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**Mobility, Uncertainty and Subjective Well-being in Hungary**

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# Mobility, Uncertainty and Subjective Well-being in Hungary

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## Abstract

This paper presents a “natural experiment” and new evidence for explaining the paradoxical relation between relative income mobility and subjective well-being, using a novel set of subjective questions and a representative panel survey of roughly 3,500 individuals living in Hungary. We identify variables for the period 2000-2002 that have important effect on how individuals perceive well-being in competitive stress situation, namely, absolute and relative income position and mobility, subjective wealth position and subjective mobility, labour market position, and future prospects of these variables. The investigated time period is uniquely suitable for underlining the importance of relative comparisons: between 2000 and 2002 the growth rate of the real income was extraordinary high in Hungary, almost 24 per cent, and we got considerable differences in the changes in absolute, relative and subjective income positions of people.

Considering income mobility as a possible basic explanatory variable of satisfaction, the results suggest that the relationship between relative mobility and subjective well-being is much stronger than that between absolute income changes and subjective well-being. People valued the changes in their income positions by the changes in their relative positions, rather than the changes in their absolute income levels. There is a significant and positive effect of both factual income and subjective wealth ranking on satisfaction, partly independently of each other. At the same time, we also find that both factual relative mobility and subjective mobility have significant, but opposite – negative and positive – effect on satisfaction. The negative sign of factual relative mobility means that the effect of this variable on satisfaction is smaller than it would be expected after the huge income increase of the period 2000-2002.

Evidence of other Hungarian and international surveys suggests that level of subjective well-being in Hungary is much below than that of Western Europe and has not trended up over time as in Eastern Europe. Hungary is one of the main exceptions. The further analysis of the basic determinants of satisfaction helps us to understand the combined effect of different changes perceived by people in the same time, and the differences in perception of changes in income, of changes in income distribution, and of changes in mobility. We find that factual changes and perception of changes in the relative income, labour market positions, and the future prospects of these variables effect strongly on subjective well-being. We also find the majority of respondents underestimate the real size of changes in their past

and future financial positions, and the uncertainty of the competitive stress situation is what really leads to this underestimation. In the case of people working in the competitive sector the considerably high minimum wage raise increased the labour market uncertainty, and it cut back significantly the satisfaction increasing effect of the real income raise.

Labour market status is a major element of dissatisfaction in Hungary. The unemployed, the non-employed in active age, and the quasi-unemployed are significantly less satisfied than workers and than other inactive, after controlling for income. Furthermore, their family members are also less satisfied than the average.

Our main policy conclusions are the followings. Decreasing uncertainty on the labour market has larger positive effect on satisfaction than the direct increases of income by the government. A large but single raising in income without future prospects of further increase generates less increase in satisfaction than the smaller, but permanent income raising with prospects confirming future expectations.

### Acknowledgement

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## Introduction<sup>1</sup>

One of the basic findings in happiness research<sup>2</sup> is that changes in people's relative income positions are more important for their life satisfaction than the changes in their absolute income levels. This relationship between life satisfaction and relative income changes is strongly related to the prospect theory introduced by Kahneman and Tversky, 1979. This fundamental paper on decision under risk (and later on Kahneman and Tversky, 2000) drew attention to that how people valued different outcomes is driven by combined signals of the changes of basic economic variables, rather than by the final levels of these variables. Thinking about future prospects, people are projecting these current signals/current perceptions of the changes in basic variables onto the future ones. Based on this projection two equivalent outcomes could be differently valued by people and could lead different satisfaction levels depending on people's current perceptions. In our research we also find that perception of the changes in the basic variables (income, wealth, labour market position) and the future prospects of these variables strongly effect on subjective well-being. Objective trends are very important with respect to satisfaction, but how people perceive their past relative income and income mobility together, and their prospects of upward mobility are in very strong correlation with satisfaction.

Subjective satisfaction approach gives useful tools and clear concepts for measuring people's preference, experienced utility (life and material satisfaction), and for testing government policy concerning the highest or at least higher utility level achievable (see Oswald, 1997; Kahneman et al., 1999; Kahneman and Tversky, 2000; Kahneman and Krueger, 2006; Frey and Stutzer, 1999, 2000, 2002a, b, 2004, 2007; Layard, 2005; Van Praag, 2007; Clark, 2007). This paper investigates subjective well-being measured by survey questions on life and material satisfaction. We identify variables for the period 2000-2002 having important effect on how individuals perceive well-being in competitive stress situation, namely, absolute and relative income position and mobility, subjective wealth position and mobility, labour market position, and future prospects of these variables. The investigated time period is uniquely suitable for investigating and underlining the importance of relative comparisons: between 2000 and 2002 the growth rate of the real equalised income was extraordinary high in Hungary, almost 24 per cent. The incidence of this unique and extraordinarily large income increase in a short time created a "natural experiment" situation

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<sup>1</sup> Our study was prepared in the framework of the FP5 project of the European Commission *Competitive pressure and its social consequences in EU member states and in associated countries* (COMPRESS HPSE-CT-2002-00149) research programme, Work-package 4: "The Effect of Competitive Pressure on Income Distribution and Social Policy, Public Perception, Attitudes and Norms", Institute of Economics HAS, Budapest. In preparing of our panel data this research has also benefited from the support of funds of OTKA (T 46360), at the Institute of Economics HAS, Budapest.

which is very suitable for investigating whether subjective mobility could reflect absolute mobility at all, and in what extent can render relative mobility.

The majority of respondents strongly underestimate the real size of changes in their past financial positions, and we find that the uncertainty of the competitive stress situation is what really leads to this underestimation. In Kornai, 1971, the term ‘decision under uncertainty’ is reserved for the case where utility depends not only on the decision but also on external conditions independent of the decision makers. Kornai had critical remarks on the ‘maximising’ behaviour of the decision makers. Analysing the changes in the relative position of the decision maker, Kornai argued that the preferences of the consumer are effected not only by changes in her income but also by changes in her status, her place on the scale of social prestige, her family position and other factors influencing the relative position, and the decision maker can maximise only the expected value of the utility function.

Scitovsky, 1976, also criticised the standard economic assumption that people can successfully predict future utility, or – at least – no systematic deviations are expected. Furthermore, he pointed out that people’s behaviour violates certain axioms underlying the rational consumer hypothesis. There are situations in which people have to do a trade-off and decide between very different activities which are hardly comparable and fundamentally differ in the extent of the predictable future utility.

The fundamental work of Kahneman and Tversky, 1979, presents a critique of expected utility theory as a descriptive model of decision making under risk, and draws attention to the phenomenon that people overweight outcomes that are considered certain, relative to outcomes which are merely probable. These anomalies and paradox phenomena of the real-life decision making are introduced by happiness research<sup>3</sup> and can be investigated in a statistical observation considered as a natural experiment.

In our study we also underline the importance of relative comparisons: in a transitive and competitive stress situation people tend in a greater extent to compare themselves – almost always – to others. It is generally known that people’s wants depend on what other people have, and on what they have got accustomed to. This attitude is much stronger after transition and in a competitive stress situation, where people are strongly driven by the desire ‘to keep up with other people’ (see Falk and Knell, 2004; Layard, 2005; Luttmer, 2001, 2005). When people become richer compared with other people, they become happier, and this leads to the permanent competition and to the desire to get upwardly mobile, as soon as possible.

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<sup>2</sup> In this paper we use the two terms ‘life satisfaction’ and ‘subjective well-being’ as synonyms. Easterlin, 2006, takes the terms ‘well-being’, ‘utility’, ‘happiness’, ‘life satisfaction’ and ‘welfare’ to be interchangeable. We definitely make - as Scitovsky, 1975 and 1976, did - a distinction between ‘happiness’ and ‘satisfaction’.

<sup>3</sup> See Kahneman et al. 1999, Kahneman and Tversky, 2000, Kahneman and Krueger, 2006; Clark and Oswald, 1994, 1996; Van Praag, 1993, 2007; Veenhoven, 1996a, b; Winkelmann, 2006; Winkelmann and Winkelmann, 1998; Oswald, 1997; Frey and Stutzer, 1999, 2000, 2002a, b, 2007; Di Tella et al., 2001; Diener and Suh, 1997; 2000; Diener and Biswas-Diener, 2002; Easterlin, 2002, 2006; Ferrer-i-Carbonell, 2005; Ferrer-I-Carbonell and

Economic mobility plays a role in the competition and it is an equaliser of opportunities (see Benabou and Ok, 2001a, b; Benabou and Tirole, 2005). More mobility increases income and wealth, and may improve the labour market status. That is why we can assume that mobility has (positive or negative) effect on subjective well-being. Volatility, with related high levels of mobility, in which there are very few guarantees for future income gains may have a negative effect on satisfaction, and it increases the probability of belonging to a frustrated achiever group. (See Graham, 2000, Graham and Pettinato, 2002a, b.)

We know from the literature that different beliefs about the fairness of social competition strongly influence the attitude toward redistribution and subjective well-being (see Alesina et al., 2004; Alesina and La Ferrara, 2005; Alesina and Angeletos, 2005; Alesina and Fuchs-Schundeln, 2005). If a society believes that connections and corruption determine wealth, it will tolerate high redistribution and high taxes. The impact of mobility on attitudes towards redistribution is affected by individual perceptions of the ‘up and down’ processes, and deeply depend on the extent and the dynamics of income and social mobility (see Alesina and Angeletos, 2005; Fong, 2005). On the other hand, people who have the everyday experience that the Hungarian society becomes more and more immobile, and think that fairness in mobility is a questionable concept these days, do not see mobility as an alternative tool for redistribution, and prefer more direct and speedy distributive policies (see Molnár and Kapitány, 2006a, b). Furthermore, support for redistribution policies is negatively affected by expected future income that may separate the winners of transition (see Ravallion and Lokshin, 2000, 2001; Alesina and La Ferrara, 2005). Although disapproval of redistribution increases with income, there are many people in the higher income deciles who also approve of redistribution policies, and respondents in the lower income groups do not necessarily support greater distribution. According to the POUM (Prospect of Upward Mobility) hypothesis of Benabou and Ok, 2001a, b, individuals who are currently poor may oppose redistribution because they hope to become rich in the future. And as a counterpoint, the rich may not necessarily oppose redistribution if they expect their income and wealth to fall in the future. This effect may be much stronger in the case of transition (see Molnár and Kapitány, 2006a, b).

