and DiNardo (1997).

Table 1. Some descriptive statistics of the respective data samples

	Income			
	Very insufficient	Insufficient	Sufficient	Amply sufficient
1988 Household Expenditure Survey Data (3250 observations)				
Household income	96.21	114.88	151.31	223.35
Age of head of household	50.2	49.1	49.1	47.8
Family size	2.67	2.39	2.51	2.50
Share of homeowners	53.6%	59.4%	66.1%	74.0%
Share of unemployed members per household	1.8%	1.1%	0.5%	0.8%
Number of households	321	751	1978	200
Share of households	9.9%	23.1%	60.9%	6.2%
1993 Household Expenditure Survey Data (3270 observations)				
Household income	113.08	143.19	187.70	294.57
Age of head of household	48.5	49.8	49.6	49.8
Family size	2.32	2.52	2.56	2.54
Share of homeowners	72.0%	86.7%	90.9%	94.7%
Share of unemployed members per household	15.0%	7.3%	3.6%	1.1%
Number of households	261	849	1896	264
Share of households	8.0%	26.0%	58.0%	8.1%

	Making ends meet				
	With great difficulty	With difficulty	With some difficulty	Without difficulty	With ease
1997–1999 Household Expenditure Survey Data (3867 observations)					
Household income	132.00	168.39	214.53	259.24	312.47
Age of head of household	49.4	49.6	49.1	50.9	52.3
Family size	2.46	2.52	2.51	2.36	2.25
Share of homeowners	77.3%	84.1%	87.4%	88.8%	92.6%
Share of unemployed members per household	18.7%	9.9%	4.7%	1.7%	0.8%
Number of households	449	973	1631	502	312
Share of households	11.6%	25.2%	42.2%	13.0%	8.1%

Note: Income refers to monthly disposable income in thousands of Slovenian tolar, calculated in fixed 1998 prices using the CPI. Family size is measured as number of equivalent adults according to the normal OECD scale.

As can be seen from Table 1, satisfaction with one's income rises with rising disposable income. Home ownership is also important for the perception of income satisfaction; lower shares of home-owners is characteristic of households that express greater dissatisfaction with their income and higher shares of home-owners is characteristic of households which express greater satisfaction with their income. This is of course just a casual observation, preceding a more formal analysis. It is also interesting to observe that the share of households declaring their income to be 'very insufficient', 'insufficient', 'sufficient' and 'amply sufficient' in 1993 is quite similar to the corresponding shares in 1988. This is quite remarkable, considering the political, social and economic changes which have occurred in the years between 1988 and 1993. In this tumultuous period wages experienced a continuous decrease; in 1992 they amounted to only 71% of their 1992 level. In 1993 they increased and reached 79% of their 1988 level. We add that a phenomenon typical of the socialist system – the so-

called ‘latent’ unemployment – can be observed from table 1. There was virtually no unemployment in 1988, whereas in 1993 the number of unemployed increased quite dramatically. Not surprisingly, households which expressed greater dissatisfaction with their income also had a higher share of unemployed persons. Apart from the large increase in the share of unemployed, there was one more variable which also increased considerably. Namely, from table 1 one observes a very large increase in homeownership. This is due to the housing privatisation, carried out in 1991. In this privatisation the social housing stock was offered for sale to sitting tenants - under very favourable conditions. Obviously most sitting tenants opted for purchase, and the share of owner-occupied housing increased by some twenty percentage points.

We now proceed with a more rigorous analysis. In 1988 and 1993, the dependent variable is simply the answer to the income satisfaction question. It takes four values; without any loss in generality, the value ‘0’ is taken if the respondent encircles the first option (income very insufficient), the value ‘1’ responds to ‘income insufficient’, ‘2’ to ‘income sufficient’ and value ‘3’ to ‘income amply sufficient’. In the 1997-1999 survey the dependent variable is the answer to the question on the difficulty of making ends meet: the value ‘0’ is taken if the respondent encircles the first option (ends meet with great difficulty), the value ‘1’ is taken if the respondent encircles the second option (end meet with difficulty) etc. These (four and, respectively, five) values of the dependent variable can be viewed as the outcome of a continuous process, defined by a latent (unobservable) variable. This latent variable can be named ‘Index of income sufficiency’, denoted I and defined as:

