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Tolerance for inequalities in measured and perceived income distribution: tunnel effect, reference group shifts and skill biased transition in Hungary, 1987-2005

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István György Tóth: Tolerance for inequalities in measured and perceived income distribution: tunnel effect, reference group shifts and skill biased transition in Hungary, 1987-2005

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Abstract

Measured and perceived shifts in income distribution do not always move in the same direction. The account for differences may include measurement problems, cognitive mechanisms and structural trends within the income distribution. The paper attempts to make this account on Hungarian data for the period between 1987 (the last pre-transition year in terms of tax/transfer regimes) and 2005 (the year following the joining of the EU in 2004).

While the growth of inequalities was highest in the first period of the transition (1987-1992) followed by a slowing down of inequality increase (1992-1996) and later a levelling off of the process (1996-2000 and 2000-2005), surveys in the latter periods measured a continued tension in inequality perceptions. People perceive “too high” and growing inequalities, together with continued feelings of frustration and dissatisfaction with their incomes and living standards. This gloomy mode is escorted by an increasing demand for redistribution to a level clearly unsustainable.

In search for a reconciliation of these phenomena, several explanations (data problems, reference group shifts, “tunnel effect” and perceived slowdown of income mobility, restructuring of age/income profiles of households) are shown in the paper. As for income inequality trends, an MLD decomposition analysis of aggregate income inequalities by population subgroups shows how structural changes might have continued “under the surface”. It is shown that although the aggregate inequality growth seem to have stopped for a while, this was an outcome of significant internal restructuring, due to within group and between group inequality changes. The second half of the nineties can be characterised by differential changes in age/income profiles of households, driven mostly by skill biased technological change, education expansion and differential relative returns to human capital investments. This might have easily caused feelings of inequality increases. In addition to that, a shift in reference groups might also have contributed to the ongoing dissatisfaction with income levels and inequalities. However, multivariate analysis show the prominent role of subjective mobility and perceptions of changes in relative positions.

The paper is based on HCSO income survey of 1987 and TARKI household surveys of 1992-2005.

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1. Introduction

Suppose we are sitting in a sauna with friends and our host for the sauna evening wants to please us with setting the temperature to a level that maximizes the number of participants. Suppose further that, like referees in a soccer play, we have yellow cards to signal that we are already suffering and would quit if temperature goes further up. Taken together, we have four options to reveal our preferences: (1): not entering if temperature is too low, (2): enter and stay if it is appropriate for our senses, (3): show the yellow card to explain we are already in need of extra efforts to stay and (4): quitting if it turns out to be unbearable.

Some survey questions we are asking about the level of inequalities have a similar structure. When people are asked to reveal their agreement to a statement about the level of inequalities, the option of strong agreement means something like raising a yellow (or a red) card, showing a sort of a discontent with the current inequality regime. Before leaving the sauna example and heading towards research on tolerance for inequalities, it is worth listing some similarities and dissimilarities of the two situations.

- First, although both the temperature and the perceived level of inequalities are "objective" in a sense that they are independent of the individual actors' wishes, overall income dispersion is a result of a large human game to which we all contribute and from time to time we try finding responsible persons to blame for the rules of the game and try signalling discontents to them (if not more frequently, than at elections in democratic societies). Therefore, the aggregate levels of inequalities are also, to some extent at least, endogenous.
- Second, in both situations, preference distributions are heterogeneous across the population (that is, there is a variance of signalling level in the relevant population, indicating different individual preferences). Yet, we do not know much about the actual distribution of preferences as the real exiting levels cannot be tested in a survey context: they could only be revealed in real life situations (and revolutions do not appear every other day).
- Third, conditional preferences may play a role in both cases. There is a tendency in human nature to overwrite "intrinsic" preferences based on comparisons with observed behaviour of others. In the sauna example, some participants always plan the length of their stay inside, conditional upon the behaviour of others. Also in societies, people tend to evaluate situations conditional upon the results of comparisons with reference groups.
- Fourth, although both the tolerance for temperature and the tolerance for inequality may change over time, the latter seems less predictable (sometimes more, sometimes less elastic) in real world situations. This brings a great deal of uncertainty into the latter issue as predicting the behaviour of societies based on our knowledge of some "objective" measures is always more difficult than predicting the reactions of the sauna evening participants to changing temperatures.

This paper is about the change in tolerance for inequalities in a country that experienced a large scale transition in both the rules of the big social and economic game and, as a result, a change in the reward (income) distribution. In the sections to follow, we try to explore, and, to some extent, explain both the actual changes in income distribution, and the perceptions and evaluations of it. The basic contribution of this paper is, in addition to presenting wide ranging and (in some cases) long time series data on inequalities and on perceptions of them, to attempt to relate actual income distribution shifts to perceptions and to the normative statements about inequalities.

The policy relevance of this exercise is fairly obvious and does not require lengthy explanations.

- First, preferences towards certain levels of inequalities shape individual behaviour in various social, economic and political situations. Shall perceived levels of inequalities largely exceed levels of tolerance, people may contemplate giving up loyalty for voice (voting, protests, industrial affirmative actions, etc) or for exits (moving into black economy, emigrating and the like).
- In addition, as the shape of public preferences (for policies, taxes and expenditures and other issues) is revealed in general elections, voting behaviour based on actual levels of inequalities

on the one hand and (right or wrong) perceptions on the other hand may deviate from each other, causing distortions in economic or social terms.

- Third, as economic growth is a result of myriads of individual choices (of savings and spending, work and leisure, entering or exiting the labour force, paying or avoiding taxes, etc), the parameters of these choices matter. Fairness judgements, inequality assumptions are, however, elements of the parameters, even if sometimes with smaller, sometimes with larger weights assigned to them.
- Finally, (dis)approval of the level of inequalities may contribute to the (de-)legitimation of the political regime as well, again leading to prosperous or to declining economic and political communities, depending upon legitimacy of the regimes.

The rest of the paper is organised as follows. In Section 2 some basic facts on Hungarian income inequalities will be presented, followed first by presenting survey results on the tolerance for inequalities and second by an attempt to describe some socio-economic determinants of attitudes. In Section 3 additional hypotheses on possible reasons behind changing levels of inequality aversion are presented and tested. On the one hand, the argument that preferences are conditional and also dependent upon future economic expectations is shown and compared. On the other hand, an account of change in the structure of inequalities is presented with the help of inequality decompositions by various subgroups. The section ends with a presentation of results of a multivariate analysis, while the paper ends (in Section 4) with summary and conclusions.

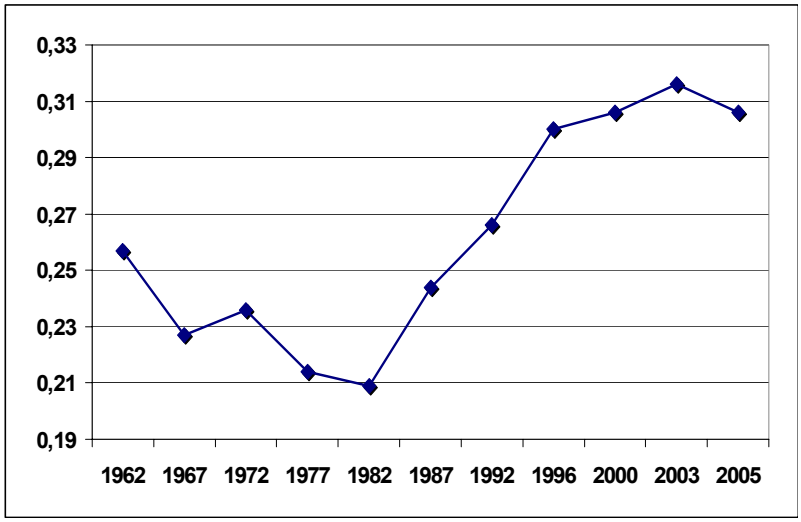
This paper is quite heavily loaded with data from different Hungarian and international surveys. The description of the most often used ones is put in the annexes, together with some background tables that were necessary to include in support of the arguments but that was impossible to include in the main text.

2. What do the data show?

2.1. Long term trends in income inequalities

The increase of income inequalities, as shown by changes in Gini values (Chart 1) and developments in various other income dispersion measures (Table A1) had some peculiar characteristics for Hungary.

Chart 1. The long term evolution of inequalities in Hungary: Gini coefficients, 1962-2005



Source: 1962-1982: Atkinson–Micklewright ([1992. Table HI1]), 1987: CSO Income Survey, 1992, 1996: HHP (B), 2000, 2003, 2005: Tárki Household Monitor.

Notes: Measures are computed on the basis of personal distribution of per capita incomes.