People would be willing to accept a significant fall in living standards if they could move up compared with other people (see Layard, 2005). Furthermore, after an actual income rise the norm by which this income rise is judged also rises and this norm depends on the past and future prospects of income dynamics. People change their reference group – almost always – upwards, and this can seriously affect their satisfaction, negatively. We will introduce a case below where a group of Hungarians in 2002 became objectively better off, and they got happier, but they felt relatively worse than it would have been expected

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Van Praag, 2003; Blanchflower and Oswald, 2004, 2005, 2006; Di Tella and MacCulloch, 2006; Van Praag, 2007; Clark, 2007.

according to their income level. We show how life and material satisfaction of this group is affected by this relatively big, but delayed real income increase, what was expected for a long time. We can see a quite similar case in Germany in 1990 (see Layard, 2005; Alesina and Fuchs-Schundeln, 2005; Frijters et al., 2004). After German reunification the East German began to compare themselves with the West Germans, rather than with the other countries in Eastern Europe. Thus, their level of happiness fell, in spite of the fact that their living standards increased after 1990.

Analysing the effects on subjective well-being it is well-known from the literature that non-employment really matters. (See Winkelmann and Winkelmann, 1998; Winkelmann, 2006; Blanchflower, 2001; Blanchflower and Oswald, 2004, 2005; Di Tella et al., 2001; Layard, 2005; Clark, 2007). We also argue that the main issue is not unemployment, but the labour market participation. People belonging to groups in marginal activity position – unemployed and non-employed in active age, disability pensioners, casual workers, people living on social welfare, called together them as marginal activity groups – report much lower satisfaction.

Evidence of Hungarian surveys (Lelkes, 2006a, b; Spéder et al., 2002) suggests that level of individual subjective well-being in Hungary is much below than that of Western Europe and has not trended up over time in Eastern Europe. Hungary is one of the main exceptions. The analysis of the determinants of satisfaction with life in general and of material well-being in Central and Eastern Europe is quite advanced (Sági, 1999a, b; Róbert, 1995, 1999; Spéder et al. 2002; Tóth, 2006; Klasen and Gruen, 2001; Lelkes, 2006a, b; Hayo, 2003a, b; Senik, 2004a, b, 2005, 2006; Ravallion and Lokshin, 2000, 2001; Graham, 2000; Graham and Pettinato, 2002a, b; Frijters, Haisken-Denew and Shields, 2004; European Foundation, 2004). A number of studies have analysed some aspects of well-being in the region, focusing mainly on job satisfaction (Blanchflower, 2001, 2006; Clark et al., 2005; Clark, 2007).

In what follows first we introduce our data and methodology, and then we shortly discuss about characteristics of the competitive stress situation and the dynamics of income and income distribution in Hungary as a macro-background of our findings. In the next paragraph we define and compare absolute, relative and subjective mobility during the period 2000-2002 in Hungary. Afterwards, we introduce different approaches for measuring subjective well-being by ordered logit models. In the first model-pair we use only objective explanatory variables, while the second model-pair contains both objective and subjective ones. In the second model we focus on how perceived relative wealth status, subjective income mobility, and other subjective variables affect life and material satisfaction. In this section we model also the difference of the factual relative and the subjective income positions, called income perception difference, and the difference of the factual relative and the subjective income mobility, called mobility perception difference. The study is closed with the summary of our major findings. The tables of basic distributions of our subjective

measures based on a supplementary interview attached to the Hungarian Household Budget Survey in 2002 are available in the Appendix.

## **DATA AND METHODOLOGY**

The Hungarian Household Budget Surveys (HBS) are undertaken by the Hungarian Central Statistical Office (HCSO). One third of households in the survey sample rotate annually, thus theoretically one third of households spend 3 years in the survey. This makes it possible to extract 3 years long rotation panels from the samples. The rotation panels usually contain 1700-2000 households with 4300-4900 persons. Because of the sample deterioration, the real size of the panels is one quarter/sixth of the original sample. In this study we use the HBS between 1993 and 2002 (in the 'background' part of the paper), and the Rotation Panel of 2000-2002. For the years before 1993 *comparable* household budget data are not available.

We could attach a supplementary survey for measuring subjective variables to the 2002 yearly interview of the HBS (asked in March 2003). In our supplementary survey the adult members of households taking part in HBS between 2000 and 2002 were asked. Our subjective questions and the raw distributions of the answers are presented in the Appendix. We have answers from 3540 members of 1903 households.

In the HBS samples (and consequently in the rotation panel sub-samples) the population of the larger cities, the active population and the highly qualified people are underrepresented. Weighting was applied to restore representativity. However, no weighting can solve an important sampling problem of the HBS after the transition. The poorest (e.g. homeless, functional illiterate persons) whom the interviewers could not create contact are missing from the sample. The most affluent, who often live in separation from the society, are also missing, and refuse to disclose information to the survey.

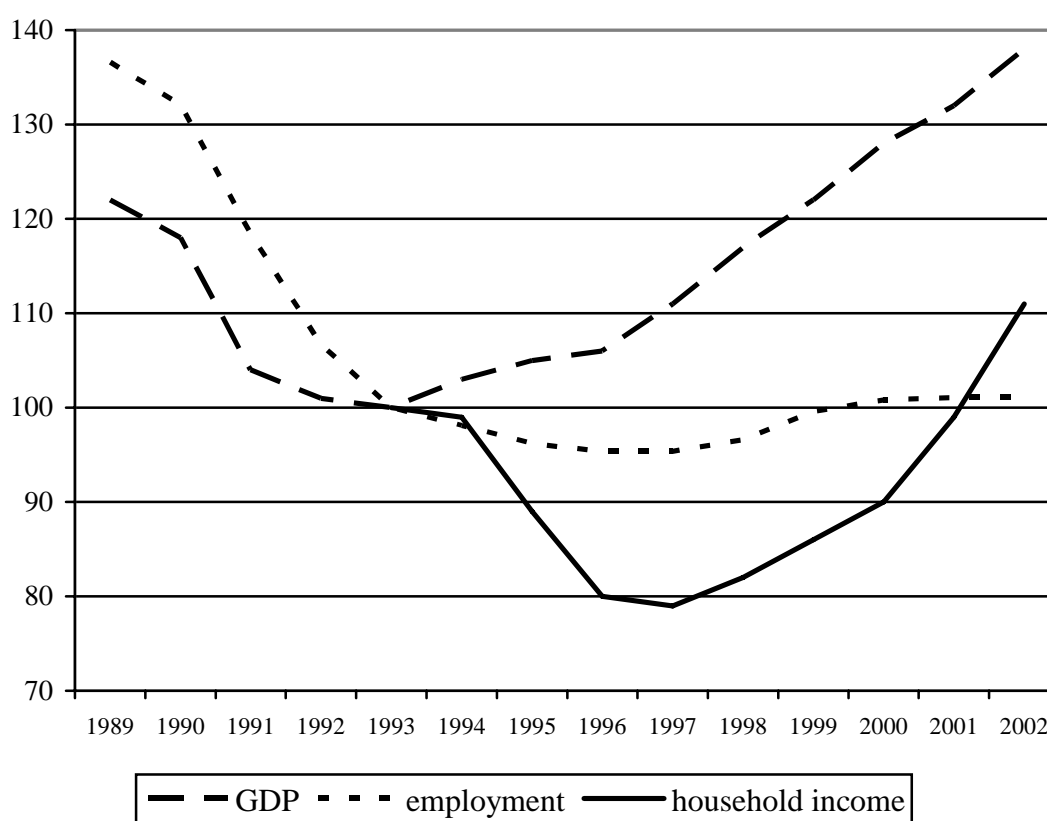
Beside usual kinds of income, household income used in this study contains the value of consumption from own production. It also contains the balance of agricultural incomes and expenditures. Direct taxes and social security contributions are not included. In order to allow comparisons of households of different size and composition, household income was equalised using the OECD equivalence scale: the first adult in the household was assigned a weight of 1, all other adults 0.7 and each child (below age 15) was assigned weight 0.5. Household income divided by the number of equivalent adults is household equivalent income.

## CHARACTERISTICS OF THE COMPETITIVE STRESS SITUATION IN HUNGARY

We present first the dynamics of macro data of real per capita GDP and employment between 1989 and 2002, and the dynamics of micro data of household income between 1993 and 2002, computed from the Household Budget Surveys (see Figure 1). Data for the real equivalent income computed by Household Budget Surveys between 1993 and 2002 are also shown (see Table 1).

Figure 1

Real GDP, employment and per capita household income, 1993=100



Source: GDP: Statistical Yearbook of Hungary 2002, HCSO, Budapest, 2003. Employment: Economic Survey of Europe, UN ECE, 2005, No. 2. Household income: own computation based on HBS.

The drastic decline of GDP lasted in 1992, the GDP trend got its deepest point in 1993, and dynamically increased after 1994. Employment dropped dramatically until 1993, and kept slowly declining until 1997. The drop in employment was almost 30 per cent between 1989 and 1997. From 1997 employment rose somewhat, but it stagnates after 1999. The employment rate remained very low, it is around 56-57%.

Real income (and expenditure) of the households significantly dropped between 1994 and 1997. This was the consequence of the serious stabilisation measures introduced in March

1995 and the high inflation rate what was 28% at that time. We may say that the stabilisation package in 1995 was the final act of the first period of transition.

*Table 1*

**Real equivalent income, 1993=100**

1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
100	97	87	79	79	83	86	90	99	112

*Source:* Own computation based on Household Budget Surveys

After the deepest point in 1997, the real income of the households dynamically increases. Between 2000 and 2002 the income growth was extremely fast, almost 24 per cent, what is much higher than the growth rate of GDP in this period.