$$I_i = \alpha_0 + \alpha_1 \ln y_i + \alpha_2 \ln fs_i + \alpha_3 S60_i + \alpha_4 SCH_i + \alpha_5 SUN_i + \alpha_6 DAH_i + \alpha_7 DPH_i + u_i, \quad (1)$$

where y is disposable household monthly income; fs is family size, measured in equivalent adults by the normal OECD scale; $S60$ is share of members aged over 60 per household; SCH is share of children (members under 19 years of age) per household; SUN is share of unemployed members per household; DAH is a dummy variable taking the value of ‘1’ if family lives in owner occupied apartment; whilst DPH is a dummy variable taking the value of ‘1’ if the household is a pensioner household (with one or two members). Without any loss in generality, we can assume that the error term is distributed as $u \sim N(0, 1)$.

Equation (1) can also be written in the following form:

$$I_i = \boldsymbol{\alpha}'\mathbf{x} + u_i \quad (2)$$

where \mathbf{x} is the vector of explanatory variables. Denoting our dependent variable by $ISAT$, we can formulate the decision-making process (i.e. response to the income satisfaction question) of family i as:

$$ISAT_i = \begin{cases} 0 & \text{if } I_i < \mu_0 \\ 1 & \text{if } \mu_0 \leq I_i < \mu_1 \\ 2 & \text{if } \mu_1 \leq I_i < \mu_2 \\ 3 & \text{if } \mu_2 \leq I_i \end{cases}, \quad (3)$$

where the μ 's are unknown constants. We can now write:

$$\begin{aligned} P(ISAT_i = 0) &= P(I_i < \mu_0) \\ P(ISAT_i = 1) &= P(\mu_0 \leq I_i < \mu_1) = P(I_i < \mu_1) - P(I_i < \mu_0) \\ P(ISAT_i = 2) &= P(\mu_1 \leq I_i < \mu_2) = P(I_i < \mu_2) - P(I_i < \mu_1) \\ P(ISAT_i = 3) &= P(\mu_2 \leq I_i) = 1 - P(I_i < \mu_2) \end{aligned}$$

thus

$$\begin{aligned} P(ISAT = 0) &= \Phi(\mu_0 - \boldsymbol{\alpha}'\mathbf{x}) \\ P(ISAT = 1) &= \Phi(\mu_1 - \boldsymbol{\alpha}'\mathbf{x}) - \Phi(\mu_0 - \boldsymbol{\alpha}'\mathbf{x}) \\ P(ISAT = 2) &= \Phi(\mu_2 - \boldsymbol{\alpha}'\mathbf{x}) - \Phi(\mu_1 - \boldsymbol{\alpha}'\mathbf{x}) \\ P(ISAT = 3) &= 1 - \Phi(\mu_2 - \boldsymbol{\alpha}'\mathbf{x}) \end{aligned}, \quad (4)$$

where $\Phi(\cdot)$ denotes the cumulative standard normal function. The model defined in (4) is an ordered probit model and the coefficients $\boldsymbol{\alpha}$ are estimated through the maximization of the log likelihood function. These estimates of the coefficients are presented in Table 2.

Table 2. Results of estimation of ordered probit model (income satisfaction question)

	$ISAT_{[1988]}$	$ISAT_{[1993]}$	$ISAT_{[1997-1999]}$
<i>Constant</i>	-7.4661 ^a (-19.82)	-10.4816 ^a (-21.63)	-14.8003 ^a (-37.95)
<i>ln y</i>	0.9876 ^a (23.39)	1.0434 ^a (24.63)	1.4251 ^a (41.82)
<i>ln fs</i>	-0.5651 ^a (-7.171)	-0.7567 ^a (-7.879)	-1.3867 ^a (-20.05)
<i>S60</i>	0.2549 ^b (3.100)	0.2129 ^b (2.638)	0.2388 ^b (3.560)
<i>SCH</i>	-0.3889 ^b (-3.302)	-0.4627 ^a (-4.038)	-0.4358 ^a (-5.159)
<i>SUN</i>	-1.0885 ^b (-3.159)	-1.4351 ^a (-9.350)	-0.6566 ^a (-5.827)
<i>DAH</i>	0.2546 ^a (5.735)	-0.3507 ^a (5.509)	0.2234 ^a (4.440)
<i>DPH</i>	0.1863 ^b (2.607)	0.2044 ^b (2.673)	0.2525 ^a (3.793)
<i>n</i>	3250	3270	3867
<i>LogL</i>	-3088.6	-3079.2	-4872.4
χ^2	589.1 ^a	846.5 ^a	1474.8 ^a
<i>Pseudo R²</i>	0.7747	0.8178	0.9070

Note: Each estimate includes the value of the regression coefficient and the respective *z*-statistic (in brackets). Notations ^a and ^b indicate statistical significance at 0.0001 and 0.01 level, respectively. The computation of the *pseudo R²* value is based on McKelvey and Zavoina's formula (1975).