First, the growth of inequalities started after a long period of declining trends. Though real differences in living standards much depended upon uneven access to a growing portfolio of in kind services during the communist period, observed income differences narrowed between 1962 and 1982. This trend (with a short period of slight reversal in the beginning of the seventies, resulting from a hesitant and short lived economic liberalization attempt between 1968-72), was part of an often quoted set of "great achievements" of the communist regime. As a decrease of inequalities was an important part of the legitimation of the social-political system, indoctrination about the positive redistributive role of the state and about the supremacy of a levelling of income and material circumstances of the population continued and could, to certain extent, be successful, even when contrasted to a growing acknowledgement of efficiency problems of the economy.

Second, the increase of inequalities started much earlier than the date often associated to systemic change in the Central and Eastern European transition countries (that is, around 1989-90). Already back in the beginning of the eighties, as the performance of the traditional socialist economic system deteriorated and, consequently, there was an explicit stagnation of GDP, private activities gained some ground, leading to an increase of inequalities of incomes.[1] This period was still characterised by modest growth of average real incomes (which, under deteriorating macroeconomic performance, lead to a significant increase of foreign indebtedness of the country). The mask of the overall stability of living standards still did not allow for a realization of the unsustainable nature of this process for the majority of the population. Continued beliefs in the tasks of the state and its ability to perform stayed until the first economic shocks after the systemic political change around the turn of the decade.

Table 1. Selective inequality measures of personal distribution of per capita household incomes in Hungary 1987-2005

	1987	1992	1996	2000	2003	2005
Selected inequality measures						
P10	61	60	48	51	49	51
P90	173	183	191	193	192	192
P90/P10	2,81	3,07	3,95	3,78	3,90	3,78
S1	4,5	3,8	3,2	3,3	3,2	3,3
S5+S6	17,9	17,4	17,5	17,3	17,1	17,1
S10	20,9	22,7	24,3	24,8	25,7	25,1
S10/S1	4,6	6,0	7,5	7,6	8,1	7,6
Robin Hood index	17,0	18,5	20,7	21,2	21,8	21,4
Gini	0,244	0,266	0,300	0,306	0,316	0,308
Memo: overall average, Fts	5262	9587	17627	32517	53900	63117
N	56459	5538	4972	5253	5909	5209

Source: 1987: KSH Income distribution survey. 1992, 1996: HHP (B), 2000, 2003, 2005: TÁRKI Household Monitor surveys. Between 1992 and 2005: date refers to year of fieldwork. Reference period for incomes: April of previous year to March of current year between 1992 and 2000, October-September in 2003 and 2005.

From the analysis of the various inequality measures, several periods of the long Hungarian transition can be differentiated.

From 1982 to 1987 all inequality measures have shown a widening dispersion. Decile ratios of per capita household incomes increase from 3.8 to 4.6 between 1982 and 1987 (Table A2), followed by a further and more drastic increase to 6.0 by 1992 (Table 1). This latter period is very important in the

[1] Historical income distribution data series for Hungary are presented in Table A1.

history of the Hungarian transition. New company laws introduced and a completely new tax system installed in 1988 marked a real take off of the competitive market economy. "Spontaneous" privatisation and management buyouts between 1987 and 1990 were followed by a larger scale, government initiated and (to the extent possible) state controlled privatisation process starting from 1991, with massive soldouts of the remains of state enterprises (resulting in a regional-champion large FDI influx into the country during the nineties). The price for the efficiency increase was a massive job destruction throughout the economy: over a quarter of all jobs was lost in just a few years between 1987 and 1992.

The widening of income dispersion (despite the governments' efforts to spread the costs of the transition over the whole society) have continued between 1992 and 1996: this period witnessed a further increase in decile ratios (to 7.5) and the Gini of the personal distribution of per capita incomes (from 26.6% in 1992 to 30% in 1996). The increase of income dispersion and of poverty level in this period can partly associated with the austerity package of the government introduced in early 1995: devaluation of the national currency, cuts in social expenditures and inflating state social commitments has lead to a sharp decrease of the relative position of the poorest segments of the society (P10 down from 60% to 48% of the median, see Table 1), while the relative position of the uppermost decile improved (P90 up first to 183% in 1992 and second to 191% by 1996 from a level of 173% of the median in 1987) .

While, in general, substantial changes has occurred in many respect in the country (for a basic overall comparison between 1990 and 2001, the dates of the last two censuses, see Table A2), overall inequality measures have shown slight changes only between the mid 1990s and 2005. As estimates from alternative income surveys show, decile ratios of per capita incomes were kept at 7.5 in 2005 (the level they were at in 1995-1996, see Table 1 for Tárki data and Table A3 for Central Statistical office data). On top of that, the distribution of persons between various income brackets (defined in percentage of per capita median incomes) remained largely the same within the same period (the share of the "well-off" and of the "poor" was by and large stagnant, see Table 2 for details).

Table 2. Percentage distribution of the population between various income brackets (groups defined in percent of the per capita median of the total)

	1987	1992	1996	2000	2003	2005
Percentage distribution						
"well-off" (over 200% of median income)	6	7	9	9	9	9
"upper-middle " (median 120-200%)	27	25	23	25	25	25
"middle" (median 80-120%)	39	42	35	34	34	33
"lower middle" (median 50-80%)	24	20	21	23	22	24
"poor" (below 50%)	4	6	12	9	11	10
Total	100	100	100	100	100	100
Memo: population, beginning of year, thousand persons	10509	10374	10321	10222	10142	10096
Poverty headcount estimate*, lower and upper bounds, thousand persons						
Upper	432	700	1299	1004	1182	1047
Lower	398	583	1105	849	1030	887

*axiomatic standard error estimate, 95% confidence interval.

Source: 1987: KSH Income distribution survey. 1992, 1996: HHP (B), 2000, 2003, 2005: TÁRKI Household Monitor surveys. Between 1992 and 2005: date refers year of fieldwork. Reference period for incomes: April of previous year to March of current year between 1992 and 2000, October-September in 2003 and 2005.

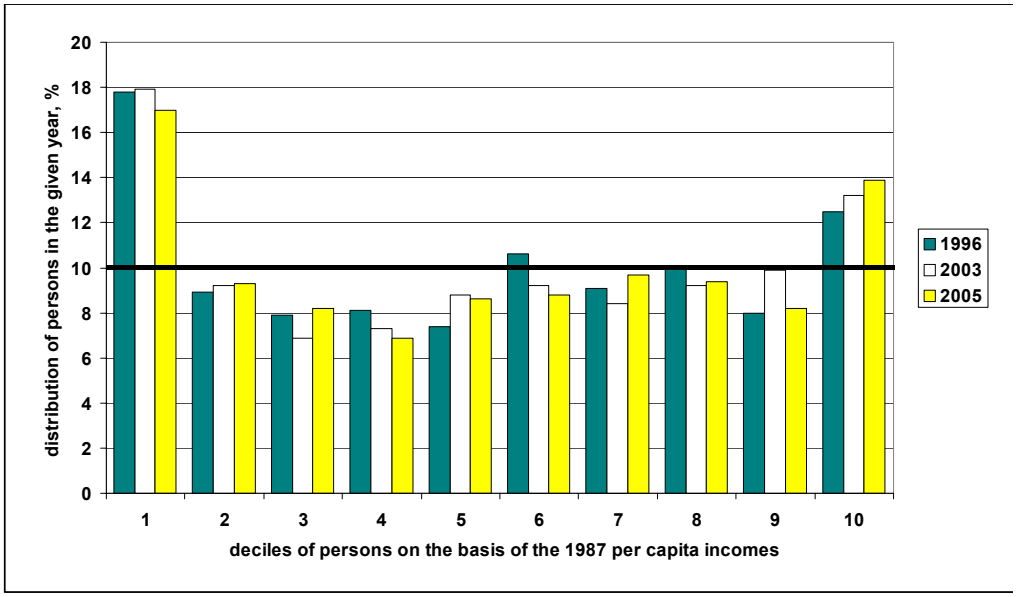
Table 3. Personal distribution of personal equivalent (e=.73) household incomes, various measures sensitive to different distribution ranges

	1987	1992	1996	2000	2003	2005
Upper range-sensitive measures						
P90/P50	1,69	1,86	1,90	1,92	1,92	1,91
GE(2)	0,116	0,168	0,236	0,207	0,261	0,260
A(0,5)	0,046	0,059	0,071	0,072	0,078	0,073
Measures sensitive to the middle or symmetrically to both ends of the distribution						
S10/S1	4,55	5,52	6,62	6,63	7,30	6,68
P90/P10	2,8	3,1	3,6	3,5	3,58	3,42
GE(0)	0,092	0,119	0,143	0,147	0,156	0,145
GE(1)	0,097	0,127	0,156	0,155	0,175	0,163
Gini	0,236	0,263	0,290	0,292	0,302	0,291
A(1)	0,088	0,112	0,133	0,137	0,144	0,135
Measures sensitive to the lower range						
P10/P50	0,60	0,59	0,54	0,55	0,54	0,56
A(2)	0,164	0,219	0,244	0,294	0,259	0,243

Source: 1987: CSO Income distribution survey, 1992, 1996: HHP, 2000, 2003, 2005: Tárki Household Monitor.

