

## Monthly Income and Subjective Well-being of Croatian Citizens

Ljiljana Kaliterna Lipovčan, Tihana Brkljačić, Vlado Šakić

Ivo Pilar Institute of Social  
Sciences,  
Zagreb, Croatia

> **Correspondence to:**

Ljiljana Kaliterna Lipovčan  
Institute of Social Sciences Ivo Pilar  
Marulićev trg 19/1  
10000 Zagreb, Croatia  
[Ljiljana.Kaliterna@pilar.hr](mailto:Ljiljana.Kaliterna@pilar.hr)

> **Received:** September 3, 2007

> **Accepted:** October 3, 2007

> **Croat Med J. 2007;48:727-33**

**Aim** To examine the differences in subjective well-being among people with different household income.

**Method** Data were obtained from the national survey conducted in June 2005, in which a representative sample of 896 participants were administered a questionnaire on several measures of subjective well-being as follows: happiness, life satisfaction, and satisfaction with different life domains (personal and national well-being index). One-way ANOVA was performed to test the differences in subjective well-being measures between participants grouped into six categories according to their monthly income.

**Results** Happiness and life satisfaction ratings, as well as ratings of satisfaction with several life domains differed significantly between groups of people with different monthly income. Respondents with higher income felt happier ( $P < 0.001$ ), more satisfied with their life as a whole ( $P < 0.001$ ), more satisfied with their material status ( $P < 0.001$ ), health ( $P < 0.001$ ), achievement ( $P < 0.001$ ), future security ( $P = 0.001$ ), economic situation ( $P = 0.001$ ), state of the environment ( $P = 0.003$ ), and social conditions in Croatia ( $P = 0.003$ ). However, no significant differences were found between the two groups with the lowest income (€0-70 and €71-130 per person per month), nor between the two groups with the highest income (€401-530 and €531+ per person per month).

**Conclusion** Our study showed that income and material wealth had an influence on subjective well-being in contemporary Croatian society, which is undergoing major social and economical changes.

The sources of subjective well-being have recently been extensively studied. The central question is whether money can buy happiness, or in other words, what the relationship between objective and subjective evaluations and perceptions of life is. The research conducted so far at both the nation and household level has shown that the wealthy tend to be happier than the poor. However, no clear relationship could be established when countries are compared, which is known as "Easterlin paradox" (1). If we compare subjective well-being measures across countries, it can be seen that economic indicators, usually gross domestic product (GDP) per capita, contribute to subjective well-being increase in an almost linear way in the countries with lower GDP. However, this is not the case in countries that are above a certain income level, where the relationship between the rise of the income and the subjective well-being is not so strong. In their study conducted in 65 countries, Inglehard and Klingeman (2) found that happiness and life satisfaction increased proportionally until a GDP of US \$13 000 was reached, after which no significant association between wealth and subjective well-being could be noticed. Similar results reappeared in some other studies (3). As societies become ever wealthier, the differences in well-being are less connected to income and more to factors like social relationships, emotions, and satisfaction (4).

However, the studies conducted within a country typically discover a positive relationship between subjective well-being and income (5). A recent study conducted in 28 European countries has shown that within a country people with high incomes have higher quality of life than poor people (6).

Croatia, with GDP of US \$8674 in 2005 (7), can be viewed as a country in which both national and personal wealth could boost subjective well-being. Previous research showed

that overall happiness in Croatian population increased in the period of 1995-2003, which can partly be a result of the increasing economic stability of the country (8). The level of happiness of Croatian citizens in 2003 was compared with the data obtained from 28 European countries in the same year (9), and Croatia was ranked 19th among all the studied countries (10).

We performed a within-country analysis of subjective well-being of Croatian citizens. Specifically, we aimed to explore the differences in subjective well-being among people with different household incomes. There are many ways to measure subjective well-being, from global indicators (life satisfaction, happiness) to more specific, personal indicators (satisfaction with specific life domains) (4). Our study used both cognitive and affective components of subjective well-being, as well as satisfaction with specific life domains.