As can be seen from expression (1), a positive value of the estimated coefficient means that an increase in the explanatory variable increases the 'index of income sufficiency' and thus increases the probability of the individual to express higher income satisfaction. All estimated regression coefficients from Table 2 are of the expected sign, and have fairly stable values for the three estimated cross-sections (somewhat different values of the respective regression coefficient for the 1997-1999 data sample are to some extent also due to aforementioned methodological changes). Let us examine the effects of these variables in more detail.

The probability of a family to be satisfied with its income, *ceteris paribus*, increases with rising disposable income, as has already been observed on the basis of descriptive statistics from Table 1. The probability of a family to be satisfied with its income, *ceteris paribus*, decreases with the family size. Older households, i.e. households where members are older than 60 years, are, *ceteris paribus*, more likely to be satisfied with their income than younger households. Similar statement can be applied for pensioner households. According to Katona *et al.* (1971) age is a proxy for reality; the possibilities of the young become the constraints of the elderly and they are also perceived as such. The older households have not only lower aspirations, but also lower real needs as their wealth, accumulated during the life cycle, is substantially greater than that of younger households. The most important form of wealth is

ownership of a dwelling. Households living in their own apartment or house are, *ceteris paribus*, more likely to be satisfied with their income than households living in rented apartments. This is not surprising, considering that the possession of an apartment or a house is something that most households in Slovenia strive to achieve. Thus, families that live in rented apartments or houses perceive much greater income needs, as they must accumulate sufficient savings for the initial investment in housing construction or purchase. We add that households with unemployed members and households with children are less likely, *ceteris paribus*, to be satisfied with their income, with regard to other households. The Russian Longitudinal Monitoring Survey analysed by Ravallion and Lokshin (2002) offers much larger possibilities for inclusion of relevant variables in the analysis. In this sense ours is “striped to the bone”; nevertheless, our results - similar to theirs - show that household income (positive sign), household size (negative sign) and the share of unemployed (negative sign) are all statistically highly significant. Share of children exhibits different sign and in their analysis does not appear to be a significant predictor.

Based on the results presented in Table 2, we can also compute the marginal effect of each variable; these are computed as the conditional probability at means of all other variables

$$\begin{aligned}
\frac{\partial P(ISAT = 0)}{\partial \mathbf{x}} &= -\phi(\mu_0 - \boldsymbol{\alpha}'\mathbf{x})\boldsymbol{\alpha} \\
\frac{\partial P(ISAT = 1)}{\partial \mathbf{x}} &= [\phi(\mu_0 - \boldsymbol{\alpha}'\mathbf{x}) - \phi(\mu_1 - \boldsymbol{\alpha}'\mathbf{x})]\boldsymbol{\alpha} \\
\frac{\partial P(ISAT = 2)}{\partial \mathbf{x}} &= [\phi(\mu_1 - \boldsymbol{\alpha}'\mathbf{x}) - \phi(\mu_2 - \boldsymbol{\alpha}'\mathbf{x})]\boldsymbol{\alpha} \\
\frac{\partial P(ISAT = 3)}{\partial \mathbf{x}} &= \phi(\mu_2 - \boldsymbol{\alpha}'\mathbf{x})\boldsymbol{\alpha}
\end{aligned}
, \tag{5}$$

where $\phi(\cdot)$ denotes the standard normal density function. On the basis of marginal effects we are then able to make conclusions about the size of influences of different variables and the respective changes in time. These results are presented in Table 3.