The overall invariance of inequality measures from the second half of the nineties, however, does not mean that there were no changes in the income distribution. While the overall measures remained unchanged, relative positions of various subgroups may (and did) change. First, the measures sensitive to the extremes of the income distribution have shown further increases both at the top and at the bottom (see the values of Atkinson(0,5) and of the GE(2) measures for the top and Atkinson (2) values for the bottom in Table 3.). This signalled some important changes within the extreme deciles, rather than between them. Second, when anchoring the decile cutpoints in 1987 for the successive periods (that is, deflating current year incomes with growth rates of the overall medians), a polarization between various income groups can be detected (Chart 2). The share of those falling to the bottom (1987) decile increased a lot and the emergence to the top (1987) decile increased, while lower middle income deciles have “emptied” during the transition. This means that a relatively big share of the Hungarian society may have experienced a deterioration of the relative positions while aggregate measures based on overall variance did not change much. Third, there was a considerable change of “between group” variance for some important background dimensions (like subgroups with various education levels, employment patterns, etc.): this is exactly the topic to which we have to turn back at a later stage (section 3.3.) of this paper.

Chart 2. Polarization and shrinkage of the middle class between 1987 and 2005: distribution of persons in the 1987 per capita income deciles, based on current incomes deflated to 1987, percent



Note: 1987 decile cutpoints are deflated median growth indices.

Source: 1987: CSO Income distribution survey, 1996: HHP, 2003, 2005: Tárki Household Monitor.

2.2. Tolerance for inequalities: some basic trends

The increase of inequalities has led Hungary from a mid eighties inequality regime similar to those in the Scandinavian countries of the time (around 4.5 decile ratios and Ginis between 23% and 25%) in a decade to a regime resembling more to the Continental European countries like France or Germany. However, not even at the end of the transition reached the level of inequalities of those regimes prevalent in Mediterranean Europe (Tóth, 2005, Tóth and Gábos, 2005), not to speak of most of the post-soviet republics (Russia, the Ukraine, etc.). Still, research on inequality attitudes in international context shows Hungary to be among the most inequality averse countries, at least as far as the agreements to the statement on "too large inequalities" are concerned (Suhrcke, 2001)[2].

Table 4. Percent of strong agreement with „income inequalities are too large" in various transition countries and different periods

	1987	1992	1999	2003
Czech Republic	-	36	57	-
Hungary	41	45	67	66
Poland	46	42	36	-
Slovenia	-	48	35	-
Slovakia	-	-	72	-
Bulgaria	-	85	80	-

Note: The wording of the question was as follows: "To what extent do you agree with the statement: Inequalities are too large in (your country)". Answers on a scale of five (1-5), of which "strong agreement" (5) is reported here

Source: 1987-1999: ISSP inequality modules, 2003: Tárki Household Monitor. Empty cells: no data.

2 The wording of this question was: To what extent do you agree that inequalities in {your country} are too large? Answers were coded on a scale of five from „strong agreement" to „no agreement at all".

Though much of the remainder of the paper argues that there are some rational concerns behind the assertions of "too large" inequalities, first we surf on some "surprising" results on this account (Table 4).

- Empirical data show that Slovenian income dispersion figures reflect a much more egalitarian country than that of the Polish: still, the share of inequality-frustrated persons is largely the same in the two countries.
- Inequalities did not decrease to an extent that would justify the decrease of this group in Slovenia and Bulgaria, not to speak about the long lasting decline in the Polish inequality intolerance.
- The intertemporal evolution of the size of the group dissatisfied (with the extent of inequalities), however, looks very much in line with Hungarian inequalities (Chart 3).

Consistently to the growing dissatisfaction with the extent of inequalities, the perception of the functional role of inequalities in maintaining incentives structures also has undergone a de-legitimation process. While in 1987 there was a 27 percent accepting that "inequalities are necessary for the development of Hungary", this category halved by 1999 and the share of those completely opposing this view increased from 14 percent of the total population in 1987 to one third of the sample in 1999. (Table 5) One might suspect that this was one of the most important determinants of the growing dissatisfaction with the performance of the post-transition economic and social systems (Rose, 2005)[3] As no attempt is being made here (at least at this stage of the paper) to draw policy conclusions (whatever important they should be), it is enough to note that disapproval of the current levels of inequalities can lead to de-legitimation of the economic system and, on the other way round, the finding about dissatisfaction with the new regime is a partial proof of the validity of the disproval of inequalities in transition countries. This link will be taken up in section 3.2. of this paper, when the relationship between mobility prospects and inequality approvals will be in the focus.

Table 5. Macroeconomic legitimation of inequalities: withering away? (Percent of those in agreement with the statement „Inequalities are necessary for the development of Hungary")

Agreement …	1987	1992	1999
… not at all	14	21	33
… rather not	41	40	43
… neither yes, neither no	18	18	11
… rather yes	21	18	11
… fully	6	3	2
Total	100	100	100
N=	2370	1155	1141

Source: Recalculations of Róbert (2002) based on ISSP „Inequality" modules from 1987, 1992, 1999.

2.3. Inequality aversion and the demand for redistribution

Inequality aversion, as it might be intuitively suspected, is often associated with an increase demand for redistribution. That is, those arguing that inequalities are too large, often opt for an increased role of the state in reducing inequalities. There is an association between these two variables and they often have parallel changes in their spread in the society. Table A4 shows that full agreement of these claims increased between 1992 and 1999. Data also show that citizens have strong pro state attitudes when asked about the role of the state in various fields. Healthcare and old age income maintenance are the champions of these (75 and 66 percents are strongly arguing for a state task in these fields,

3 The 2004 round of the New Europe Barometer have found that while the socialist system received a 67 point average approval rate (from 100) in Hungary, the present system (in 2004) ranked only at 49. The difference in approval of the old and the current regime is highest among „New EU" transition countries in Hungary, Poland, Latvia and Slovakia. Current regimes are evaluated as better performing in Czech Republic and Estonia. (Rose, 2005: 25)

respectively) and even those lowest supported state interventions (unemployment and housing provisions) receive around or above seventy percent support (when the "definitely should be" and probably should be" responsibilities of the state options are taken together).

As these types of whish lists are difficult to resist, various experiments were run with the "role of the state" questions. In an earlier survey we tried to put prices on the various alternatives (Csontos, Kornai and Tóth, 1998). However, the results have shown only minor adjustments in state support claims. In another experiment, we asked about the role of the state with putting two contradictory statements to be the two ends of the same scale and offered a choice between two extremes for the respondents. As Table A6 shows the results, even in this questionnaire setting the state options receive (much) higher than 50 percent support in case of health, education and social expenditures (86%), jobs for the unemployed (82%) and free access to higher education (82%). It is only in the field of housing where more than 50 percent of the respondents have chosen an option that is less (though still quite) pro state. In this context, it is important to note that even when choosing between two positive statements (on equalizing incomes versus greater acknowledgement of individual performances), a majority (57%) will choose the levelling option. This result also provides a test for the robustness of the "strong agreement to the inequality reduction" claim: as we see from a comparison of results shown in Table 4 and Table A7., offering an alternative statement reduces agreement with inequality equalisation only marginally.

2.3. Socio-economic determinants of attitudes: a first glance

The analysis of the socio-demographic background is important to understand the dynamics of disapproval of inequalities. However, there are signs that it does not take us too far. Consider the findings presented in Table 6. The share of those who are in strong agreement to the claim that inequalities are too large has increased from around 40 percent to two thirds between 1987 and 1999 in Hungary and remained the same by 2003. In 1987, there was only a slight age bias in disapproval of inequalities: males tended to be more inequality averse than females, while age and education did not show any significant differentiating effect of approvals-disapprovals. As time passed, a sort of an ageing effect has taken place: disapproval of inequalities increased among the 60+ age group by 1992, followed by an increasing share among the 35-59 age group by 1999, while in 2003 the age differences seem disappearing again, at a higher overall level of disapproval of inequalities. The same type of trickling down (in fact: trickling up) effect can be found when the educational background is observed: no differences in 1987, increase among the lower educated in 1992 and no differences again in 1999.[4]

However, it is only a small variance that is explained by the observed socio-demographic factors and without further theoretical models we cannot expect to get much closer to the understanding of the observed overall trends. It is rather unfortunate that most of the surveys on attitudes towards inequality measure individual background variables also on the basis of subjective evaluations. There are only very few reliable "objective" social status variables in these surveys. Education and age (and a combination of these) can be a good proxy. Also, employment positions and occupational categorisations might be available (relevant, however, in most cases, for the actives only). Income position variables are either measured on a subjective basis (subjective class positions, for example) and even where incomes are asked in an opinion survey context, they can be treated as poor proxies of real income situations.