## Participants and methods

### Participants

The data were obtained from the national survey conducted in June 2005. As the population in question was too large and scattered to draw a simple random sample, participants were chosen as a multi-stage probability-based sample of Croatian citizens. To ensure statistically representative results for the defined target population, 120 sample points were drawn on the basis of the latest statistical data on regional, community, and town levels, and election units (11). Two-stage stratification was used, by region and the size of residence, and addresses were randomly selected at each sampling point. Research method was field survey ("face-to-face" interviews conducted at respondents home).

Ten percent of the total sample was subject to fieldwork control. Respondents who did

not indicate their monthly income (2%) were excluded from the current study.

There were 896 participants aged 18-85 years (mean  $\pm$  standard deviation: 44.56  $\pm$  17.09) (Table 1). The total population of Croatia at the time of the 2001 Census (11) was 4 437 460, which means our sample included about 0.02% of the population.

The demographic characteristics of the sample are presented in Table 1.

**Table 1.** Characteristics of the representative sample (n=896) of Croatian citizens in 2005

Variables	No (%)
Age groups:	
18-29	232 (25.9)
30-39	165 (18.4)
40-49	144 (16.1)
50-59	167 (18.6)
$\geq 60$	187 (20.9)
missing*	1 (0.1)
Gender:	
female	471 (52.6)
male	423 (47.2)
missing	2 (0.2)
Monthly income (€):	
$\leq 70$	40 (4.5)
71-130	119 (13.3)
131-270	303 (33.8)
271-400	258 (28.8)
401-530	107 (11.9)
$\geq 531$	69 (7.7)

\*Missing values are due to respondents' unwillingness to answer certain questions.

## Methods

*Life satisfaction scale* (12) was used as a cognitive measure of subjective well-being to indicate how satisfaction with life as a whole is evaluated. It consists of five items (statements) and the respondents had to rate their agreement with each of them on the 5-point scale, whereby 1 stood for "strongly disagree" and 5 for "strongly agree." Scores were calculated as mean of 5 items (In most ways my life is close to my ideal; The conditions of my life are excellent; I am satisfied with my life; So far I have achieved the important things I want in life; If I could live my life over, I would change almost nothing), as recommended by scale authors. Higher result thereby indicated greater life satisfaction.

Affective component of subjective well-being was studied by using the Happiness research instrument from the Fordyce scale (13). The question "In general, how happy or unhappy do you usually feel?" was rated on a 10-point scale, ranging from 1 – extremely unhappy to 10 – extremely happy.

*International Well-being Index* (IWI) (14) was used to examine subjective well-being in specific life domains. IWI consists of two parts. The first part, Personal Well-being Index (PWI), measures satisfaction with life and respondents are asked to rate their satisfaction with the following seven life domains: material status, personal health, achievement in life, relationship with family and friends, feeling of physical safety, acceptance by the community, and future security. The second part, National Well-being Index (NWI), measures satisfaction with living conditions in a country. It consists of six different national domains and participants have to rate how satisfied they are with economic situation, environment state, social conditions, government, business, and national security. Both indexes use an 11-point rating scale ranging from 0 –not satisfied at all to 10 –extremely satisfied, and are scored both for the separate domains and for the average scores of each group of domains (personal, national).

A short demographic questionnaire was also used, consisting of several questions about gender, age, education level, living arrangement, and income. The monthly income amount was used as a measure of economic status. Participants had to circle their monthly income per household member ranging from 1 – less than €70 to 7 –more than €530. Income amounts were expressed in Croatian kunas and were afterwards converted at the exchange rate of €1 to HRK 7.31 (June exchange rate list in 2005).

The data were obtained from the survey "Quality of life, life satisfaction, and happiness

in Croatia in comparison to European countries" (10), which analyzed various dimensions of subjective well-being in Croatia, like life satisfaction, happiness, and personal and national well-being, compared some of these dimensions in 2003 and 2005, and compared them with the available data on other European countries.

#### Statistical analysis

One-way ANOVA with post hoc Scheffé test was conducted in order to test different subjective well-being levels between groups with different monthly incomes. Significant level was set at  $P < 0.010$ . Statistical Package for the Social Sciences, version 11.0 (SPSS, Chicago, IL, USA) was used for all statistical analyses.