Table 3. Marginal effects of predictors on dependent variable (income satisfaction question)

	$\frac{\partial P(ISAT = 0)}{\partial \mathbf{x}}$	$\frac{\partial P(ISAT = 1)}{\partial \mathbf{x}}$	$\frac{\partial P(ISAT = 2)}{\partial \mathbf{x}}$	$\frac{\partial P(ISAT = 3)}{\partial \mathbf{x}}$	
1988 Household Expenditure Survey Data					
ln <i>y</i>	-0.1393	-0.2091	0.26130	0.0871	
ln <i>fs</i>	0.0797	0.1197	-0.1495	-0.0498	
<i>S60</i>	-0.0359	-0.0540	0.0675	0.0225	
<i>SCH</i>	0.0548	0.0824	-0.1029	-0.0343	
<i>SUN</i>	0.1535	0.2305	-0.2880	-0.0960	
<i>DAH</i>	-0.0359	-0.0539	0.0637	0.0224	
<i>DPH</i>	-0.0272	-0.0388	0.0487	0.0173	
1993 Household Expenditure Survey Data					
ln <i>y</i>	-0.1713	-0.2400	0.3514	0.0599	
ln <i>fs</i>	0.0947	0.1327	-0.1942	-0.0331	
<i>S60</i>	-0.0350	-0.0490	0.0717	0.0122	
<i>SCH</i>	0.0760	0.1064	-0.1558	-0.0266	
<i>SUN</i>	0.2356	0.3301	-0.4833	-0.0824	
<i>DAH</i>	-0.0576	-0.0807	0.1181	0.0201	
<i>DPH</i>	-0.0358	-0.0445	0.0687	0.0115	
1997–1999 Household Expenditure Survey Data					
	$\frac{\partial P(ISAT = 0)}{\partial \mathbf{x}}$	$\frac{\partial P(ISAT = 1)}{\partial \mathbf{x}}$	$\frac{\partial P(ISAT = 2)}{\partial \mathbf{x}}$	$\frac{\partial P(ISAT = 3)}{\partial \mathbf{x}}$	$\frac{\partial P(ISAT = 4)}{\partial \mathbf{x}}$
ln <i>y</i>	-0.3086	-0.2596	0.3474	0.1604	0.0604
ln <i>fs</i>	0.3003	0.2526	-0.3380	-0.1561	-0.0588
<i>S60</i>	-0.0517	-0.0435	0.0582	0.0229	0.0141
<i>SCH</i>	0.0848	0.0793	-0.0386	-0.0609	-0.0646
<i>SUN</i>	0.1422	0.1196	-0.1601	-0.0739	-0.0278
<i>DAH</i>	-0.0484	-0.0407	0.0545	0.0251	0.0095
<i>DPH</i>	-0.0543	-0.0463	0.0611	0.0286	0.0109

Let us briefly comment some of the observed marginal effects for the 1993 Household Expenditure Survey data sample. It can be seen that, when the share of household members aged over 60 increases by one percentage point, the probability of household perceiving its income as completely insufficient and insufficient on average, *ceteris paribus*, decreases by 0.04 and 0.05 percentage points, respectively, whilst the probability of a household perceiving its income as sufficient and completely sufficient on average, *ceteris paribus*, increases by 0.07 and 0.01 percentage points, respectively. When the share of children per household increases by one percentage point, the probability of household perceiving its income as completely insufficient and insufficient on average, *ceteris paribus*, increases by 0.08 and 0.11 percentage points, respectively, whilst the probability of a household perceiving its income as sufficient and completely sufficient on average, *ceteris paribus*, decreases by 0.16 and 0.03 percentage points, respectively. Similarly, when the share of unemployed members per household increases by one percentage point, the probability of household perceiving its income as completely insufficient and insufficient on average, *ceteris paribus*, increases by 0.24 and 0.33 percentage points, respectively, whilst the probability of a household perceiving

its income as sufficient and completely sufficient on average, *ceteris paribus*, decreases by 0.48 and 0.08 percentage points, respectively. If the household lives in an owner-occupied dwelling, the probability of perceiving its income as completely insufficient and insufficient on average, *ceteris paribus*, decreases by 5.8 and 8.1 percentage points, respectively, whilst the probability of a household perceiving its income as sufficient and completely sufficient on average, *ceteris paribus*, increases by 11.8 and 2.0 percentage points, respectively. Similarly, if the household is a pensioner household, the probability of perceiving its income as completely insufficient and insufficient on average, *ceteris paribus*, decreases by 3.6 and 4.5 percentage points, respectively, whilst the probability of a household perceiving its income as sufficient and completely sufficient on average, *ceteris paribus*, increases by 6.9 and 1.2 percentage points, respectively,