[4] Further explanation is needed to find out the reason for a drop in this share among the higher educated in 2003. This is going to be taken up again in section 3.3. of the paper.

Table 6. "Large inequality"-claim: some socio-demographic background variables, Hungary, 1987-2003 (percent of respondents in respective groups reporting "strong agreement" of the statement on "large inequalities")

	1987	1992	1999	2003
Age of respondent				
-34	40	43	59	62
35-59	40	44	72	69
60+	40	51	71	66
Education of respondent				
less than secondary	40	48	67	67
secondary	39	40	67	66
Tertiary	41	39	67	59
Gender of respondent				
Male	44	44	64	64
Female	37	46	70	67
Total	40	45	67	66
significance (three-variate logistic regression):	gender	education (primary to secondary)	Age	education (higher), gender, age (middle)

Sources: 1987, 1992, 1999: ISSP inequality modules, 2003: Tárki Household Monitor

Nevertheless the attempts to sort out effects of objective positions (occupations in Kelley and Zagorski 2003, labour market status and household size in Suhrcke, 2001) find only education and related variables relatively strong. In fact, many analyses focus on normative structures and subjective contents, investigating relationships between norms and perceptions. However, only a few attempts are made to find direct links between actual levels of income distribution changes and inequality attitudes (Suhrcke, 2001, and Förster and D'Ercole, 2005). One of the most important aim of this paper is exactly that: to find some links between measured and perceived shifts in income distribution.

As the last of the observed time series of inequality aversion attitudes is coming from a sample of household survey designed to measure income distribution and stratification, direct analysis is also possible for 2003 Hungary (Table 7). The surprising thing is the poor performance of the chosen background variables. Odds ratios (probabilities of answering "too large inequalities" relative to the reference category of the given dimension) are non-significant (in most cases) or small (like for the respondent's gender and the composition of the household the respondent lives in). There are only two odds ratios worth mentioning: the younger (those below 34 years of age) will feel inequalities too large with a smaller probability than members of the other two age brackets and members of those households having more than double of the median equivalent incomes will have significantly less probability of answering the same option.

Table 7. Socio-demographic determinants of the "large inequality" claim (percent agreements in the relevant groups and odds ratios from a reduced logistic regression model)

	Approval rates	Odds ratios (logistic regression)
	% strong agreement with "inequalities are too large	Variable predicted: strong agreement with "inequalities are too large"
		exp (B)
Age		
-34	62	1,0
35-59	69	1,3
60+	66	n.s.
Education		
Less than secondary	67	1,0
Secondary	66	n.s.
Tertiary	59	n.s.
Gender		
Female	67	1,0
Male	64	0,9
Children in household		
0	68	1,0
1	67	n.s.
2	62	0,8
3+	62	0,7
Residence		
Rural	66	1,0
Urban	67	n.s.
Capital	65	n.s.
Person equivalent income		
-50	67	1,0
50-80	69	n.s.
80-120	67	n.s.
120-200	65	n.s.
200+	57	0,6
Employment activity of household head		
Head is the only employed	67	1,0
Head is employed, other(s) also	64	n.s.
Head inactive	64	n.s.
Head pensioner, no employed in household	68	n.s.
Head pensioner, other person employed in hh	67	n.s.
Total	66	
-2 Log Likelihood		4936
Goodness of Fit		3887
%correct predictions		66

Source: Tárki Household Monitor 2003

Source: Tárki Household Monitor 2003.

Note: Simple logistic regression model, odds ratios (Exp (B) values) significant only at 5% are shown.

3. Attempts to explain

This brings us to the main research topic of this paper: what drives inequality perceptions and how perceptions relate to actual positions of households? What we need is gaining an explanation of the relationship between aggregate overall inequalities and the acceptance of them, between background dimensions and norms driving inequality attitudes and between socio-economic positions and inequality evaluations.

In what follows, we are going to present three different argumentations about inequalities and their perceptions. Data definitions, subjective mobility and the skill and age biased nature of the transition will be analysed in the next sections.

3.1. Data problems??

In this section, a number of potential "noises" in conceptualisation and in data will be speculated upon.

When speaking about "noises", the first things that come into mind are various types of measurement errors (sampling and non-sampling errors). These errors should be separately analysed for the explaining variables and for the variables that are to be explained. Further, some problems are relevant in international comparisons, other can somehow be remedied in national contexts. In the next few paragraphs, problems of international comparisons will be presented first, followed by more general measurement and conceptual problems.

The size of uncertainty originating from sampling errors of the attitude variables depends on sampling designs and sample sizes. This may cause a few percentage point differences in a frequency distribution table about attitudes. Also, different wordings of the questions in an international study may cause, (even larger) uncertainties. Should researchers put extremely extensive efforts in harmonizing questionnaires across countries (as it was the case in all the observed datasets like ESS, ISSP and WVS as well[5]) cultural contexts and the meaning of inequalities may always cause noises and misunderstandings. Though all efforts should be made to sort out these types of comparability problems, the only empirical way to get on the safe side is to confront results derived from other surveys, and wherever possible, using of alternative sources and, if possible, combine them. As the intertemporal variance of both of these types of data (inequality attitudes and income distribution measures as well) in certain countries is smaller than variance between countries, combination of results from various datasets may (hopefully) decrease rather than increase uncertainties.

To illustrate such type of an effort, see Chart 3. For attitude data, results from four different attitude surveys are combined for European countries. Respondents in all surveys were asked to evaluate statements about the size of inequalities as follows:

Survey instrument	Wording of question on inequality aversion
World Values Survey 4th wave	"It is important to eliminate large inequalities"
International Social Survey Programme 1999	"Inequalities are large in this country"
European Social Survey Round 1	"The government should reduce differences in income levels"
European Social Survey Round 2	"The government should reduce differences in income levels"

[5] References to these surveys and all the used surveys in this paper are in Annex on data sources.

All answers were coded on a scale of five. From that, is was possible to create an index of inequality aversion for each countries by averaging values received for the available questions out of the above four surveys.

As far as the income dispersion figures are concerned, we can follow a similar methodology. In Chart 3, inequality measures (Ginis) averaged over a certain period are used. As all the datasets that are used to construct Chart 3 fall between 1998 and 2004 we created inequality indices and inequality attitude indices that might be more robust for country differences in the period. The method is, admittedly, a bit rough, as it conflates within country changes into a composite index. However, it may be more realistic to assume that surveys in the same country in consecutive years can be treated as alternative measures of the same thing and, (at least, in the same period) inter-country differences (in "reality") are relatively stable over time[6].

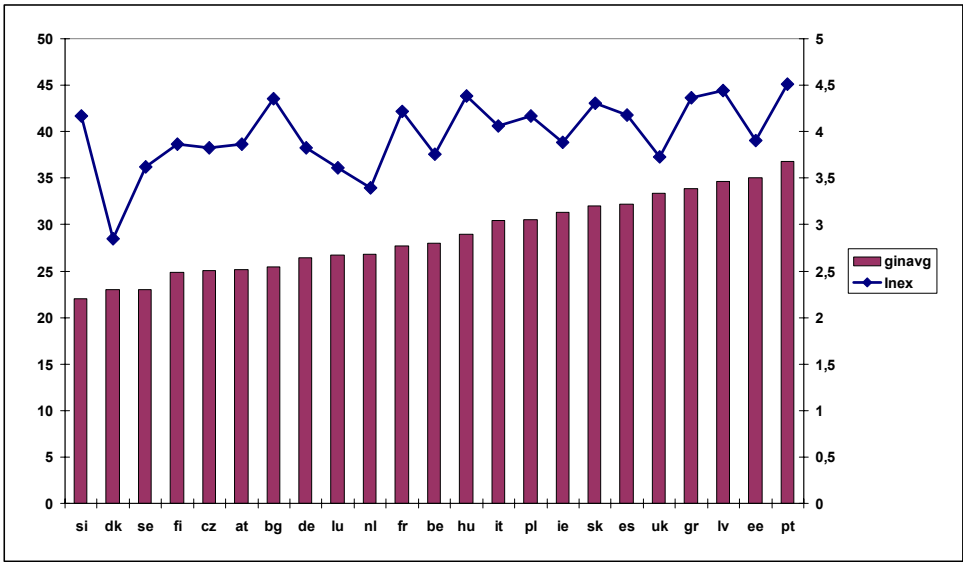
From Chart 3, the following conclusions can be drawn:

- The relationship between inequality measures and inequality attitudes seem to correlate, at least intuitively, more than in earlier surveys (Förster and D'Ercole, 2005, Suhrcke, 2001).
- The correlation between the observed variables goes in the expected direction: the larger the inequalities are in a country, the larger the intolerance towards them will be.
- The correlation is still quite weak. There are some countries where the inequality index is lower or higher than "expected" with a simple extrapolation of trends. In Denmark, but also in the Netherlands, UK and Estonia, inequality perceptions are lower while in Slovenia, Bulgaria, France and Hungary they are higher than expected on the basis of the period-averaged Ginis.