#### Results

As shown in Table 2, participants were most satisfied with their family and friends (mean  $\pm$  standard deviation) score on a 1-10 scale  $8.4 \pm 2.1$ ), the way they are accepted in their community ( $7.9 \pm 2.3$ ), and feeling of physical safety ( $7.3 \pm 2.4$ ), while they were least satisfied with their material status ( $5.0 \pm 2.5$ ). Satisfaction with other domains of personal life was slightly above the-

oretical average personal health ( $6.7 \pm 2.8$ ), achievement ( $6.3 \pm 2.5$ ), and future security ( $5.9 \pm 2.6$ ). Among national domains, they were most satisfied with national security ( $5.5 \pm 2.7$ ) and environment ( $4.9 \pm 2.3$ ), and least satisfied with social conditions ( $2.8 \pm 1.9$ ), government ( $2.8 \pm 2.0$ ), and economic situation ( $2.9 \pm 2.0$ ). They were also quite dissatisfied with their job position in Croatia ( $3.6 \pm 2.2$ ). Overall happiness was rated as quite high ( $7.7 \pm 1.8$ ), while life satisfaction was rated slightly above theoretical average ( $3.0 \pm 0.9$ ). The overall results obtained from the total sample show that the participants were more satisfied with personal than national well-being.

The differences between groups with different monthly income were significant for 7 out of 13 life domains, as well as for happiness and life satisfaction ratings. The satisfaction with different personal and national domains increased with monthly income. Significant differences between groups with different monthly income were observed in the following domains: material status ( $P < 0.001$ ), health ( $P < 0.001$ ), achievement in life ( $P < 0.001$ ), future security ( $P = 0.001$ ), economic situation ( $P = 0.001$ ), environment ( $P = 0.003$ ), social conditions in the country ( $P = 0.003$ ),

**Table 2.** Differences in subjective well-being measures between the groups with different monthly income (per household member).