This dynamic growth can mainly be explained by political and not by economic reasons. In 2001, before the parliamentary elections in May 2002, the outgoing government increased social benefits and public wages, generating a considerable extra household income flow. The same time the large and twice increase of the minimal wage – 57 per cent in 2001, plus 25 per cent in 2002 – had huge effect on the whole wage scale and has considerable importance in the followings. The new government – satisfying the supposed demand for redistribution of people – continued this kind of redistributive policy, endangering the financial balance of Hungary with this step. The most important acts of the new government introduced in 2002 : 50 per cent increase of the basic wage of people working in education, public health, and social services; repealing of minimal wage tax; 30 per cent increase of the scholarships; a single supplement of pensions; 20 per cent increase of child care allowance.

Looking over shortly the effect of the above mentioned economic processes on the changes of income inequality we can see that the share of the first income quintile in total income did not change between 1993 and 2002. However, the share of the fifth quintile in total income unambiguously grew. Consequently, the ratio of income shares of the top and the bottom 20% (the Q5/Q1 ratio) and the Gini coefficient also increased between 1993 and 2001 (Table 2).

The population usually felt the inequality growth between 1993 and 1997 stronger than between 1997 and 2001, because of the drastic decline in average income. In addition, between 1996 and 1998, when the direct effects of stabilisation package were running out, the income inequalities on personal level were stagnating. In the same time, between 1993 and 2001 we can see permanent and considerable decrease in the income mobility. The relative positions – mainly on the bottom and the top of the income scale – were frozen. (About interaction between inequality and mobility, and description of the decomposition of expenditure inequality in this period, see Kapitány and Molnár, 2002, 2004.) Between 2001 and 2002 we can observe a slight, non-significant decrease in our inequality measure.

**The distribution of income sources across income quintiles**

Quintile	1993	1997	2001	2002
1	11.1	11.0	11.0	10.9
2	15.1	15.5	15.4	14.9
3	18.0	18.5	18.3	17.7
4	21.8	22.6	22.2	21.7
5	33.2	33.9	35.1	34.7
Top 20% / bottom 20%	2.98	3.07	3.20	3.18
Gini coefficient	0.2231	0.2244	0.2371	0.2353

Source: Own computation based on Household Budget Surveys

Tóth, 2006, also published time series of Gini coefficients covering the whole period of our investigation. His inequality indices are computed on the basis of the Tárki Hungarian Household Panel (HHP), and after 1996 on the basis of Tárki Household Monitor horizontal surveys. The Gini coefficients and other inequality measures computed from the Rotation Panel are – in a small extent – systematically lower than those obtained from the HHP and the Household Monitor. This difference can be explained by the fact that the Tárki-surveys contain a relatively larger number of high-income households than the Household Budget Surveys, and, consequently, the Rotation Panels have. However, the inequality dynamics computed from the Rotation Panels give results very similar to those of Tóth, 2006.

On the basis of all these the most important characteristics of competitive stress situation are the following:

- Uncertainty attached to labour market situation.
- Possible and expected labour market shocks.
- Possible and expected income shocks.
- General uncertainty (loss of orientation).
- Growing wealth and income inequalities (increasing loss aversion and demand for redistribution).
- Considerable changes in relative mobility.

### **ABSOLUTE, RELATIVE AND SUBJECTIVE MOBILITY**

When we think about the link between mobility and satisfaction, and we try to estimate the size of the effect of relative income position changes on satisfaction, we can imagine three basic cases. The first one and the most unlikely is that the mobility has no significant effect on satisfaction. The second possibility well-known in the literature is that positive changes in

income flows have additional positive effect on subjective well-being. Respondents with upward mobility give positive assessments of their past economic progress, they may also have confidence in future economic processes, and that is the cause why they are more satisfied than the respondents on the same income level with stagnating relative income position.

The third possibility is that upward mobile people are less satisfied than their achieved income level would explain. Respondents reaching their present income position just now with upward mobility may give less positive assessments of their past economic progress than respondents having the same income position for a longer while.

We have to calculate with this possibility in the case of general uncertainty, namely, in the case of competitive stress situation, when the respondents with increasing income are pessimistic about their future income trends. (See this phenomenon also in Ravallion and Lokshin, 2000; Graham and Pettinato, 2001, 2002a, b.) Seen this phenomenon from the other side, the satisfaction of respondents with present downward mobility is decreasing, but their satisfaction level remains higher than those who have already been on this lower income level for a longer while.

In the following we argue that between 2000 and 2002, the third case is valid for Hungary. However, we have to emphasise, that our data-set is limited: we are not able to analyse long-term processes, and we know nothing about the dynamics of satisfaction of respondents when the upward (or downward) mobility process is permanent.

For measuring different types of mobility, first we define *subjective mobility*. The question behind this variable was the following: *How has the financial situation of your family changed during the last three years*, and the possible answers are: considerably declined, slightly declined, did not change, slightly improved, and considerably improved. (Distribution of the answers is shown in Table A18 in the Appendix.)

In measuring *absolute mobility*, the 2002 real income was compared to the average income of the years 2000 and 2001, and these income changes were classified into five categories. In Table 3 ' $<0.8$ ' means that the average real equalised income of the given person in the years 2000 and 2001 is less than the 80% of his/her real income in 2002; ' $0.8 < <0.9$ ' means that this average is between the 80% and 90% of the income in 2002, etc. The bounds of these categories are not chosen by chance, we use that values (rounded and symmetrical around 1) which lead the maximum rank-correlation between the categories of the absolute and subjective mobility.

To generate the *relative mobility* variable we order the people in the sample according to their equalised income, and normalise the sequence between 0 and 100 per cent. We name this parameter the *relative income position* of the persons, what is a simple generalisation of the decile or percentile structure. The *difference of relative income positions* between two time periods can be used to measure relative mobility. Taking this measure as a starting point

we can introduce further mobility variables. We can classify the differences putting them into categories according to the extent of downward and upward changes of the relative income positions at 10 and 20 per cent level. For example, we regard a person mobile at the 10 per cent range, if his/her relative income position difference is ten per cent, at least. In the simplest case we do not take into account the extent of the changes and consider only their direction.

Applying the 10 and 20%-range mobility measure we have shown already that the relative mobility was decreasing in Hungary between 1993 and 2001. After the stabilisation and in the period of growth the mobility gets lower, and the relative position of majority of people is getting more and more frozen. Between 2000 and 2002 the income and expenditure mobility were slightly increasing.

We chose the 10 and 20 per cent range in mobility measure because these values lead to the maximum rank-correlation between the categories of the relative and subjective mobility. Furthermore, the comparability of the relative and the subjective mobility facilitated a departure from the usual transition matrix approach, in which mobility is measured by examining quintile-to-quintile (decile-to-decile) transition rates. That is beneficial, because the procedure based on transition matrix has several and well-known characteristic deficiencies: considerable and very different changes in position are considered the same. Moreover, in some cases relatively big changes are not regarded, while in other cases very small changes in position are regarded as real shifts. E.g. no change is measured when someone moves from the bottom to the top of a quintile, while that shift is considered mobility when someone moves from the top of the first quintile to the bottom of the second one. Investigating changes related to the starting position seems to be more natural in this application.

Comparing the absolute and subjective mobility we can see (Table 3) that only 17 per cent of the respondents are in the same category in both distributions, 12 per cent are in the lower and 71 per cent are in the upper triangle of the table. That is, more than 70 per cent of the respondents perceive smaller improvement (or bigger deterioration) in their material situation than it is observable in their absolute real income changes. Naturally, the cause of the deviation may be that we describe and take into account the real processes in an inaccurate way. However, the great size of asymmetry shows that the majority of people do not perceive their factual upward income mobility.

*Table 3*

**Distribution of subjective and absolute income mobility between 2000 and 2002**

number of observations = 100%

Subjective mobility	Absolute mobility					Total
	< 0.8	0.8 < <0.9	0.9 < < 1.1	1.1 < <1 .2	1.2 <	
Considerably declined	1	2	4	3	5	14
Slightly declined	2	2	7	6	11	27
Did not change	3	2	11	8	18	42
Slightly improved	1	1	3	3	8	16
Considerably improved	0	0	0	0	1	1
Total	7	6	25	20	43	100

*Note:* < 0.8 means that the real equalised income of year 2002 is less than the 80% of the average income of 2000 and 2001; 0.8 < <0.9 means that the real income of year 2002 is between the 80 and 90% of the average income of 2000 and 2001, etc.

Comparing relative and subjective mobility (Table 4) we can see a somewhat more symmetric matrix, the 28 per cent of the respondents are in the main diagonal, 26 per cent of them are in the lower triangle, and 46 per cent in the upper one. This unambiguously shows that the subjective mobility is much closer to the relative mobility than to the absolute one. (This fact is illustrated also in Figure 2.) It means that the change in relative position has strong influence on the perception of change in material situation, rather than the factual income level itself: *people value the changes in their material situations according to the changes in their relative positions, rather than the changes in their absolute income levels.*