The model includes among explanatory variables not only the so called ‘objective’ variables (family income, family size) but also variables that purported to capture the income aspirations of the respondent. This was necessary because respondents with higher income aspirations are more likely to be less satisfied with their income than respondents with low income aspirations. Thus, variables denoting share of members aged over 60 per household, share of children per household, share of unemployed members per household, pensioner household and home ownership were introduced in our analysis, as proxies for income aspirations. The coefficients of these variables were all of the expected sign. We are of course well aware that this treatment with income aspirations and its relation to income satisfaction is rather partial. According to Curtin (1977, 81), income satisfaction can be conceptualised as the psychological distance between the level of income aspirations and current accomplishment. Consequently, the greater the margin of aspirations over current income the greater the sense of dissatisfaction.

It is, however, important to add that it is impossible to attribute any value judgement regarding income satisfaction on *a priori* grounds. According to Katona and Strümpel (1978, 148), (income) satisfaction is not necessarily considered desirable. It is considered undesirable by many if it represents accommodation or acquiescence to a constraining reality. Dissatisfaction, on the other hand, may represent an attitude developed in response to opportunities, so that it may be concomitant of optimism. As regards this view, we can establish from our findings in Tables 1 and 3 that there has been a slight improvement in the subjective perception of income over the period of economic transformation in Slovenia, but no major shift took place. This relative stability of our empirical findings compares with the temporal results that can be derived from many similar studies performed in other developed countries (*cf.* Van Praag 1971; Van Herwaarden *et al.* 1977; Van Praag *et al.* 1980), but it is

not entirely what one would expect in a country that was undergoing extensive political, economic and social transformation.

4. Analysis of Satisfaction with the Quality of Living

Analysis of satisfaction with the quality of living is based on the following question from the Public Opinion Survey questionnaire: ‘Comparing the life in Slovenia today with the conditions five years ago, is the situation regarding the quality of living according to your opinion: (1) much worse, (2) worse, (3) pretty much the same, (4) better, (5) much better?’ We analysed the data samples for the years 1988, 1993 and 1998. Due to small number of observations in the fifth rank (‘quality of living much better’) ranks 4 and 5 are being merged under the common name ‘quality of living better’. Table 4 presents information on the values of some selected variables from the sample.

Table 4. Some descriptive statistics of the respective data samples

	Quality of living			
	Much worse	Worse	The same	Better
1988 Public Opinion Survey Data (1786 observations)				
Household income	126.02	127.70	111.07	114.36
Age of head of household	41.2	40.9	43.2	41.8
Family size	2.54	2.55	2.57	2.60
Share of households with pensioner as head	20.2%	15.0%	25.7%	22.2%
Share of homeowners	69.4%	70.6%	71.4%	65.9%
Number of households	252	965	276	293
Share of households	14.3%	54.6%	15.6%	16.4%
1993 Public Opinion Survey Data (725 observations)				
Household income	121.92	143.29	192.41	177.51
Age of head of household	41.3	42.9	43.7	44.2
Family size	2.51	2.47	2.56	2.48
Share of households with pensioner as head	16.0%	21.2%	32.0%	35.0%
Share of homeowners	84.8%	89.3%	83.6%	88.8%
Number of households	125	392	128	80
Share of households	17.2%	54.1%	17.7%	11.0%
1998 Public Opinion Survey Data (735 observations)				
Household income	143.55	165.21	190.11	207.59
Age of head of household	46.2	46.3	45.5	46.4
Family size	2.37	2.41	2.51	2.36
Share of households with pensioner as head	30.0%	30.7%	29.8%	29.7%
Share of homeowners	82.0%	82.9%	86.5%	88.9%
Number of households	100	336	198	101
Share of households	13.6%	45.7%	26.9%	13.7%

Note: Income refers to monthly disposable income in thousands of Slovenian tolar, calculated in fixed 1998 prices using the CPI. Family size is measured as number of equivalent adults according to the normal OECD scale.

As can be seen from Table 1, the descriptive statistics for 1988 are quite different from those in Table 1 and thus counter-intuitive. One can though observe that the results for 1993 and 1998 are more in line with our expectations, i.e. satisfaction with the quality of living increases with rising disposable income and decreases with rising family size.

Satisfaction with the quality of living is a much broader concept than the income satisfaction analysed in the previous section. Namely, the quality of living depends not only on disposable income, but on many other components entering the individual's welfare function. Arguments entering this function are his actual income and the possibly of gaining income, his wealth and the possibility of gaining wealth, health services, access to education, social security provisions, the functioning of institutions, the state of democracy and thus the overall functioning of the society.