Well-being index	Income group (€, mean $\pm$ SD)						total (n=896)	P*
	$\leq 70$ (n=40)	1-130 (n=119)	131-270 (n=303)	271-400 (n=258)	401-530 (n=107)	531 (n=69)		
Personal well-being index:								
satisfaction with your material status	2.8 $\pm$ 2.10	4.0 $\pm$ 2.31	4.6 $\pm$ 2.46	5.3 $\pm$ 2.14	6.0 $\pm$ 2.17	6.8 $\pm$ 2.42	5.0 $\pm$ 2.46	<0.001
satisfaction with your personal health	6.0 $\pm$ 2.88	5.9 $\pm$ 3.25	6.6 $\pm$ 2.86	6.9 $\pm$ 2.58	7.3 $\pm$ 2.37	7.8 $\pm$ 2.27	6.7 $\pm$ 2.79	<0.001
satisfaction with your achievement in life	5.2 $\pm$ 2.82	5.3 $\pm$ 2.49	6.2 $\pm$ 2.52	6.7 $\pm$ 2.37	6.8 $\pm$ 2.13	7.4 $\pm$ 2.3	6.3 $\pm$ 2.49	<0.001
satisfaction with yours relationships with family and friends	8.1 $\pm$ 2.21	8.2 $\pm$ 2.20	8.5 $\pm$ 2.09	8.5 $\pm$ 1.99	8.3 $\pm$ 2.03	8.5 $\pm$ 1.20	8.4 $\pm$ 2.07	0.603
satisfaction with your feelings of physical safety	6.9 $\pm$ 2.53	7.6 $\pm$ 2.33	7.2 $\pm$ 2.53	7.4 $\pm$ 2.36	7.3 $\pm$ 2.25	7.3 $\pm$ 2.09	7.3 $\pm$ 2.39	0.706
satisfaction with your acceptance by the community	6.9 $\pm$ 2.83	7.8 $\pm$ 2.30	8.0 $\pm$ 2.39	7.9 $\pm$ 2.22	7.8 $\pm$ 2.07	7.8 $\pm$ 2.11	7.9 $\pm$ 2.30	0.127
satisfaction with your future security	5.3 $\pm$ 2.84	5.4 $\pm$ 2.46	5.6 $\pm$ 2.67	6.1 $\pm$ 2.56	6.4 $\pm$ 2.31	6.5 $\pm$ 2.48	5.9 $\pm$ 2.58	0.001
National well-being index:								
satisfaction with economic situation in Croatia	2.2 $\pm$ 1.66	2.8 $\pm$ 1.84	2.7 $\pm$ 2.01	3.1 $\pm$ 1.97	3.1 $\pm$ 1.85	3.6 $\pm$ 2.14	2.9 $\pm$ 1.97	0.001
satisfaction with state of environment in Croatia	4.0 $\pm$ 2.18	5.0 $\pm$ 2.29	4.6 $\pm$ 2.46	5.2 $\pm$ 2.23	5.1 $\pm$ 2.21	5.4 $\pm$ 2.21	4.9 $\pm$ 2.33	0.003
satisfaction with social conditions in Croatia	2.0 $\pm$ 1.62	2.7 $\pm$ 1.88	2.7 $\pm$ 1.95	3.0 $\pm$ 1.86	3.0 $\pm$ 1.93	3.4 $\pm$ 1.97	2.8 $\pm$ 1.91	0.003
satisfaction with government in Croatia	3.2 $\pm$ 1.9	2.8 $\pm$ 1.84	2.7 $\pm$ 2.03	2.9 $\pm$ 1.94	2.7 $\pm$ 1.94	3.3 $\pm$ 2.01	2.8 $\pm$ 1.97	0.177
satisfaction with business in Croatia	3.3 $\pm$ 2.07	3.4 $\pm$ 2.24	3.4 $\pm$ 2.35	3.7 $\pm$ 2.08	3.6 $\pm$ 2.00	4.3 $\pm$ 2.61	3.6 $\pm$ 2.24	0.026
satisfaction with national security in Croatia	5.1 $\pm$ 2.29	5.5 $\pm$ 2.54	5.3 $\pm$ 2.86	5.5 $\pm$ 2.70	5.6 $\pm$ 2.31	6.1 $\pm$ 2.39	5.5 $\pm$ 2.66	0.236
Life Satisfaction Scale	2.5 $\pm$ 1.05	2.7 $\pm$ 1.02	3.0 $\pm$ 0.87	3.1 $\pm$ 0.78	3.2 $\pm$ 0.83	3.5 $\pm$ 0.09	3.0 $\pm$ 0.89	<0.001
Overall happiness	7.0 $\pm$ 2.18	7.0 $\pm$ 2.26	7.6 $\pm$ 1.93	8.0 $\pm$ 1.47	8.0 $\pm$ 1.32	8.6 $\pm$ 1.17	7.7 $\pm$ 1.81	<0.001

\*P value for F-ratio.

happiness ( $P<0.001$ ), and life satisfaction ( $P<0.001$ ).

Post hoc Scheffe tests (Table 3) showed specific differences between groups. The poorest group (€0-70) was less satisfied with its material status than the four groups with monthly income higher than €130. The group with the second lowest income (€71-130) was less satisfied with its material status than the three groups with the monthly income above €271. The group with the monthly income of €131-270 was less satisfied than the two richest groups (€401+), and the group with the monthly income of €271-400 was less satisfied than the richest group (€531+).

**Table 3.** Significant differences ( $P<0.01$ ) between the groups with different monthly income according to subjective well-being measures (results of Scheffe test)\*

Income group (€)	≤70	71-130	131-270	271-400	401-530	≥531
≤70	-	1	1, LS	1, LS	1,3, LS, H	
71-130		-	1,3, LS, H	1,2,3, LS, H	1,2,3, LS, H	
131-270			-	1	1, LS, H	
271-400				-	1	
401-530					-	
≥531						-

\*1 – satisfaction with your material status; 2 – satisfaction with your personal health; 3 – satisfaction with your achievement in life; LS – life satisfaction scale; H – overall happiness.

Concerning the satisfaction with personal health, there was only one significant difference: the group with the monthly income of €71-130 felt less satisfied than the richest group.