*Table 4*

**Distribution of subjective and relative income mobility between 2000 and 2002**

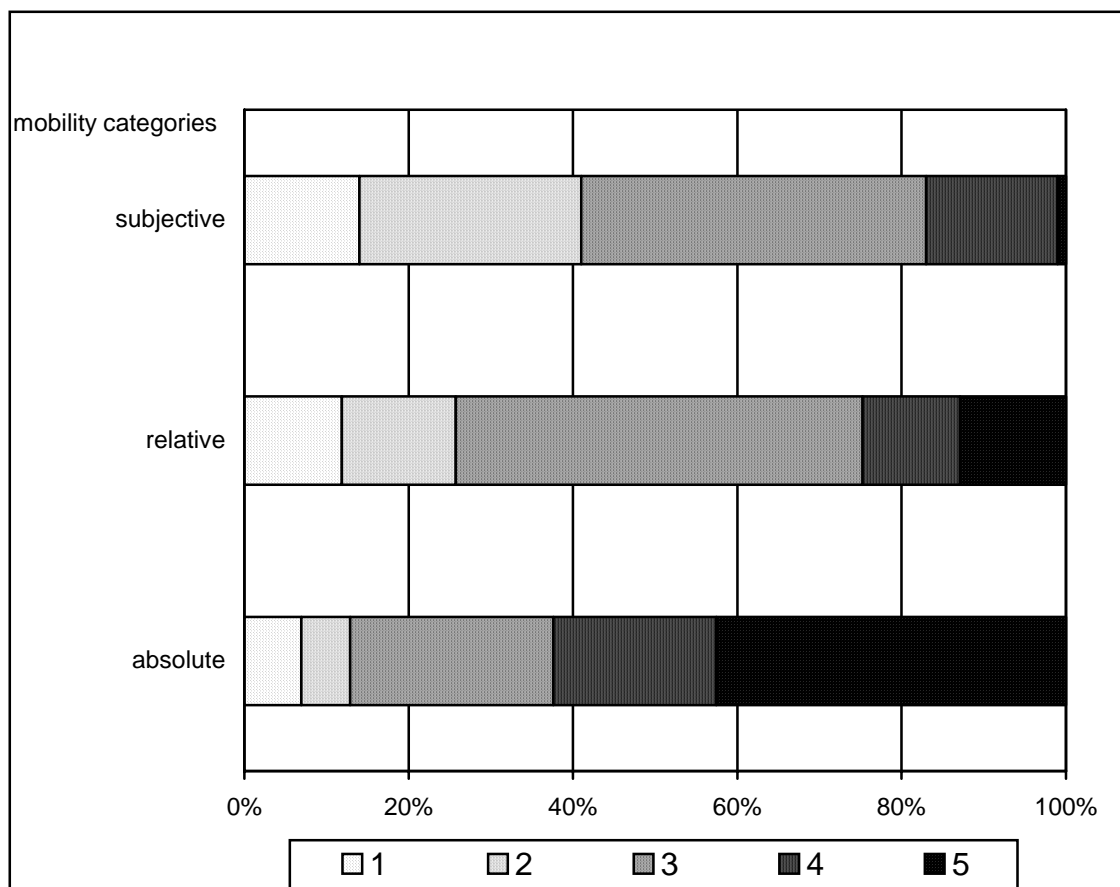
number of observations = 100%

Subjective mobility	Relative mobility					Total
	< -20%	-20 < < -10	-10 < < 10	10 < < 20	20% <	
Considerably declined	1	3	7	1	1	14
Slightly declined	3	4	14	3	3	27
Did not change	6	5	21	6	5	42
Slightly improved	1	2	8	2	3	16
Considerably improved	0	0	1	0	0	1
Total	12	14	50	12	13	100

*Note:* Relative mobility is measured by the difference of relative income position in 2002 and the average of relative income positions in 2000 and 2001. < -20% means that this difference is less than -20, on a 100 degree scale, -20 < < -10 means that it is between -20 and -10%, etc.

Figure 2

**Distribution of subjective, relative and absolute income mobility**



*Note:* Categories (1-5) of the subjective mobility correspond with the categories of the Total (last) column of Table 3 and 4, having the same values. Respectively, the diagram of relative mobility is equivalent to the categories of the Total row of Table 4, and that of absolute mobility is equivalent to the categories of the Total of Table 3.

## OBJECTIVE DETERMINANTS OF LIFE AND MATERIAL SATISFACTION

As it is usual in the literature two satisfaction variables are used as proxies for subjective well-being, namely, satisfaction with household material situation and general life satisfaction.<sup>4</sup>

Table 5

### Material and general satisfaction in 2002, Hungary Ordered logit estimates with objective variables (N=3398)

	(1) material satisfaction	(2) general satisfaction
2 <sup>nd</sup> + 3 <sup>rd</sup> quintiles of equalised income in 2002	0.91 (0.18)**	0.54 (0.16)**
4 <sup>th</sup> quintile	0.98 (0.21)**	0.65 (0.19)**
9 <sup>th</sup> decile	1.33 (0.26)**	0.73 (0.23)**
Lower 5 percentiles of 10 <sup>th</sup> decile	1.95 (0.28)**	1.37 (0.29)**
Upper 5 percentiles of 10 <sup>th</sup> decile	2.29 (0.38)**	1.88 (0.33)**
Casual workers	-1.11 (0.31)**	-1.93 (0.27)**
Unemployed	-0.94 (0.22)**	-0.99 (0.22)**
Disability pensioners	-0.60 (0.17)**	
Living on subsidies	-1.54 (0.43)**	-1.25 (0.41)**
Adult household members of marginal activity groups	-0.61 (0.17)**	-0.56 (0.14)**
Household contains couple (married or life-partners)	0.36 (0.12)**	0.38 (0.12)**
Household contains child(ren) under age 4	-0.72 (0.22)**	
Household contains permanently sick person		-0.31 (0.12)**
Student (after secondary school)		1.23 (0.25)**
Young (18-39 ages)	0.59 (0.12)**	0.62 (0.12)**
Elderly (55-X ages)	0.50 (0.12)**	0.55 (0.12)**
Graduated	0.39 (0.15)*	0.65 (0.15)**
Passenger car	0.29 (0.12)*	0.35 (0.12)**
Flat's/house's value between median and 90 <sup>th</sup> percentile	0.25 (0.10)*	
Household has debts	-0.57 (0.21)**	
<b>Rel. inc. pos.: up &amp; in the lower 5 deciles in 2000<sup>a</sup></b>	<b>-0.30 (0.12)*</b>	<b>-0.33 (0.12)**</b>
<b>Rel. inc. pos. of 2002 minus rel. inc. pos. of 2001 (cont.)</b>	<b>-0.89 (0.31)**</b>	<b>-0.69 (0.34)*</b>
Log pseudolikelihood at step 0	-4803.8	-4764.7
Log pseudolikelihood at last step	-4379.0	-4376.6
Pseudo R <sup>2</sup>	0.088	0.081

Notes: Robust standard errors adjusted for clustering on households in parentheses.

\* significant at 5% level, \*\* significant at 1% level.

Dependent variable of model (1): *To what extent are you satisfied or dissatisfied with the material situation of your household?* Dependent variable of model (2): *All things considered to what extent are you satisfied or dissatisfied with your life in general?* Possible answers: very dissatisfied (1), fairly dissatisfied (2), neither satisfied or dissatisfied (3), fairly satisfied (4), very satisfied (5).

<sup>a</sup> Relative income position increased from 2000 to 2001 and in 2000 the household was in the lower 5 equalised income deciles (dummy).

We could hypothesise with high certainty that income, labour market status and mobility will have significant impact on satisfaction. Similarly, health, housing conditions, family

structure, family events, social life, and neighbourhood characteristics were also expected to be strongly correlated with life and material satisfaction, *but we would have liked to focus on mainly the impact of the competitive stress and uncertainty*. Therefore, the analysis will provide a systematic test of the basic variables of well-being attached to this competitive stress situation and realised the general uncertainty.

The analysis – which is written down in two chapters – always uses ordered logit models for estimating the main relationships. The two columns of Table 5 contain the material and general satisfaction models using only ‘objective’ variables as explanatory variables, while models presented in Table 7 in the next chapter include ‘objective’ and ‘subjective’ variables, as well.

The objective explanatory variables in Table 5 include income, labour market participation, family structure, age, education, a group of certain assets as proxy for measuring wealth of households (car and holiday house), and finally, change in relative income position between 2000 and 2002.

In our preliminary calculation three alternative income measures were tested: 1. the log of household income, 2. income quintiles/deciles, 3. not equidistant income groups, where the size of group depends on the income level. (In all the three cases income is adjusted to household size.)

*Income* is positively correlated with both material and general satisfaction. The coefficients proved to be significant for all three alternative income variables, however we can reach the strongest relationship in the third case, using diminishing income group sizes: quintiles first, deciles after, and two twentieths at the top (only this variant is presented in Table 5). We can also see here that increasing income the satisfaction of the highest income groups are relatively steeply increasing, which seems to contradict the theory of decreasing marginal utility, and the convex-concave shape of the income value function. A partial explanation for this phenomenon may be that the highest income groups are missing from our sample, so the end of the typical value function of income is cut down here. We shall see later that introducing subjective income variables the same phenomenon does not exist.

With respect to competitive stress situation the most important block of variables is the labour market participation (see the previous Hungarian well-being studies, e.g. Lelkes, 2006b). After controlling for income *the unemployed and quasi-unemployed are significantly less satisfied than workers and than other non-actives* (e.g. normal pensioners), uncertainty is strongly attached to the labour market status, and unemployment is a major element of dissatisfaction. People living at the edges of activity and inactivity – *unemployed, disability pensioners, casual workers, people living on subsidies, called marginal activity groups together* in the Tables – report much lower satisfaction. Their

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<sup>4</sup> Within the Hungarian researches see Spéder, Habich and Kapitány, 2002; Haller and Hadler, 2006.

proportion is about 13 per cent in the total population. Furthermore, not only these people, but even their family members are more dissatisfied. The proportion of people in these marginal activity groups with their family members together is amounted 31 per cent of the whole population.

The specific category of *disability pensioners* deserves a particular attention because this was a typical way of escaping and withdrawing from the labour market during economic transition as an alternative to unemployment. According to the previous Hungarian well-being studies *health* is also a major (negative) component of individual's subjective well-being (see Lelkes, 2006b). The impact of health on life satisfaction is large: the coefficient of bad health is usually greater than that of unemployment or income. Knowing this we have to ask the question, in case of disability pensioners what is the stronger effect: inactivity or bad health? After analysing the variable of permanently sick persons in the family, we can find this health variable insignificant in the material satisfaction model, but it really substitutes the variable of disability pensioners in the life satisfaction model.

Other researches (Lelkes, 2006a, b; Sági, 1999a, b) have shown that entrepreneurship has become more positively associated with life satisfaction over time, even controlling for income, education, and so on. We could not find significant relationship between entrepreneurship and satisfaction.