Another issue of data measurement concerns the measurement of inequalities themselves. The values of Gini are also estimates from small samples with measurement errors involved. As an illustration, confidence interval estimates for Gini in 17 EU countries around 2001 are presented in Chart 4.

[6] However, this excercise serves as a hint only. Later (as an unusual number of surveys with different variable structures are used here), we will not continue this „averaging over various surveys" approach.

Chart 3. Observed and perceived income inequalities in European countries



Note: Ginavg: „Laeken" Gini values averaged over available years between 1998 and 2004, for each countries with at least two available Gini values in the Eurostat Newcronos database as of 1 July 2006.

Inex: average scores for the „inequalities are too large" (or equivalents) questions per country, WVS 4th wave, ESS round 1 and round 2 and ISSP99 where available. Countries with at least two data points out of ESS, WVS and ISSP99 only.

Used questions (all measured on a scale of 5) are as follows:

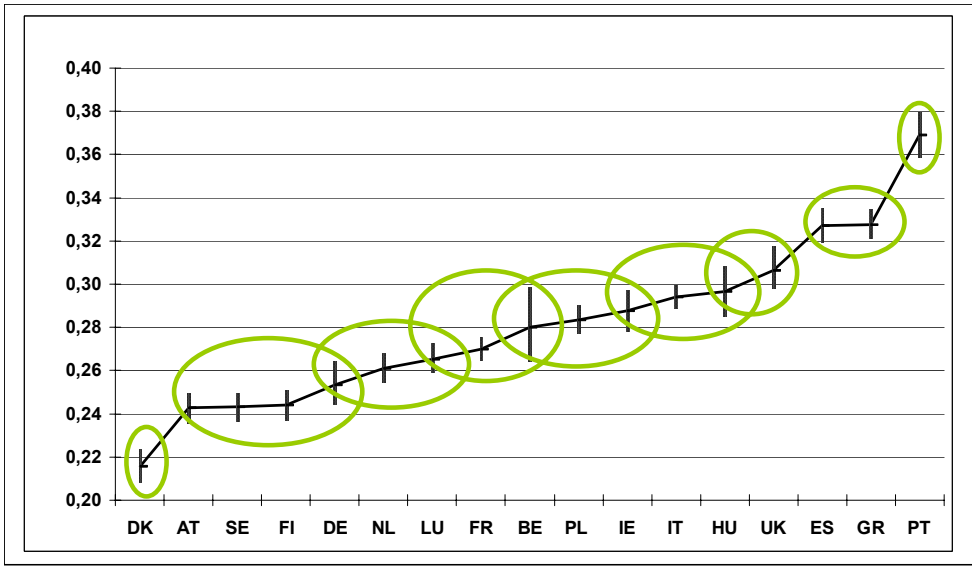
Wvs 4th wave: „Importance of eliminating big income inequalities"

ISSP99: „inequalities are too large"

ESS round 1: government should reduce differences in income levels

ESS round 2: government should reduce differences in income levels

Chart 4. Confidence intervals of Gini coefficients in selected EU member states around 2000



Note: Gini confidence interval estimates are results of 1000 replication Stata bootstraps

Source: Medgyesi and Tóth, 2005, for Hungary: Tárki Household Monitor, 2003 data. For Poland: CHER database, 2000. For the other countries: ECHP data, 2001.

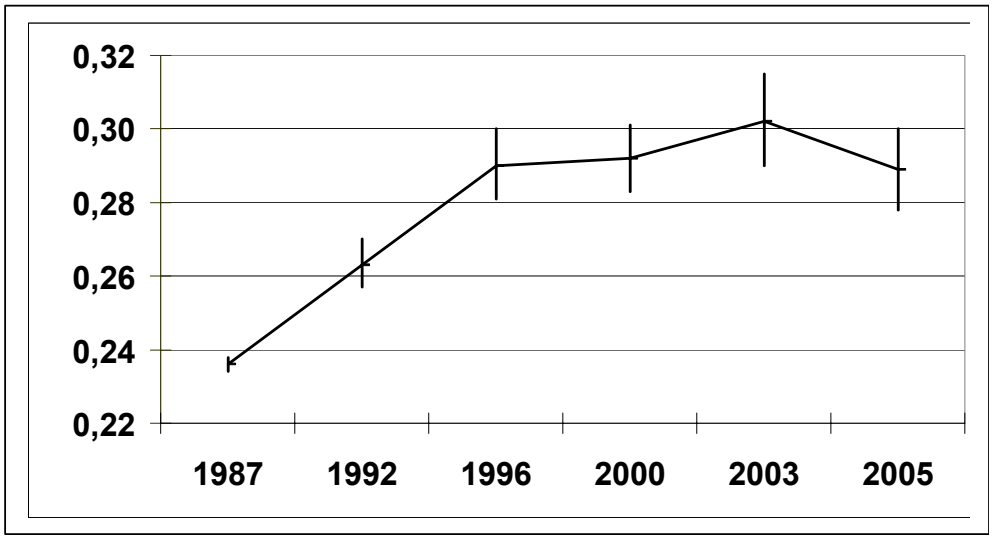
There are some cases for which inequality ranking is straightforward: Portugal has the highest and Denmark has the lowest Gini among these countries. In many other cases, however, it would be difficult to tell which country shows higher or lower level of inequalities. Consider, for example, the

case of Hungary in the Chart. Confidence intervals overlap with Italy and Ireland on the one hand and with UK on the other hand. However, confidence intervals for Ireland also overlap with Belgium and Poland. To confuse even further, Belgium overlaps with Hungary, but two of the three countries in-between do not overlap with each other (that is, Poland and Italy do overlap with Belgium, Ireland and Hungary, but not with each other). Hungarian Gini confidence intervals are shown in Chart 5. As it seems, overlapping confidence intervals of Ginis reflect no change in inequality levels after 1996.

To sum it up: there is a considerable degree of uncertainty in the measurement of inequalities as well. And this is only the problem of statisticians. Respondents of opinion polls are in an even more difficult situation when judging inequalities. No single person can be imagined to compute Ginis when asked to evaluate income dispersion in the country he/she lives in. They may have some ideas about the level of income dispersion in their country (based on some standards of evaluation), and income statisticians also have some ideas about the level of inequalities (based on computations with various assumptions) in the same countries. These too may relate to each other to some extent, but they are, at best, proxies of the same thing only.

Our knowledge on the standards of these evaluations is still very poor and incomplete. This, of course, has consequences for interpretations.

Chart 5. Confidence intervals for Gini (personal distribution of personal equivalent incomes): 1987-2005



Note: 1000 replicaton Stata bootstraps. Data definitions as to Chart 1.

Source: 1987: CSO Income distribution survey, 1992, 1996: HHP, 2000, 2003, 2005: Tárki Household Monitor.

3.2. Keeping up with the Jones's: reference groups, subjective mobility, tunnel effects and the like

There might be two different referential standards people may use when evaluating income inequalities at a certain point in time. They might compare some sort of a composite measure of overall income distribution to a preferred composite measure set by some sort of ideological standards. Or, alternatively (and this is our preferred hypothesis here) they might compare typical cases or groups with each other, based on occasional knowledge of their material positions. The base for evaluations may rely on comparisons of their own positions with others or on comparisons of other citizens or groups of citizens with each other. Having stated that both might appear, the simple case of individualistic comparisons will only be discussed here.

The line of reasoning goes back to a small (and disgracefully neglected[7]) book by James Duesenberry (1949) about "Income, saving and consumer behaviour". He argues that utility is derived not only from own consumption but also from comparisons to (a weighted average of) the consumption of others. It is not own consumption *per se* that matters but relative consumption as compared to others: the higher my consumption in absolute terms and the better my relative position as compared to other persons (who are relevant for me), the higher my utility (and satisfaction) derived will be. This is very similar to the argument of reference group theory in sociology (Merton, 1968). According to this theory people take the standards of significant others as a basis for making comparisons and choices. This might reasonably be assumed for judgements about distributive justice and evaluations of own subjective positions (Evans, Kelley and Kolosi, 1992). Derived from this approach come the theory of relative deprivation (Runciman, 1966) underlining that deprivation may occur relative to others' position, not only in absolute terms.

Duesenberry's essay introduced the relative income approach to understand consumption behaviour. However, this can also be extended to judgements about inequalities. The consumers are not only striving for more consumption but also try to "keep up with the Jones". As Albert Hirschman (1973) coined the term, income comparisons might result a "tunnel effect", which might become (under fortunate circumstances) utilisable source as well as a danger for the operation of growing societies (should circumstances be not that fortunate). The argument is illustrated by an analogy of an imagined traffic jam in a tunnel. After a period of waiting, we might be happy to see the other lane starting to move. However, as time passes and we keep standing, the gratification of the situation in which others get better might soon turn to become a bitterly frustration (leading, maybe, to illegitimate actions as crossing double lines, for example). As he underlines, an individual's welfare depends, in addition to his current state of contentment, on his expected future income streams. However, in the absence of reliable information on future events, he/she might derive his own prospects for improvements from current experiences of others. At first sight, we assume our fortunes also rising soon as we see others getting better. Should we stay in the next phase, a recognition of growing distances (inequalities) between us and others will provoke discontents.