Our analysis proceeds similarly to the analysis of the income satisfaction question. The dependent variable is simply the answer to the question regarding satisfaction with the quality of living, denoted with $LSAT$. It takes five values; without any loss in generality, the value '0' is taken if the respondent encircles the first option (quality of living much worse), the value '1' responds to 'quality of living worse', '2' to 'quality of living pretty much the same', '3' to 'quality of living better' and value '4' to 'quality of living much better'. These five values of the dependent variable can again be viewed as the outcome of a continuous process, defined by a latent (unobservable) variable. This latent variable can be named 'Index of quality of living', denoted with I and defined as:

$$I_i = \alpha_0 + \alpha_1 \ln y_i + \alpha_2 \ln fs_i + \alpha_3 D60_i + \alpha_4 DP_i + \alpha_5 DAH_i + u_i, \quad (6)$$

where y is disposable household monthly income; fs is family size, measured in equivalent adults by the normal OECD scale; $D60$ is a dummy variable taking the value of '1' if age of head of household is greater than 60; DP is a dummy variable taking the value of '1' if age of head of household is a pensioner; whilst DAH is a dummy variable taking the value of '1' if family lives in owner occupied apartment. Without any loss in generality, we can again assume the distribution of the error term to be $\sim N(0, 1)$.

The methodological procedure is similar to the one in previous section, and the dependent variable takes on four distinct values. Let us add that the analysis of satisfaction with the quality of living concerns a more general situation perceived by the respondent and not only the circumstances in his family. The estimates for the given samples are presented in Table 5.

Table 5. Results of estimation of ordered probit model (question on satisfaction with the quality of living)

	$LSAT_{[1988]}$	$LSAT_{[1993]}$	$LSAT_{[1998]}$
<i>Constant</i>	2.6492 ^a (4.430)	-0.2977 (-1.004)	-0.7942 ^b (-2.259)
$\ln y$	-0.1271 ^a (-2.825)	0.3029 ^a (4.485)	0.3246 ^a (4.695)
$\ln fs$	0.2022 ^a (2.672)	-0.2854 ^b (-2.207)	-0.1379 (-1.210)
<i>D60</i>	0.2217 ^a (2.810)	0.3210 ^b (2.835)	0.2038 ^b (2.122)
<i>DP</i>	0.1788 ^a (2.730)	0.3592 ^a (3.050)	-0.1053 (-0.853)
<i>DAH</i>	-0.0761 (-1.364)	-0.0975 (-0.741)	0.4007 ^b (2.220)
<i>n</i>	1786	725	735
<i>LogL</i>	-2249.16	-853.52	-942.95
χ^2	18.11 ^a	36.69 ^a	28.91 ^a
<i>Pseudo R</i> ²	0.7678	0.7298	0.7615

Note: Each estimate includes the value of the regression coefficient and the respective z-statistic (in brackets). Notations ^a and ^b indicate statistical significance at 0.01 and 0.05 level, respectively. The computation of the *pseudo R*² value is based on McKelvey and Zavoina's formula (1975).

As can be seen from expression (6), a positive value of the estimated coefficient means that an increase in the corresponding explanatory variable increases the 'index of quality of living' and thus also increases the probability of the individual to express higher satisfaction with the quality of living. The estimated coefficients from Table 5 seem to be of great interest, so let us examine the effects of these variables in more detail. We are especially interested in the comparative statics of these results.

As seen from Table 5 the results for 1988 are contrary to our expectations. Thus the probability of an individual to be satisfied with the quality of living, *ceteris paribus*, decreases with rising disposable income. Also, the probability of a family to be satisfied with the quality of living, *ceteris paribus*, increases with family size. In 1993 and 1998 the estimated coefficients of disposable income and family size regained its expected sign; satisfaction with the quality of living increases with increasing disposable income and decreasing family size.

Older households, i.e. households where the head of household is older than 60 years, are, *ceteris paribus*, more likely to be satisfied with the quality of living than younger households. Similar statement can be applied for households where the head of the household is a pensioner. The statement of Katona *et al.* (1971) according to which age is a proxy for reality

can be repeated here. As for the variable capturing the wealth effect (ownership of a dwelling), only the respective coefficient of the 1998 sample is statistically significant. We can therefore infer from this sample that households living in their own apartment or house are, *ceteris paribus*, more likely to be satisfied with the quality of living than other households.