Regarding achievements in life, the poorest group was less satisfied only in comparison with the richest group, while the second poorest (€71-130) was less satisfied than the three groups with monthly income higher than €271.

Considering satisfaction with economic situation, state of the environment, and social conditions in Croatia, no significant differences between groups were noticed.

With respect to Life Satisfaction Scale, the poorest (earning less than €70) and the second

poorest group (€71-130) were less satisfied than the three richest groups (€271+).

Regarding overall happiness, groups with the monthly income of €0-70 and €131-270 felt less happy than the richest group, while the second poorest (€71-130) felt less happy than the three richest groups (€271+).

Taking into consideration all the tests, no significant difference was noticed between the groups with the lowest incomes (€ 0-70 and € 71-130 per person per month) and between the two richest groups (€400-530 and ≥531 per person per month).

### Discussion

In general, our results support the claim that subjective well-being increases with personal the growth of income. Happiness, life satisfaction, and satisfaction with several life domains differed significantly between groups of people with different monthly income. Respondents with higher income felt happier and more satisfied with their lives. This finding supports the findings of other studies conducted in different European countries (6,9,15).

When satisfaction levels related to various life domains were examined, it turned out that satisfaction with material status, health, achievement, future security, economic situation in Croatia, environment state, and social conditions grew in proportion with the growth of monthly income, while relationships with family and friends, physical security, acceptance by the community, government, job position, and national security were not significantly affected by the monthly income increase. Such results could best be interpreted in terms of Maslow’s theory of human motivation (16), which postulates that one does not strive to fulfill “higher” needs until the basic or “lower” ones are met. The personal domains of material status, health and security, as well as national domains of

economic status, environment, and social conditions in the country, can all be considered “lower” needs, and as such must be gratified before any “higher” need (like love and belonging) can start being important. Obviously, for Croatian citizens monthly income is a principal way of satisfying their basic needs, and therefore higher income leads to higher satisfaction with the possibility to fulfill these needs. On the other hand, higher needs, such as relationships with family and friends, acceptance by the community, and national security do not depend on and can be fulfilled irrespectively of the monthly income.

The analysis of the differences between groups with different monthly incomes revealed some very interesting results. Namely, no difference in subjective well-being was found between the two groups with the lowest income ( $\leq\text{€}130$ ), as well as between the two groups with the highest income ( $\geq\text{€}401$ ). What can we conclude from this? First of all, the two groups with the lowest income can objectively be considered poor, since the official statistics shows that the poverty line in Croatia was approximately €124 per household member (household consisting of two adults and two children) in 2004 (7). According to our results, slightly different incomes below the poverty threshold do not affect subjective well-being in a significant manner. Subjective well-being starts increasing together with the income growth once the poverty threshold is crossed. Also, once the income is high enough, subjective well-being no longer increases in proportion to the income rise. The fact that income influences subjective well-being only up to a certain point was shown in other international studies as well (4,17,18). Our study showed that what could be considered a sufficient monthly income in Croatia in 2005 amounted to €401 a month per household member.

This research was in general anonymous, except the face-to-face interviews, which might have made the participants’ answers partially biased. However, interviewers were well-trained and experienced, which minimized the possibility of influence on the participants’ answers. Taking into account that the questions were not politically or intimately sensitive, we do not expect the data to be significantly biased.

To conclude, the results of the study showed that income and material wealth had an influence on subjective well-being in contemporary Croatian society. Since only regular monitoring of subjective well-being can produce a clear picture of the impact of social change on people’s perceptions and experiences (19), this study can serve as a starting point for further research which would study the influence of ongoing economic and social changes in Croatia on the quality of life, happiness, and life satisfaction of its citizens.

#### Acknowledgment

This research was conducted as a part of a project “Development of National Indicators of Quality of Life” funded by grant from the Ministry of Science, Education, and Sport of the Republic of Croatia (No 194-1941558-1555).