It is not only inequality attitude but also the demand for redistribution that may depend upon evaluations of future income prospects. Bénabou and Ok (1998) developed a formal model of the relationship between redistributive claims and the prospect for upward mobility (they call it POUM model). As they argue, there might be low (below median) income persons refusing redistribution if they expect improvements in their positions while some currently rich (or at least some of those above the median), if facing challenges of income deteriorations may insist on keeping redistribution arrangements in place.

Tests of these hypotheses have shown positive results. Ravallion and Lokshin (1999) found that a very high proportion of Russians in 1996 favoured redistribution, including some of the rich. Suhrcke (2001) found that the social mobility was a powerful predictor of attitudes towards inequality in countries participating in the ISSP project[8]. In some papers, the larger demand for redistribution is also attributed to the communist past of the post transition countries. Alesina and Fuchs-Schündeln (2005) and Suhrcke (2001) both find significant effect for the East-West dummy variable when regressed on inequality or redistribution preferences. The following two subsections present our tests on Hungarian data.

[7] See Frank, 2005 for the „mysterious disappearance" of Duesenberry.

[8] Past experiences and future prospects of income mobility may be important elements of personal well-being. They may also determine evaluations of inequalities. However, this relationship may work also on the other way round. As Blachflower and Oswald (2004) found, there is a slight negative relationship between inequality and life satisfaction. Also, Alesina, Di Tella and MacCulloch (2001) find that inequality has a differential impact on Europeans (their happiness is reduced by inequalities) and Americans (for whom, it does not matter and the relationship insignificant). These findings (and, obviously, increasing aspirations over time) may help explaining the Easterlin paradox about positive cross sectional effects of wealth on happiness but no change in happiness despite longitudinal growth of incomes (Easterlin, 1974, 2001).

3.2.1. REFERENCE GROUPS

In general and in theory, reference groups matter in inequality comparisons. But in what direction does it shape evaluations of inequalities? Can the choice of reference groups also affect feelings of inequalities?[9]

Earlier surveys have shown that satisfaction in general and income satisfaction in particular is influenced by perceptions of income position of the reference group chosen. As it is shown in Table 8, the relative majority of Hungarians compares his/her current income situation to either his own living standard in the past (one third of the respondents) or to the ordinary citizens or "average Hungarians" (about 28 percent). When, however, asked if members in the reference group have more or less incomes than the respondent, 33 percent reports higher and another 15 percent reports much higher incomes for their reference groups. It is one in eight persons only who report his/her incomes higher than that of those chosen to be his/her reference groups. To rationalise this (for reducing cognitive dissonance, for example), enlarging inequalities verbally (that is: evaluating existing inequalities as "too large") offers itself as a first option.

In addition to that, an interesting finding shows that Hungarians may have switched their reference groups as transition evolved (Sági, 2000). While, during the communist period average Hungarians may have had a good reason to be satisfied that they lived in the "happiest barrack" of the communist camp, this advantage soon evaporated as borders were open and direct comparisons with average Western Europeans became a wider experience. To put it very simply: the poor had enough reason to be sad as they are poor; for the middles class, the shrinkage of their positions as compared to their previous standings was a deterioration while for the upper classes it was no longer a charming prospect to compare to other east Europeans. When all have good reasons to complain, many may be dissatisfied and this brings a spread of anti-inequality feelings.

Table 8. The ambitious choice of reference groups for income comparisons: the majority watches upwards

	Percent choosing this reference group as a first option	Of which: the perceived living standard of the reference group, as compared to the respondent is …			
		lower	same	higher	much higher
Neighbours	15,4	1,9	9,4	3,5	0,6
Friends	13,6	1,1	9,1	3,0	0,4
Own living standard in an earlier phase of the life cycle	32,2	5,8	7,9	15,2	3,3
Hungarian rich	4,7	0,0	0,1	0,8	3,7
Hungarian ordinary citizens	28,4	3,0	13,2	9,7	2,4
(Citizens of) former socialist countries	0,7	0,1	0,2	0,2	0,1
Western Europeans	5,0	0,1	0,1	0,6	4,2
Total	100	12,1	40,1	33,0	14,8

Source: Tárki Household Monitor 2005

3.2.2. THE TUNNEL EFFECT

We are in an easier position when trying to test the tunnel effect as there are various obvious questions in the surveys. The first reflect what we may call "short term tunnel effect". An evaluation of the change in material circumstances of the respondent's family is expressed on a scale of five (of which, the two on „improvements" had to be collapsed as there were only very few respondents

[9] This would be a topic worth more attention, should there be sufficient and properly designed data on that. Unfortunately, this is not the case for Hungary in this period.

reporting „significant improvements"…). Also, the same types of questions on anticipated prospects were asked (for a 12 months period ahead).

When testing the tunnel effect, both inequality aversion (via two different questions about too large inequalities) and the demand for redistribution (measured with average scores on answers on questions about various duties to be state responsibilities or be provided by market arrangements on the one hand and a further construct, an index of the deepness of redistributive claims on the other) are used (see Table 9).

As the results show, both inequality aversion and demand for redistribution are fairly strongly correlates of perceived income mobility experiences and prospects of the respondents. The share of those dissatisfied with the levels of inequalities is, for example, much lower (around 60 percent) among those experiencing no change or improvement than among those who experienced a significant worsening in their positions (83 percent). Also, for the questions with the equality-performance trade offs offered, the share of those for the equality option is about two and a half times higher (46 per cent as compared to 19 percent) among those experiencing significantly worsened material positions, as compared to those who experienced improvements.

It is not only inequality attitude but also the demand for redistribution that depends upon subjective perceptions of past and future ups and downs of the household of the respondents. Being a "strong proponent of redistribution" is defined by sum of scores for each individuals from responses to question on state versus market (as described above and in the notes to Table 9). If somebody prefers the state option to such an extent that he/she scores a maximum value of 10 from the possible range 1-20, he/she will be considered to be a strong proponent of redistribution[10]. Also from these state/market trade-off questions, a "demand for redistribution index" was constructed.[11] The value of the index is clearly much higher for those experiencing (or expecting) falls in material positions of their families.

[10] Possible range: five redistribution items, four values each, from 1-4, where 1 represents the state redistribution extreme.

[11] A convenient measure for the demand for redistribution can be achieved when z-scores of the values of answer options are aggregated over the five redistribution questions. The value of the index is normalized to the mean, therefore it can take positive and negative values for groups showing more or less demand for redistribution (relative to the average).

Table 9. The short term tunnel effect: percent of strong agreement with „income inequalities are too large" by perceived and expected living standard changes in a 12 months perspective

	Position in the last 12 months …*				
	„Significantly worsened"	„Worsened"	„Did not change"	„Improved"	Total
% strongly agree Q1: „inequalities too large"**	83	70	61	63	66
% unconditionally agree Q2: „incomes should be more equal"***	46	36	26	19	31
% strong proponents of redistribution ****	72	63	57	48	60
„Demand for redistribution" index *****	92	28	-24	-105	-1
% distribution of respondents	8	40	44	8	100 (N=3921 for Q1 and 3756 forQ2)
	Position in the next 12 months				
	„Will worsen significantly"	„Will worsen"	„Will not change"	„Will improve"	
% strongly agree Q1: „inequalities too large"**	78	72	62	60	66
% unconditionally agree Q2: „incomes should be more equal"***	45	35	28	21	31
% strong proponents of redistribution****	72	64	57	49	
„Demand for redistribution" index*****	71	27	-18	-72	-3
% distribution of respondents	7	36	43	14	100 (N=3717 for Q1 and 3564 for Q2)

Source of data: Tárki Household Monitor, 2003

*Wording: How did/will change the material position of you and your family in the past/next 12 months?

**Wording of „large inequalities Q1": „To what extent do you agree that income inequalities are too large in Hungary" (5 scale)

***Wording of „large inequalities Q2": Form the two opposing views, which one would you rather agree? (A: „Incomes should be more equal" or B: „individual performance should be honoured more"). Four scale answers: unconditional A, rather A, rather B and unconditional B.

**** Aggregating the values of answer options on the five questions about redistribution *versus* market (for wording, see table A3), strong proponent is defined as someone scoring less or equal to 10 out of the potential value of 20.

***** Demand for redistribution index is defined as z-scores of the values of answer options aggregated over the five questions about redistribution *versus* market (wording is shown in Table A6). For clarity and convenience, shown index arrived at multiplying the original sum of z-scores by (–100).