Among variables concerning marital status of adults and family circumstances of the households we found two variables which have considerable effect on satisfaction. *People living in households containing couples* (married or living in common-law marriage) are more satisfied both with their material situation and with their life in general than the rest. (Naturally, if we used per capita income instead of equalised income we would get other demographic variables playing role in modelling.) In our previous study<sup>5</sup> we have already shown that the relative position of *families with younger children* got permanently worse between 1993 and 2002. They are unambiguously the losers of transition. Their positions did not improve even in the period of growth. Quite understandably, families with children aged not older than 3 years are less satisfied with their material situation than the others. Presumably, this negative effect is compensated by the pleasure of taking care of the little ones, therefore, in the case of general satisfaction this variable is significant only at 10 per cent level.

The increase in the number of *students in the population aged over 18* is largely due to the intensive expansion of higher education. In case of life satisfaction the coefficient of students is significant and has positive sign. Education for those aged over 18 seems to be a source of pleasure, the members of this group are quite satisfied with their life.

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<sup>5</sup> "Impact of transition and pre-accession on income distribution and inequality in selected EU catching-up and candidate countries". <http://econ.core.hu/english/comppress/D14.pdf>

The effect of *age* has the very well-known U-shaped form, where there is first a decrease in satisfaction and then an increase at the end. In case of age we also prefer using discrete time variables instead of quadratic continuous ones. The category of young is quite broad, middle-aged are between 40 and 54 (this is the reference category in Table 5), and the category of older people is over 54. The *middle-aged* are more dissatisfied than the average. In this age category people are still active and taking part in competition, but got socialised in another political and economic situation. Several research results show that this middle-aged group gives a greater weight to present income than do either the young or the old. They are more concerned about unemployment, status competition and consumption, they are more exposed to impacts of the competitive stress situation.

*Education*, independent of income, has a positive effect on satisfaction. Being highly educated has positive and significant effect on satisfaction in our models. Those with higher education have the highest level of satisfaction, even after controlling for labour market status and household income. This suggests that this relative satisfaction of the graduated can improve their earnings potentials.

Previous research results showed that variables for *level of wealth* have strong, positive and significant effect on satisfaction (see Graham and Pettinato, 2002b). As a proxy for measuring level of wealth we use passenger car (which is owned by 38% of the population in the sample), property (flat or house) value, and household debts. A car-ownership increases satisfaction, and – not surprisingly – the variable of household debts has negative coefficient in modelling material satisfaction. The effect of the real estate however is ambiguous. Both people who own a flat with relatively small reported value (below the median value) and people having explicitly expensive housing (above the 90 percentile) are relatively less satisfied with their material situation than the others. That is, according to this proxy, the wealthiest people are relatively less satisfied with their material situation, *ceteris paribus*.

The last two variables in our models here are the *variables for measuring relative income mobility*. Between 2000 and 2001 we disregard the extent of the income changes and consider only their direction. So, the first mobility variable is the dummy of persons with upward relative income mobility between 2000 and 2001, with a restriction, that this variable identifies only respondents with income under the median in 2000. The second mobility variable is the difference of relative income positions in 2002 and in 2001. *Both mobility variables have negative coefficients*. We got similar result (with a little bit smaller pseudo R<sup>2</sup>) with one continuous variable instead of these two variables, namely, the relative income position in 2002 minus the average of the relative income positions in 2000 and in 2001.

Naturally, our result shown in Table 5 does not mean that the upward mobility would reduce satisfaction. If we use income categories (variables in the first five rows of Table 5) for 2001 instead of income categories for 2002, leaving other variables unchanged, the sign of the coefficient of the second mobility variable would change to the opposite, with similar absolute

value to the former one. Analogously, we get similar results if we use the income categories of 2000, and we put the difference of relative income positions in 2001 and in 2000 into the model, as well as the difference of relative income positions in 2002 and in 2001 respectively. In this case the sign of *both mobility variables are positive*.

From these results it follows that *upward mobility increases satisfaction, but people who reached a certain income level just now are less satisfied than those who have already been around this income level for a long while*.

This argument can be supported also by two simple cross-tables. Table 6 shows the average material satisfaction in 2002 by the direction of relative income mobility between 2001 and 2002 according to the deciles of household income in 2001, and in 2002, respectively. As appropriate, the total rows of the two sub-tables are identical. We can see in both sub-tables – with unimportant exceptions – that the values of satisfaction are monotonously increasing in all columns. In the first table, making comparison by income deciles of 2001, we can see in all rows that the upward mobile persons are more satisfied than the downward mobile persons with the same income in 2001. Making comparison by income deciles of 2002, instead of 2001, we can see in each row – without exception – that the average satisfaction of upward mobile persons is less than the average satisfaction of downward mobiles. (Naturally, in the case of total population we get different result, as the average income of upward mobile people is significantly higher in 2002, than in 2001.) The same phenomenon is illustrated also by Figure 3.

This seemingly paradox phenomenon presented in the right-hand-side figure means that *people who have already had their present relative income positions are more satisfied than the newly upward mobile ones*.

For explaining this phenomenon we divided the upward mobile group into two subgroups by activity. The first group contained the people working in the competitive sector, namely, the entrepreneurs and employees at private companies, and the second was the group of others. We hypothesized that the relatively smaller satisfaction came from the competitive sector, given by competitive stress situation, and this situation could be attached to and associated with uncertainty and discontent.

*Table 6*

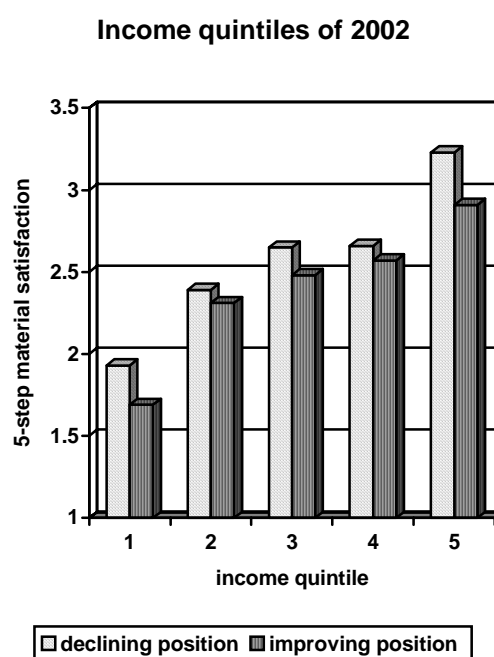
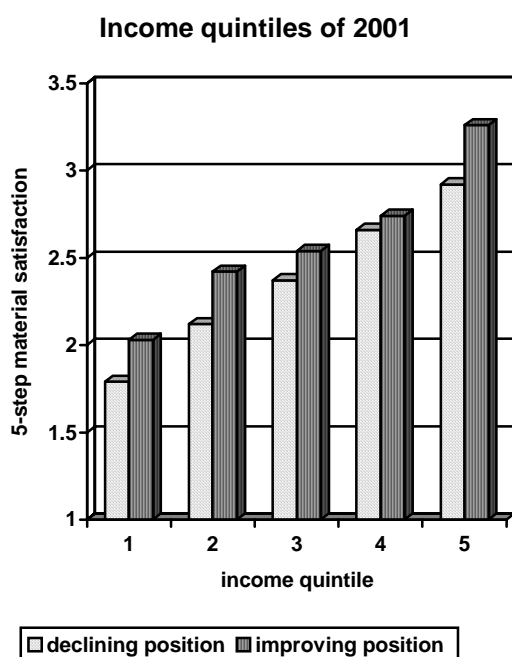
**Average material satisfaction in 2002 distributed by deciles of equalised household income and by the direction of relative income mobility between 2001 and 2002**

Income deciles in 2001	Average satisfaction	
	Downward mobiles	Upward mobiles
1	1.68	1.85
2	1.90	2.20
3	2.11	2.43
4	2.13	2.41
5	2.37	2.56
6	2.36	2.52
7	2.64	2.59
8	2.69	2.84
9	2.77	3.09
10	3.06	3.43
Total	2.48	2.54

Income deciles in 2002	Average satisfaction	
	Downward mobiles	Upward mobiles
1	1.84	1.57
2	2.00	1.79
3	2.33	2.19
4	2.44	2.42
5	2.65	2.37
6	2.65	2.56
7	2.63	2.47
8	2.70	2.66
9	3.07	2.65
10	3.49	3.12
Total	2.48	2.54

*Figure 3*

**Average material satisfaction of households with declining /improving relative income position between 2001 and 2002 by income quintiles of 2001 and 2002**



Instead of difference of relative income positions in 2002 and 2001 we use dummy variables of these two groups. Dummy variable of the first group is significant with negative sign, but the variable of the second one is not significant. Using dummy variable of people working in the competitive sector the explanatory power of our model is also increasing. Taking into account the family members of people working in the competitive sector we can improve further the value of pseudo  $R^2$ . *We find evidence for verification of our hypothesis: relatively smaller satisfaction of the upward mobile people is prevalent in the competitive sector.*

As we mentioned before, the minimum wage was almost – in all together – doubled in 2001 and 2002. Kertesi & Köllő, 2003, demonstrated that this government action reduced significantly the employment in the small firm sector, increased the jobloss, and decreased the job finding probabilities mainly among the low-wage workers. Their analysis was based on the first increase of the minimum wage in 2001.

*We think that the relatively smaller satisfaction came from the strengthening of the competitive stress situation on the labour market. People working in the competitive sector – even those who were able to keep their workplace – perceived their new income position uncertain and unstable. The measure of risk became extra large for them: they have got extra money but they were in danger of losing their job. This situation had a considerable negative effect on their satisfaction, their satisfaction level decreased.*

In the case of mobility between 2000 and 2001 we only found significant (and negative) coefficient for people with income under the median. This statement is totally harmonized with the facts: in 2001 the probability of becoming unemployed increased only in the case of low-income workers. However, between 2001 and 2002 we did not find in this respect differences between people having low and high income. We can assume that by this time feeling of danger of losing job spread over the whole labour market, reaching also people with relatively higher income.