We also computed the marginal effect of each variable; these are computed as a conditional probability at means of all other variables, similarly to the previous section. The results are presented in Table 6.

Table 6. Marginal effects of predictors on dependent variable (question on satisfaction with the quality of living)

	$\frac{\partial P(LSAT = 0)}{\partial \mathbf{x}}$	$\frac{\partial P(LSAT = 1)}{\partial \mathbf{x}}$	$\frac{\partial P(LSAT = 2)}{\partial \mathbf{x}}$	$\frac{\partial P(LSAT = 3)}{\partial \mathbf{x}}$
1988 Public Opinion Survey Data				
$\ln y$	0.0282	0.0171	-0.0141	-0.0239
$\ln fs$	-0.0450	-0.0271	0.0224	0.0381
$D60$	-0.0495	-0.0296	0.0244	0.0418
DP	-0.0399	-0.0239	0.0197	0.0337
DAH	0.0169	0.0102	-0.0048	-0.0143
1993 Public Opinion Survey Data				
$\ln y$	-0.0955	-0.0198	0.0589	0.0521
$\ln fs$	0.0758	0.0154	-0.0459	-0.0417
$D60$	-0.0710	-0.0146	0.0434	0.0389
DP	-0.0902	-0.0186	0.0556	0.0492
DAH	0.0257	0.0053	-0.0158	-0.0140
1998 Public Opinion Survey Data				
$\ln y$	-0.0688	-0.0569	0.0565	0.0581
$\ln fs$	0.0295	0.0240	-0.0238	-0.0248
$D60$	-0.0434	-0.0356	0.0353	0.0366
DP	0.0223	0.0185	-0.0183	-0.0188
DAH	-0.0868	-0.0686	0.0680	0.0725

As can be seen from Table 6, the results confirm the reversal in effects of disposable income and family size on the perception of satisfaction with the quality of living in the pre-transition period (1988).

Apart from the 1988 ‘aberration’, almost all of the marginal effects, based on estimation of the 1993 and 1998 samples have the expected sign. Thus, the probability that an individual older than 60 years perceives the quality of living as much worse and worse on average, *ceteris paribus*, decreases by 7.1 and 1.5 percentage points, respectively, whilst the probability of perceiving the quality of living as pretty much the same and better on average, *ceteris paribus*, increases by 4.3 and 3.9 percentage points, respectively, with regard to the other households. Similarly, when the head of household is a pensioner, the probability of

perceiving the quality of living as much worse and worse on average, *ceteris paribus*, decreases by 9.0 and 1.9 percentage points, respectively, whilst the probability of perceiving the quality of living as pretty much the same and better on average, *ceteris paribus*, increases by 5.6 and 4.9 percentage points, respectively, with regard to the other households. The respective coefficient for the dummy variable for home ownership is not statistically significant for the 1993 data sample, but is statistically significant for 1998 sample. Here we can observe that the probability of an individual who is owner of an apartment or house to perceive the quality of living as much worse and worse on average, *ceteris paribus*, decreases by 8.7 and 6.9 percentage points, respectively, whilst the probability of perceiving the quality of living as pretty much the same and better on average, *ceteris paribus*, increases by 6.8 and 7.3 percentage points, respectively, with regard to other households.

5. Conclusion

The article analyses income satisfaction and satisfaction with the quality of living in Slovenia during the transition period of 1988–1999. Both income and family size appear to be strong predictors of income satisfaction and satisfaction with the quality of life. The corresponding estimated coefficients for income are positive (and statistically significant), whereas the estimated coefficients for family size are negative (and statistically significant).

The elderly are, on average, more satisfied with their income compared to others, as they have not only lower aspirations, but also lower current income needs, due to the accumulated wealth during their lifetime. This conclusion is valid for both the pre-transition and transition period. Wealth was also explicitly included in our model, and home ownership proved to be a strong positive predictor of income satisfaction. Share of children and unemployed members per household also exhibit high level of stability and statistical significance in estimating satisfaction with income; both being negative predictors of income satisfaction.

Therefore, we are able to conclude that the overall satisfaction with one's income and satisfaction with one's standard of living has been somewhat surprisingly stable over the decade of large economic, political and social changes.

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