Table 10. The long term tunnel effect: „the „inequalities are too large" claim by perceptions of income mobility in the last ten years, Hungary, 2003

	Perceived move on a 10 grade income ladder in a 10 year perspective*						
	Down, 5+	Down, 3-4	Down, 2	Up or down, Max 1	Up, 2	Up, 3+	**Total**
% strongly agree Q1: „inequalities too large"	80	76	69	60	63	61	66
% unconditionally agree Q2: „incomes should be more equal"	37	37	33	30	20	19	31
% strong proponents of redistribution „Demand for redistribution" index	73	67	63	56	51	45	60
	54	38	30	-17	-54	-117	0
% distribution	5	19	19	47	6	4	100 (N=3811 for Q1 and N=3655 for Q2)

Source of data: Tárki Household Monitor, 2003

*Wording of question to identify perceived mobility: „Where would you put (now and ten years ago) the income and living standard of you and your family on a ten ladder social scale?"

For definitions of the other values in cells: see notes to previous table.

The similarity of the observed patterns for future and past experiences (regardless we speak about inequality or redistribution attitudes) is striking. As it is shown in Table 9., it is not only the trends that are very much similar but also the actual values are the almost exactly the same. This comes partly from the fact that evaluations of past experiences and future expectations correlate[12]. However, from the data it seems that any negative element in the experiences or in the expectations will increase the demand for redistribution. That is: should somebody feel the past or the future be gloomy, inequality evaluations will deteriorate and demand for redistribution will increase.

Moving to a longer term of experiences with material improvements and deteriorations, similar trends will transpire. Respondents were also asked to evaluate their families' position on a social scale from 1 to 10, the latter being the highest point in social hierarchy. Also, their evaluation about the social position of their families ten years prior to the survey date was asked. Form these two self evaluated rank positions, perceptions of subjective social mobility could be described and measured. The findings (and indeed, even the actual distributions) are very much similar to those based on the evaluation in a 12 month perspective[13] (compare the relevant cells in Table 9 and Table 10).

There was one more variable in the analysed survey that can be treated as a good proxy of the POUM hypothesis. Among items of satisfaction dimensions, future material positions were also asked to be evaluated. Those scoring their prospect between 7 and 10 on a scale of 10 can legitimately called optimistic about their future prospects (a bit less than one third of respondents have chosen one of these values). Clearly among the members of this group, inequality tolerance is higher while the demand for redistribution is lower than for those anticipating more gloomy prospects. (Table 11)

12 Pearson correlation coefficient= 0.52 for the two variables (value range 1 to 4).

13 The only exception is the demand for redistribution index, that seems to be more reacting to short term experiences and prospects.

Table 11. Prospect of upward mobility (POUM), inequality perceptions and the demand for redistribution

	Satisfaction with future (material) prospects:			
	„Not very good" (values 0 to 3)	„Nothing special" (values 4 to 6)	„Quite good" (values 7-10)	Total
% strongly agree Q1: „inequalities too large"	73	65	61	66
% unconditionally agree Q2: „incomes should be more equal"	39	31	25	31
% strong proponents of redistribution	74	63	57	64
„Demand for redistribution" index	61	-3	-51	-2
%distribution	26	43	31	100 (N= 3890 for Q1 and N=3736 for Q2

Source of data: Tárki Household Monitor 2003

For definitions of the other values in cells: see notes to Table 9.

To sum up the findings so far: inequality evaluations seem to be affected by subjective evaluations of personal material welfare of the respondents. The feeling of deteriorating welfare position (whether it is absolute or relative, difficult to decide) will lead to more negative statements about the extent of inequalities and will lead to an increased demand for redistribution. This is true for short term and for long-term experiences and prospects as well. This is consistent with both the "tunnel effect" hypothesis and also with the "POUM" hypothesis.[14]

3.3. Attitudes towards inequalities, measured differently

Though no individuals can be assumed to be capable head-computing complicated, variance based inequality measures when asked about the extent of inequalities, some existential comparisons obviously exist, even in everyday practices. Reports on questions about perceived and legitimate earnings of various occupations (Tóth (1992), Kelley and Evans (1993), Kelley and Zagorski (2003), Osberg and Smeeding (2004), Örkény and Székelyi (2005)) show that comparing perceptions of actual earnings of a representative list occupations[15] to suggested or "should be" earnings of the same list of occupations[16] helps in identifying structures of attitudes about inequalities. This approach may be more realistic in assuming that people compare actual earnings of various persons (around them, most likely in their reference groups) and base their judgements upon these comparisons.

Though very interesting measures of variance can be computed from the results of these surveys[17], in what follows it will only be the ratio of a top manager and an unskilled worker (presumably and empirically the two ends of the income scale) that will be used for comparisons over time in Hungary.

[14] In a recent paper, Molnár and Kapitány (2006) also found a partial support to the POUM hypothesis on Hungarian data. Analysis of real income mobility could also be important to be analysed in context with large inequality claims. As earlier studies show, there are some signs that mobility has declined in the second half of the nineties in Hungary, should we concentrate on earnings (Rutkowski, 2001), incomes (Galasi, 1998), consumption (Kapitány and Molnár, 2002) or intergenerational social mobility (KSH 2004). This, could be, however, a research topic for a separate paper.

15 Wording: „How do you estimate, how much does a doctor (minister, large company chairman, layer, bricklayer, skilled worker, unskilled worker, etc.) earn in your country".

16 Wording: "What do you think, how much should a doctor (minister, large company chairman, lawyer, bricklayer, skilled worker, unskilled worker, etc.) earn in your country".

[17] Some of these we reported in a much earlier draft: Tóth, 1992. Osberg and Smeeding (2004) present analysis of preference distributions.

Details of data can be found in Table A8 (all amounts are in nominal terms). Major findings are as follows:

- The perceptions of pay for top managers shows a large increase between 1987 and 2005. Average estimates for remunerations of managers increased some ninety times between 1987 and 2005. This is a dynamics of increase that is nine times bigger than estimates for unskilled workers' pay growth (for whom the increase of pay estimates produced a multiplier of eleven).
- From this it follows that estimates for pay ratios of these two occupations (which may be treated as a proxy for income inequality perceptions) has also largely increased (from 3.7 to 30.3 in the relevant period).
- As taking averages of the raw estimates from an opinion poll survey is always vulnerable to some extreme responses, median estimates show somewhat more robust values. Median estimates of top manager earnings has increased some twenty times (from 20 thousand Forints to 1 million Forints per months), while those of unskilled workers increased much less (from 5 thousand to 55 thousand Forints).
- The ratios of median estimates for top managers and median estimates for the unskilled increased from 4 to 18.2 from the beginning to the end of the observed period.[18]
- The "should earn" ratios also increased in this period. As far as the median estimates are concerned, respondents would tolerate a 5 times difference in 2005 while they would have tolerated a 2.5 times difference in 1987. This means that with the transition going ahead tolerable inequalities also widened.[19] This is very important: norms change and earlier unusual inequalities become more accepted features of competitive market economies.
- Nevertheless, prescribed earnings (that is, the amount which the respondents think appropriate for the two occupations) and, also, the ratios of these are much smaller than the perceived estimates, meaning that, on average, the respondents would like to see much lower level of inequalities as compared to their own perceived standards.
- There was a break in the growth of perceived inequalities at the end of the nineties. Both the estimated and the tolerable pay ratios for these two jobs reached their peak in 1999 and decreased between 1999 and 2005. This finding is more than interesting, especially when taking account that these earnings amounts are shown at nominal values and if we relate it to the finding presented earlier about the stagnation of the income inequalities between the mid nineties and 2005.

As time series of pay ratios for these two groups are not readily available, it is interesting to compare decile ratios from wage survey statistics to the perceptions of opinion poll respondents (Chart 6.). Empirical estimates for the percentile ratios (P90/P10) are measured each year since 1992, on the basis of wage surveys of the National Labour Centre. Form the analysis of the data, some findings are worth stating here as well:

- The ratio of P90 to P10 showed a permanent increase between 1992 and 2001, followed by a break in 2001 and 2002 (result of a drastic, cumulatively more than 100 percent rise in minimum wages in 2000 and 2001) and a recovery after. Attitudes (though on a higher level) follow this trend, both in terms of perceptions and tolerable inequalities [20].
- When perceived pay ratios increase, so do the reported normative standards for tolerable inequalities. When perceptions decrease, norms dictate lower levels of differences.

18 This sounds (by and large) quite a realistic estimate for these two jobs in the Hungarian economy. It would be, however, quite difficult to present an exact estimate for top managers, due to widespread use of specific incentive contracts and the large variance in the practice.