In an uncertain situation the ‘newly arrived people’ may make quite different consumer decisions (see Stutzer and Frey, 2006). Majority of them begin to invest their extra money to real estate property and get into debt immoderately, others begin to consume extravagantly and sub-optimally. Their consumer decisions and the longer lasting consequences of their decisions following the income increase have influence on subjective well-being. Our case is different. The relatively smaller satisfaction is not resulted from the people’s decision, rather than from their expectations to future external conditions independent on their decisions. People who just arrived in their new and better positions were quite pessimistic about these new positions, and did not believe in certainty and permanency of their new states. This is why this *subgroup of Hungarians became objectively better off after a considerable income increase, and they got happier, but felt relatively worse than it would have been expected.*

## **SUBJECTIVE VARIABLES EXPLAINING MATERIAL AND GENERAL SATISFACTION**

Besides the objective explanatory variables, the models presented in Table 7 include few subjective correlates of satisfaction. Introducing subjective variables significantly improves our model estimations.

We not only consider the (objective and subjective) values of changes in relative income and wealth position, but also the subjective value of the wealth position itself. In our supplementary interview we included an Economic Ladder Question<sup>6</sup> for both 2000 and 2002. The subjective wealth position in 2002 has the strongest effect on satisfaction. Respondents were asked to place their household to 9 steps on the poor-rich scale of the income/wealth ladder, but nobody choose the ninth step. We draw together the groups of respondents choosing the seventh and eighth step, and they form the reference category in the model (see also Table A4 in the Appendix).

*It holds true that individuals thinking themselves wealthier are more satisfied and this effect is stronger in the case of material satisfaction.* Despite of introducing subjective wealth positions, the variables of current income are still significant, albeit their effect on satisfaction is smaller than the effect of subjective ranking variables. People having larger income are more satisfied. However, introduction of subjective variables – mainly in the case of general satisfaction – turned over the situation when the difference in satisfaction of the higher income categories was bigger than the difference in satisfaction of the lower income ones.

*The effect of factual income on satisfaction stagnates above a certain income level. The subjective valuation of the current income position of households is the dominant variable in both of our models.* Two theories for explaining these findings are: adaptations and relative position concerns (see Easterlin, 2003; Frey and Stutzer, 2004; Di Tella et al., 2004). This growth-without-happiness paradox has been observed several times in other countries and other periods of time (e.g. Blanchflower and Oswald, 2004; Diener and Biswas-Diener, 2002). Empirical evidence on the strong effect of relative position using well-being data is presented in Clark and Oswald, 1996; Blanchflower and Oswald, 2004; and Ferrer-i-Carbonell, 2005). In our findings *both the factual income and the subjective wealth position have significant effect on satisfaction. The subjective valuation of the current income position has the stronger effect on satisfaction. However, below a certain income level the factual income position has its independent impact on satisfaction.*

The results suggest that the relationship between relative mobility and subjective well-being is stronger than that between absolute income changes and subjective well-being. People valued the changes in their income positions by the changes in their relative positions, rather than the changes in their absolute income levels. Beside the 'twin' effect of factual

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<sup>6</sup> See Graham and Pettinato, 2002b.

income position and its subjective valuation we also find that both factual relative mobility and subjective mobility have significant, but opposite – negative and positive – effect on satisfaction. It means that the effect of factual relative mobility on satisfaction is smaller than it would be reasonable after the huge income increase of the period 2000-2002.

For the sake of correct interpretation it is important to underline another difference between the two types – objective and subjective – of our variables. The factual income level is a flow type variable, while in valuation of the current material situation of the household an asset position, namely, the wealth position is also taken into account.

Introducing subjective wealth position as an explanatory variable changes the role of some other objective variables, too: in this model the marginal activity group is still less satisfied than the others, however there is no significant difference between the categories of this group, so it is used as a unified group; variables of family circumstances and marital status are not significant here; younger people are not significantly different from the middle age people, only the dummy of older people remained relevant; proxy variables of wealth (car and flat property) fall out.

For better comparison, the relative income mobility is measured by the difference of the relative income position in 2002 and the average of the relative income positions in 2000 and 2001 in these models. The effect of relative income mobility is the same what we found in the case of models without subjective variables.

Analyzing the effect of income mobility on satisfaction, variable of subjective income mobility is especially important. In contrast with objective mobility, coefficients of subjective mobility are increasing all along its categories, that is, *the more people value their subjective mobility positive, the more they are satisfied with both their financial situation, and their life in general. Perception of upward mobility – in contrast with objective mobility – really gives an additional surplus to satisfaction.*

Similarly to our previous models containing only objective variables we also find that the negative sign of the factual relative mobility coefficient is attached to the people working in the competitive sector. If we take into account also the subjective variables, our previous statements remain unchanged.

Table 7

**Material and general satisfaction in 2002, Hungary  
Ordered logit estimates with objective and subjective variables (N=3398)**

	(1) material satisfaction	(2) General satisfaction
2 <sup>nd</sup> + 3 <sup>rd</sup> quintiles of equalised income in 2002	0.53 (0.17)**	
4 <sup>th</sup> quintile	0.56 (0.20)**	

9 <sup>th</sup> decile	0.75 (0.25)**	
Lower 5 percentiles of 10 <sup>th</sup> decile	1.28 (0.26)**	
Upper 5 percentiles of 10 <sup>th</sup> decile	1.15 (0.37)**	
Ln(equalised house hold income in 2002)		0.54 (0.17)**
Marginal activity groups together <sup>a</sup>	-0.55 (0.17)**	-0.39 (0.13)**
Household contains permanently sick person		-0.25 (0.12)*
Student (after secondary school)		0.94 (0.26)**
Elderly (55-X ages)	0.54 (0.11)**	0.37 (0.11)**
Graduated		0.32 (0.14)*
Household has debts	-0.41 (0.19)*	
Relative inc. mobility between 2000 and 2002 (cont) <sup>b</sup>	-0.80 (0.32)*	-0.84 (0.34)*
Subjective position in 2002: level 1 (from 8)	-5.01 (0.51)**	-3.63 (0.47)**
Subjective position in 2002: level 2	-4.16 (0.44)**	-3.36 (0.37)**
Subjective position in 2002: level 3	-3.18 (0.40)**	-2.59 (0.34)**
Subjective position in 2002: level 4	-2.49 (0.38)**	-2.11 (0.32)**
Subjective position in 2002: level 5	-1.72 (0.38)**	-1.34 (0.33)**
Subjective position in 2002: level 6	-1.38 (0.38)**	-0.84 (0.34)**
Subjective mobility: no change in material situation	0.64 (0.12)**	0.50 (0.11)**
Subjective mobility: slightly improved mat. sit.	0.81 (0.18)**	
Subjective mobility: considerably improved mat. sit.	2.35 (0.99)*	0.72 (0.17)**
Essentially agree with restricting income of the rich	-0.22 (0.10)*	-0.22 (0.10)*
No chance for the hh to obtain better mat. sit.	-0.36 (0.11)**	-0.38 (0.11)**
Expectations on children's future: much worse	-1.30 (0.43)**	-1.18 (0.31)**
Absolutely uncertain to find another job	-0.45 (0.12)**	-0.60 (0.11)**
Effect of EU on the chance of employees: positive	0.35 (0.10)**	0.47 (0.10)**
Log pseudolikelihood at step 0	-4803.8	-4764.7
Log pseudolikelihood at last step	-3937.5	-4030.0
Pseudo R <sup>2</sup>	0.180	0.154

Notes: Robust standard errors adjusted for clustering on households in parentheses.

\* significant at 5% level, \*\* significant at 1% level.

Dependent variable of model (1): *To what extent are you satisfied or dissatisfied with the material situation of your household?* Dependent variable of model (2): *All things considered to what extent are you satisfied or dissatisfied with your life in general?* Possible answers: very dissatisfied (1), fairly dissatisfied (2), neither satisfied or dissatisfied (3), fairly satisfied (4), very satisfied (5).

<sup>a</sup> Marginal activity groups: casual workers, unemployed, disability pensioners, people living on subsidies.

<sup>b</sup> Relative income position in 2002 minus the average of the relative income positions in 2001 and 2002.

With respect to the special role and combined effect of the income and the mobility of two kinds we also model the difference of factual relative and subjective income positions called *income level perception difference*, and the difference of factual relative and subjective income mobility called *mobility perception difference*. Both the income level perception difference, and the mobility perception difference were explained in an ordered logit model. (See the results in Table 19 and Table 20 in the Appendix.)

Answering to the Economic Ladder Question nobody put herself on the ninth level (see Table A4), so we created income eighths, and calculated the difference of the ranks of subjective wealth position and income eighth categories. This difference is called income level perception difference. According to its definition, the income level perception difference correlates negatively with the income level: people belonging to the highest income category

can not rank themselves in a higher category, and so on, this difference cannot be positive. During our calculation this effect was filtering out.

We have to underline that the subjective wealth position measures the position on the poor-rich scale, while the objective income level indicates the income position of the household. If the income level perception difference is positive, it may mean that the respondents subjectively value their position higher than their factual one, but may also mean that their wealth position is better than their income position.

The main results of modelling the income level perception difference are the following:

- In the case of people belonging to the marginal activity groups the average income level perception difference is considerably smaller than in the case of others, their subjective position is lower than their factual income level. We experience the same phenomenon in the case of the family members of people belonging to the marginal activity groups.
- Average income level perception difference of people educated in secondary school is bigger than that of people with lower level of education and much smaller than that of with tertiary education. Students value their position relatively better than the others. This finding may be connected with the more stable labour market position of young and highly educated people.
- Young people (between 18 and 39) value their position relatively higher than the others. This is expressly coming from the difference in perception what we can prove by comparison with elder people living in the same households.
- Average income level perception difference of households containing couples is larger than that of others without couples.
- People living in Budapest value their position relatively worse than the others. This phenomenon can be explained by the comparison effect.
- Expenditure on cultural recreation is positively correlated with the income level perception difference. The bigger the share of expenditure on recreation, the bigger the income level perception difference is.
- Average income level perception difference of people owning passenger car is bigger than that of others. This variable is suitable for partly filtering out the effect of wealth from modelling income level perception difference.
- Upward mobile people value their position relatively worse than the others. The real wealth position of upward mobile people is obviously worse than that of people with this higher income for a longer while.
- The impact of subjective variables on income level perception difference is unambiguously connected to the perception and not to the difference between wealth and income. Those people who are really uncertain in their future labour market positions value their position worse than the others. People who expect that joining EU has negative or no effect on the

labour market positions of the Hungarian employees value their position much worse than the others.