#### References

- 1 Easterlin RA. Does economic growth improve the human lot? Some empirical evidence. In: David PA, Reder MW, editors. Nations and household in economic growth: essays in honor of Moses Abramowitz. New York (NY): Academic Press; 1974. p. 98-125.
- 2 Inglehart R, Klingemann HD. Genes, culture, democracy and happiness. In: Diener E, Suh EM, editors. Culture and subjective well-being. Cambridge (MA): The MIT Press; 2000. p. 165-183.
- 3 Boarini R, Johansson A, D’Ercole MM. Alternative measures of well-being. Economics Department Working Papers No. 476. 2006. Available from: [http://www.oalis.oecd.org/oalis/2006doc.nsf/43bb6130e5e86e5fc12569fa005d004c/407e59fce61acd81c125710d003d6c67/\\$FILE/JT00200315.PDF](http://www.oalis.oecd.org/oalis/2006doc.nsf/43bb6130e5e86e5fc12569fa005d004c/407e59fce61acd81c125710d003d6c67/$FILE/JT00200315.PDF). Accessed: October 9, 2007.
- 4 Diener E, Seligman ME. Beyond money: toward an economy of well-being. *Psychol Sci Public Interest*. 2004;5:1-31.
- 5 Keck W, Krause P. How does European Union enlargement affect social cohesion? In: Estes RJ, editor. Advancing quality of life in a turbulent world. Dordrecht (NY): Springer; 2007. p. 3-24.

- 6 Fahey T, Whelan CT, Maitre B. First European quality of life survey: income inequalities and deprivation. Luxembourg: Office for Official Publications of the European Communities; 2005.
- 7 Central Bureau of Statistics of Republic of Croatia. Statistical Information. Zagreb: Central Bureau of Statistics of Republic of Croatia; 2006.
- 8 Kaliterna Lipovčan Lj, Prizmić-Larsen Z. What makes Croats happy? Predictors of happiness in representative sample. In: Delle Fave A, editor. Dimensions of well-being. Research and intervention. Milano: Franco Angeli; 2006. p. 53-9.
- 9 Bohnke P. First European quality of life survey: life satisfaction, happiness and sense of belonging. Luxembourg: Office for Official Publications of the European Communities; 2005.
- 10 Kaliterna Lipovčan Lj, Prizmić-Larsen Z. Quality of life, life satisfaction and happiness in Croatia in comparison to European countries. In: Ott K, editor. Croatia's Accession to the European Union. Zagreb: Institute for Public Finances; 2006. p.189-208.
- 11 Republic of Croatia – Central Bureau of Statistics. Census 2001 [in Croatian]. Available from: [http://www.dzs.hr/Hrv/censuses/Census2001/Popis/H01\\_01\\_01/H01\\_01\\_01.html](http://www.dzs.hr/Hrv/censuses/Census2001/Popis/H01_01_01/H01_01_01.html). Accessed: October 18, 2007.
- 12 Diener E, Emmons RA, Larsen RJ, Griffin S. The satisfaction with life scale. *J Pers Assess.* 1985;49:71-5. [Medline:16367493](#)
- 13 Fordyce MW. A review of results on the happiness measures: A 60-second index of happiness and mental health. *Soc Indic Res.* 1988;20:355-81.
- 14 Cummins RA. International Wellbeing Index. Version 2. 2002. Available from: [http://acqol.deakin.edu.au/inter\\_wellbeing/Index-CoreItemsDraft2.doc](http://acqol.deakin.edu.au/inter_wellbeing/Index-CoreItemsDraft2.doc). Accessed: October 9, 2007.
- 15 Delhey J. Life satisfaction in an enlarged Europe. Luxembourg: Office for Official Publications of the European Commission; 2004.
- 16 Maslow AH. Motivation and personality. New York (NY): Harper & Row Publishers; 1970.
- 17 Schyns P. Crossnational differences in happiness: economic and cultural factors explored. *Soc Indic Res.* 1998;43:3-26.
- 18 Easterlin RA. Income and happiness: towards a unified theory. *Econ J.* 2001;111:465-84.
- 19 Kim Prieto C, Diener E, Tamir M, Scollon C, Diener M. Integrating the diverse definitions of happiness: a time-sequential framework of subjective well-being. *J Happiness Stud.* 2005;6:261-300.