- The more the people are concerned about the idea that they or somebody else in their family lose her/his job, the worse they value their position compared to their factual income level. From this respect the situation of people who responded “do not know” to this question is very similar to those who answered “very concerned”.
- People who are totally uncertain that they will be able to find other job not worse than the present one and people who gave the answer “do not know” value their position relatively much lower than the others.
- Those people who do not see any chances for improving their financial situation value their position much worse than the others.
- Respondents who essentially agreed with the statement that the government should restrict the income of the rich value their position relatively worse than the others.
- The bigger the people value the dynamics of inequality increasing in the past, the worse they value their wealth position.
- People who expect that joining EU has positive effect on the labour market positions of the Hungarian employees value their position relatively much better than the others. This subjective variable makes the objective variable of share of expenditure on satisfaction insignificant. High level education, expenditure on culture, entertainment and travel correlate with the positive valuation of future prospects and labour market positions.

What are the main determinants of the difference between subjective and relative mobility<sup>7</sup> (see Table 4)? Modelling the gap between subjective and objective mobility, we number the categories of both the subjective and the relative mobility from 1 to 5, and subtract these values from each others. The *mobility perception difference*<sup>8</sup> was also explained in an ordered logit model on household level. Naturally, this mobility perception gap essentially depends on the categories of relative mobility. For example, if one of the households belongs to the highest relative mobility category, this subjective mobility gap cannot be positive. For filtering out this effect we apply relative mobility also as an explanatory variable in the model.

Summarising our main findings concerning mobility perception difference:

- The mobility perception difference has a positive and significant relationship with the level of income. *The lower the income category of a household is in the final year, the smaller this household perceives its income mobility compared to its factual relative mobility.* (As we have seen in Table 4, the population underestimates in average its factual upward

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<sup>7</sup> We have to mention that only households were asked in questioning subjective mobility and not the members of the households. This variable of subjective mobility was taken from the main inquiry of the Household Budget Survey.

<sup>8</sup> See the very similar variable called ‘perceptions gap’ in Graham and Pettinato, 2002b.

relative mobility.) We can distinguish four categories, namely, households belonging to the first equivalent income quintile, households belonging to the second, third or fourth quintile, households belonging to the ninth decile, and households belonging to the tenth decile.

- Expenditure on culture, entertainment and travel is positively correlated with the mobility perception gap. Those households who have the highest share of expenditure on recreation look more overestimating their past mobility, and households who are on the other end of the scale are underestimating it. After controlling for the income level, the bigger the share of expenditure on recreation in total household expenditure is, the more these households perceive their income mobility higher than their factual relative mobility.
- Analyzing the relationship between mobility perception difference and family structure of the households we find that households containing couples are likely to judge their past mobility more positively than the rest of the households.
- We find an opposite effect in the case of households with member living at the edges of activity. *The marginal activity groups of households underestimate their past relative income mobility compared with that of the others.*
- When examining the effect of settlement type we find that households living in Budapest and in larger cities are more likely to underestimate their past mobility compared with that of the others.
- Not surprisingly, age has the very well-known U-shaped quality, where we get the minimum value at about sixty. Those aged about sixty underestimated their past income mobility compared with both the elder and the younger. The youngest households are the most positive in judging of dynamics of their relative mobility. (The age of household was measured by the average age of household members over eighteen.)

The consistent gap between relative and subjective mobility explains the fact why both mobility variables have significant effect in our models. *This consistent gap between the subjective assessment and the objective value of mobility may be caused by the uncertainty of the competitive pressure situation.* This uncertainty characterizes most the marginal activity groups, the middle aged households and households before retirement. It is also very obvious that living in a household containing couple is likely to be more secure than living in a mutilated family, and this extra security explains the more positive valuation of past mobility compared with that of the others.

Important to note that in the case of people working in the competitive sector we did not find any characteristics of the mobility perception difference at 5 per cent significant level. However, we find small but positive coefficient at 10 per cent significant level. It means that in the case of people working in the competitive sector we can not argue that their lower level satisfaction is caused by the undervaluation of their factual income raise, and this leads to

their smaller satisfaction. This fact strengthens our previous statement that the increased uncertainty cut back significantly the satisfaction increasing effect of the huge real income raise.

*The reference groups, what people choose and aspire to be in, also play a very important role in subjective mobility formation.* The influence of these subjectively chosen reference groups may also lead to the underestimation of the real size of changes in financial positions. This phenomenon can be illustrated with the example of households living in big cities, and also explained by the special effect of income level in modelling of mobility perception difference.

Besides the variables of subjective ranking of relative income position and subjective mobility numerous other subjective variables have got a strong relationship with satisfaction. However, the share of ‘does not know’ responses is very high in the case of these other subjective variables. We did not omit these respondents from the panel population because the number of observations would become non-acceptably low. We identify and collect these respondents in separate categories.

Surprisingly, 45 per cent of respondents essentially agreed with the statement that *the government should restrict the income of the rich. They are less satisfied than the others.* There is a positive correlation between antipathy towards the rich and relative discontent, and variables attached to uncertainty also correlate positively with the demand for redistribution (see Molnár-Kapitány, 2006b).

*Subjective variables having strong impact on satisfaction are connected to the future prospects of mobility and the uncertainty attached to the labour market situation.* People representing 30 per cent of the sample, who do not see any chance for their household to obtain a better financial position<sup>9</sup>, ceteris paribus, are much more dissatisfied with both their financial situation and their life in general than the others. Those people who think that their children compared with them will live much worse in the future are also more dissatisfied than the others.

People who are uncertain in their future labour market positions<sup>10</sup> are more dissatisfied than the others. *We can see that people’s tolerance of uncertainty and income risk are mainly determined by the assumed cost of losing job and the extent of their concern about it.* People who expect that joining EU has negative or no effect on the labour market positions of the Hungarian employees are rather dissatisfied than those who expect positive effect<sup>11</sup>.

As we have seen people belonging to the marginal activity groups, independently of the income level of their household, are more dissatisfied with their position than the others. This

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<sup>9</sup> See Table A6 in the Appendix.

<sup>10</sup> 40 per cent of employees answered ‘absolutely uncertain’ to the question ‘How certain are you that you will be able to find another job not worse than the present one?’ (see Table A10 in the Appendix).

<sup>11</sup> See Table A11.

*relative dissatisfaction characterizes also those who do not belong to marginal activity groups, but they feel their labour market position uncertain and they are afraid of the labour market consequences of the competitive stress situation.*

*Besides factual and perceived financial situation, the future prospects of mobility plays also very important role in satisfaction formation.* Expectations about future prospects for growth and mobility affect both material satisfaction and life satisfaction in general. From our findings we may draw important knowledge related to policy of the two Hungarian governments in 2001 and 2002. Between 2000 and 2002, the real income of households increased by 20 per cent. This dynamic growth can mainly be explained by political and not by economic reasons. In 2001, before the parliamentary elections in May 2002, the outgoing government increased social benefits and public wages, generating a considerable extra household income flow. The new government – keeping its election promises – continued this kind of redistributive policy.

As we have seen, income growth within uncertain circumstances generates relatively smaller rise in satisfaction than it would be expected. If this uncertainty also influences expectations and many people reckon that they cannot expect further improvements in their financial and labour market positions that may have a negative effect on satisfaction. *Policy, raising the income of the population in relatively smaller extent, but continuously, guaranteed and providing new opportunities for individuals may induce more positive effect on satisfaction.*

## CONCLUSIONS

With the aid of our “natural experiment” we could introduce a case of the paradoxical relation between relative income mobility and subjective well-being in a competitive stress situation. In our models we found the basic standard variables (relative income position and income mobility, subjective wealth position and subjective income mobility, labour market position) and their future prospects to have important effect on perception of individuals’ well-being. Subjective income mobility is one of the main explanatory variables of satisfaction, the relationship between relative mobility and subjective well-being is strong, and much stronger than that between absolute income changes and subjective well-being. Hungarian people valued the changes in their income positions mainly by the perceived changes in their relative positions and are projecting these current signals of the changes onto the prospects of future income mobility. The majority of respondents underestimate the real size of changes in their past and future financial positions, and the uncertainty of the competitive stress situation is what really leads to this underestimation.

There is a significant and positive effect of both factual income and subjective wealth ranking on satisfaction, partly independently of each other. At the same time, we also found that both factual relative mobility and subjective mobility have significant, but opposite – negative and positive – effect on satisfaction. The negative sign of factual relative mobility means that the effect of this variable on satisfaction is smaller than it would be expected after the huge income increase of the period 2000-2002. Up-ward mobility increased satisfaction, but people who just reached a certain income level in 2002 were less satisfied than those who had already been around this income level for a longer while. As an explanation we found that relatively smaller satisfaction of the upward mobile people is prevalent in the competitive sphere. People working in the competitive sector perceived their new position uncertain and unstable. This is the consequence of the increased uncertainty of labour market caused by the extraordinary large minimum wage raise.

Labour market status is a major element of dissatisfaction in Hungary. The unemployed, the non-employed in active age, and the quasi-unemployed are significantly less satisfied than workers and than other inactive, after controlling for income. Furthermore, their family members are also less satisfied than the average. The relative dissatisfaction of these marginal activity groups may also be explained by uncertainty. The consistent gap between the trends of objective and subjective values of relative income and income mobility variables, named perception difference, depends on the influence of reference groups, but the uncertainty of the competitive stress situation is what really leads to this divergence. The lower the income category of household in the final year, the smaller this household perceives its income and income mobility in comparison with its factual income and relative mobility. After controlling

income level, the marginal activity groups really underestimate their past relative income mobility.

Further subjective variables having strong impact on satisfaction are also connected with the future prospects of mobility and the uncertainty attached to the labour market situation. People's tolerance of uncertainty and income risk are mainly determined by the assumed cost of losing job and the extent of their concern about it. Relative dissatisfaction characterizes also those who do not belong to the marginal activity groups, but they feel their labour market position uncertain and they are afraid of the labour market consequences of the competitive stress situation.

Our main policy conclusion is that decreasing uncertainty on the labour market has larger positive effect on satisfaction than the direct increases of income by the government. A large but single raising in income without future prospects of further increase generates less increase in satisfaction than the smaller, but permanent income raising with future prospects confirming future expectations.

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## APPENDIX

**Subjective variables of supplementary interview attached to the Hungarian Household Budget Survey, 2002 (questioning in March 2003)**  
(N= 3540, age of respondents  $\geq$  18 years )

*Table A1. All things considered to what extent are you satisfied or dissatisfied with your life in general? (%)*

Very dissatisfied	15
Fairly dissatisfied	22
Neither satisfied nor dissatisfied	39
Fairly satisfied	21
Very satisfied	2
Doesn't know, no answer	1
Total	100

*Table A2. To what extent are you satisfied or dissatisfied with the material situation of your household?*

Very dissatisfied	21
Fairly dissatisfied	28
Neither satisfied nor dissatisfied	31
Fairly satisfied	18
Very satisfied	1
Doesn't know, no answer	1
Total	100

*Table A3. How does your household get along with its monthly disposable income?*

With great difficulty	12
With difficulty	18
With some difficulty	30
Reasonably	35
Easily	4
Very easily	0
Doesn't know, no answer	1
Total	100

**Table A4. To which step would you place your household at the present time on a 9-step ladder (first step means poorest, ninth step means richest)?**

1	4
2	7
3	19
4	27
5	26
6	10
7	4
8	0
9	0
Doesn't know	3
Total	100

**Table A5. On which step was your household in 2000 in the previous poor-rich scale?**

1	4
2	8
3	18
4	28
5	26
6	10
7	3
8	1
9	0
Doesn't know	2
Total	100

**Table A6. Do you see any chance for your household to obtain a better financial position?**

No chance	29
Work prospects	43
Health status prospects	13
Children's future prospects	8
Other	3
Doesn't know, no answer	4
Total	100

**Table A7. How will the economic situation of Hungary change in the next 3 years, considering also the effect of Hungary's joining the EU?**

		% of real responses
Considerably declines	6	8
Slightly declines	13	16
Doesn't change	34	41
Slightly improves	26	32
Considerably improves	3	3
Doesn't know, no answer	18	-
Total	100	100

**Table A8. How will the financial situation of your household change in the next 3 years, considering also the effect of Hungary's joining the EU?**

		% of real responses
Considerably declines	6	7
Slightly declines	16	20
Doesn't change	21	27
Slightly improves	32	40
Considerably improves	5	6
Doesn't know, no answer	20	-
Total	100	100

**Table A9. To what extent are you concerned about the idea that you or somebody else in your family loses her/his job?**

		% of real responses
Very concerned	32	40
Fairly concerned	22	28
A little bit concerned	18	22
Not at all concerned	9	11
Non specific, doesn't know, no answer	19	-
Total	100	100

**Table A10. Imagine the situation that tomorrow you lose your job! How certain are you that you will be able to find another job not worse than the present one?**

		% of real responses
Absolutely uncertain	24	42
Fairly uncertain	21	38
Fairly certain	8	15
Absolutely certain	3	5
Non specific, doesn't know, no answer	44	-
Total	100	100

**Table A11. What kind of effect will have Hungary's joining the EU on the chances of the Hungarian employees?**

		% of real responses
Negative effect	12	17
No significant effect	18	40
Positive effect	31	43
Doesn't know, no answer	29	-
Total	100	100

**Table A12. What kind of effect will have the stronger market competition, caused by our joining to the EU, on the interest of the Hungarian consumers?**

		% of real responses
Negative effect	19	28
No significant effect	21	29
Positive effect	30	43
Doesn't know, no answer	30	-
Total	100	100

**Table A13. How have the income and wealth inequalities changed in Hungary from the middle of the 1990s?**

Considerably increased	54
Increased	30
Slightly increased	6
No significant change	4
Slightly decreased	1
Decreased	1
Considerably decreased	0
Doesn't know, no answer	4
Total	100

**Table A14. Do you agree that the government should restrict the income of the rich?**

Essentially disagree	6
More disagree than agree	13
More agree than disagree	27
Essentially agree	45
Doesn't know, no answer	9
Total	100

**Table A15. Do you agree that the government should allocate more income to the poor?**

Essentially disagree	3
More disagree than agree	6
More agree than disagree	28
Essentially agree	58
Doesn't know, no answer	5
Total	100

**Table A16. According to your expectations, how will your child(ren) live in the future compared with you? (N=2288, respondents having child)**

		% of real responses
Much worse	1	1
Worse	7	9
Essentially in the same way	26	29
Better	47	55
Much better	6	6
Doesn't know, no answer	13	-
Total	100	100

**Table A17. How are your grown-up children living at present time compared with you (only for children living outside of the household)? (N=1414, respondents having grown-up children)**

Much worse	1
Worse	10
Essentially in the same way	36
Better	43
Much better	5
Doesn't know, no answer	5
Total	100

**Table A18. How has the financial situation of your family changed during the last three years? (asked in the HBS, one answer per household)**

Considerably declined	13
Slightly declined	27
Did not change	43
Slightly improved	15
Considerably improved	1
Doesn't know, no answer	1
Total	100

**Table A19. Ordered logit estimation of income perception difference (N=3419)**

	(1) only objective explanatory variables	(2) objective & subjective explanatory variables
Casual workers	-1.31 (0.45)**	-1.10 (0.42)**
Unemployed	-0.72 (0.22)**	-0.75 (0.20)**
Disability pensioners	-0.61 (0.18)**	-0.60 (0.18)**
Living on subsidies	-1.47 (0.55)**	-1.17 (0.52)*
Adult hh members of marginal activity groups <sup>a</sup>	-0.53 (0.16)**	-0.47 (0.15)**
Highest qualification: secondary school (12 classes)	0.27 (0.12)*	non-sig.
Graduated	1.08 (0.17)**	0.83 (0.16)**
Young (18-39 ages)	0.24 (0.10)*	non-sig.
Student (after secondary school)	0.83 (0.31)**	1.03 (0.39)**
Household contains couple (married or life-partners)	0.47 (0.12)**	0.49 (0.11)**
Lives in Budapest	-0.64 (0.18)**	-0.77 (0.17)**
Share of expenditures on culture and recreation (cont.)	3.30 (1.20)**	non-sig.
Household has passenger car	0.41 (0.13)**	non-sig.
Relative inc. mobility between 2000 and 2002 (cont.) <sup>b</sup>	-0.68 (0.34)*	-0.83 (0.32)**
Concerned about job loss: very concerned <sup>c</sup>		-0.88 (0.21)**
Concerned about job loss: fairly concerned		-0.49 (0.21)*
Concerned about job loss: a little bit		-0.43 (0.20)*
Concerned about job loss: doesn't know		-0.84 (0.22)**
Able to find another job: absolutely uncertain <sup>d</sup>		-0.27 (0.13)*
Able to find another job: doesn't know		-0.27 (0.13)*
No chance for the hh to obtain better mat. sit. <sup>e</sup>		-0.51 (0.11)**
Effect of EU on the chance of employees: positive <sup>f</sup>		0.41 (0.11)**
Restricting income of the rich: essentially agree <sup>g</sup>		-0.28 (0.11)**
Allocating more income to the poor: essentially agree <sup>h</sup>		-0.34 (0.12)**
Inequalities considerably increased in last years <sup>i</sup>		-0.72 (0.18)**
Inequalities increased in last years		-0.42 (0.18)*
Inequality changes in last years: doesn't know		-0.84 (0.27)**
Pseudo R <sup>2</sup>	0.266	0.289

Notes: Robust standard errors adjusted for clustering on households in parentheses.

\* significant at 5% level, \*\* significant at 1% level.

Dependent variable of the models: serial number of subjective position on the poor/rich scale (numbered from 1 to 8) minus serial number of factual income eighth (both categories are measured on personal level).

**The estimates of the income level dummies are omitted from the table.**

<sup>a</sup> Marginal activity groups: casual workers, unemployed, disability pensioners, people living on subsidies.

<sup>b</sup> Relative income position in 2002 minus the average of the relative income positions in 2001 and 2002.

**Table A20. Ordered logit estimation of mobility perception difference in 2002**  
(*N*=1895, household level)

Household belongs to the 2 <sup>nd</sup> , 3 <sup>rd</sup> or 4 <sup>th</sup> quintile of equalised income	0.96 (0.18)**
Household belongs to the 9 <sup>th</sup> decile of equalised income	1.39 (0.25)**
Household belongs to the 10 <sup>th</sup> decile of equalised income	2.35 (0.27)**
Household contains member belonging to marginal activity groups <sup>a</sup>	-1.04 (0.16)**
Household contains couple (married or life-partners)	0.49 (0.12)**
Age of the household (continuous variable) <sup>b</sup>	-0.0605 (0.0250)*
Age of the household squared	0.0005 (0.0002)*
Household lives in big city (Budapest or county seat)	-0.56 (0.13)**
Share of expenditures on culture and recreation (continuous)	4.28 (1.36)**
Relative mobility between -20 and -10 %	-2.80 (0.26)**
Relative mobility between -10 and 10 %	-4.83 (0.25)**
Relative mobility between 10 and 20 %	-7.32 (0.32)**
Relative mobility above 20 %	-9.14 (0.35)**
Pseudo R <sup>2</sup>	0.284

Notes: Robust standard errors adjusted for clustering on households in parentheses.

\* significant at 5% level, \*\* significant at 1% level.

Dependent variable of the model: serial number of the subjective mobility category minus serial number of the relative income mobility category of the household. For the categories see Table 4.

<sup>a</sup> Marginal activity groups: casual workers, unemployed, disability pensioners, people living on subsidies.

<sup>b</sup> The average age of household members over eighteen.