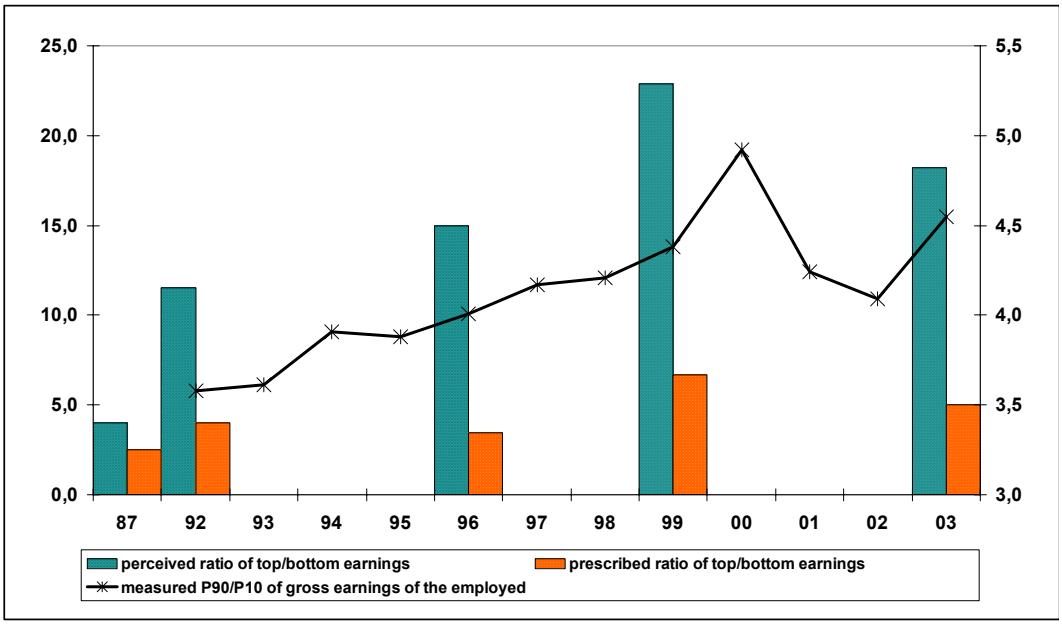
19 What we do not know at this stage is the direction of causation: from actual earnings, perceived earnings and prescribed earnings, which one and to what extent was driving the others.

20 This is a similar finding to the one we can formulate on the basis of Chart 3.

- The tolerable ratio of top manager earnings and earnings of the unskilled (lower columns of the chart, measured on the left hand axis) correlate quite closely with measured, actual percentile ratios based on wage surveys (represented by the line on the chart, measured on the right hand scale).

To sum up the most important findings in this section: perceptions do follow actual trends (to some extent) and norms do follow actual perceptions (to some extent). People in general would level the income inequalities, mostly via levelling the top incomes

Chart 6. Perceived and prescribed earnings inequalities and measured decile ratios of gross earnings of the employed in Hungary, 1987-2003



Notes: perceived and prescribed earnings ratios of top managers and unskilled workers: left scale (median responses averaged for a given year). Measured decile ratios for gross earnings of employed in the economy: right scale.

Sources: for attitude data, see table A8. For wage inequality data, see Table A9.

3.3. A short note on legitimation of inequalities

Albert Hirschman, when describing the tunnel effect, emphasized that acceptance of the rising inequalities may depend on positive expectations of the individuals that they will also get ahead. However, the legitimation of inequalities and the evaluation of the lagging behind effects will greatly depend upon the trust in fairness of the rules of the game. People can reasonably expect increasing prospects if they believe those with ambitions and efforts can get ahead if work hard and keep the rules of the game. However, the belief that the rules are not operating fairly is quite strongly prevalent in Hungary. Some 82 percent of all the respondents agree that in order to get ahead, rules should be broken to some extent. (Table 12). Also an overwhelming majority (93 percent of the respondents) agreed in 2001 to the statement that those breaking rules (laws) manage avoiding being prosecuted.(Table A7) This general feeling of distrust in the system did not seem to change during the nineties. It can reasonably expected that this level of distrust moves evaluations towards frustration rather than towards optimism in periods of growth if paralleled by inequality increases, leaving developers (political decision makers on development policies) with troubling headaches about proper communication of successes.

Table 12. „People wishing to get ahead need to break some rules to succeed". Percent agreeing in Hungary, 1993-2001

Agreement …	1993	1996	1997	1998	2001
… fully	39	42	44	42	42
… partly	39	37	38	38	44
… rather not	12	10	10	10	10
… not at all	10	11	8	10	4
Total	100	100	100	100	100

Source: Andorka, 1996 Spéder, Paksi, Elekes, 1998, on the basis of TÁRKI HHP. For 1998: Tárki Household Monitor. For 2001: Tárki monthly omnibus 2001/7.

3.4. Income inequality trends: going beyond overall measures

The beginning of the paper gave an overview of long term income inequality trends and evaluations of inequalities were contrasted to these trends. In this section, decomposition of inequalities will be presented, to dig deeper in the understanding of changes under the surface (that is, internal developments of inequalities while overall measures did not show significant changes).

Analysing overall income inequalities, rather than earnings or any other types of market incomes has, however, important drawbacks in addition to its advantages. The arguments for using incomes of households are the followings:

- Income is a better proxy of welfare of individuals as it also contains such elements of the income package that determine real living standard differences but are not part of market remunerations (social protection benefits).[21]
- Incomes of the respondents help defining the relative positions of the "evaluators" of income or earnings inequalities. As a significant part of the population does not have market incomes loss of respondents would occur in case of choosing only earnings as a proxy for individuals positions.
- The available literature (rightly or not) also contrasts income inequality data with evaluations of income inequalities.
- The datasets for the pre-transition period do not contain comparable elements of market incomes (due to, among others, the lack of personal income taxation prior to the transition).
- The quality of income data at hand of the author exceeds the quality of wages data at hand.

There are also some counter arguments here:

- People may base their normative statements on the basis of market incomes rather than on state benefits. When judging the fairness of inequalities, this approach may even be more legitimate, and, sometime, contradicting to evaluations of the results of redistributive policies and principles.
- When analysing incomes, all household members should be taken into account, with some sort of needs based assumption for equivalence scales. This may again, introduce some elements of confusion as people may judge fairness or inequalities on their workplaces, where family size may not be an important determinant of pay.

It seems to be a conclusion from the pros and cons that for the assessment of the respondents position, household equivalised incomes seems appropriate, while we may assume that for standards

[21] As we do not really know what are the real standards for normative statements of respondents (cash received by others or consumption standards), income may be a closer proxy of visible consumption (of the references groups) than earnings of them.

of inequality evaluations it is individual earnings that may matter. Consequently, his section of the paper contains an analysis of total incomes (including social benefits), to assess the position of the respondents, with an aim of refining our socio-economic background variables. Still, it is wise to keep in mind that respondents most likely value earning when they make judgements about inequalities.

Overall trends of market incomes and of total household incomes do not always go in the same direction, however. Gini values of market incomes levelled off in 2000, after continued increase throughout the nineties, followed by a gradual decrease between 2000 and 2005. Taking all elements of household incomes (including social insurance benefits and public social expenditures received by the households) together, the peak was measured in 2003 (Table 13). This might also enforce the assumption that inequality evaluations are based upon market income (earnings) assessments, should we accept a more or less direct relationship between measured and evaluated inequalities.

Table 13. Dispersion of market and total household income elements 1992–2005, Gini (%)

	1991/92	1995/96	1999/00	2000/01	2003	2005
Market incomes (net)	46,6	50,1	54,8	52,4	45,2	45,0
Total measured incomes (equivalent incomes/households)	26,7	28,4	29,6	29,7	32,2	28,4

Source: Hungarian Household Panel (A), waves I–IV., TÁRKI Household Monitor 1998–2005

Notes: Values in cells reflect concentration of non-zero personal equivalent incomes. Unit of measurement: household.

With decomposition of inequalities by various dimensions we can arrive at within group and between group inequalities that add up to the total inequalities, provided we have a properly chosen, additively decomposable inequality measure (Shorrocks, 1980, 1984, Mookherjee and Shorrocks, 1982). The results of a simple MLD decomposition (following the methodology suggested by Jenkins, 1995) are shown for various dates and dimensions in Table 14. As a result of the static decomposition by subgroups, it is clear that education became the single most important explaining factor of the variance (more precisely, the Mean Log Deviation) of person equivalent incomes. While in general, none of the observed factors could explain a significant part of the income dispersion, the variance explained by education (measured by four levels, from primary and vocational to secondary and tertiary) increased from 8 percent in 1987 to 25 percent in 2005. Also, especially in the first half of the transition, employment polarisation played an important role in explaining income inequalities. As MLD increased in line with other inequality measures (See Table 3 and Table 14, bottom line), the explained share of variance by various background factors relate to an increasing absolute level of inequalities.

Table 14. Decomposition of total income inequalities of households, 1987–2005 (between group MLD of person equivalent* incomes, %)

Dimension (categories)	1987	1992	1996	2000	2005
Settlement type (3)	2	6	11	9	9
Gender of hh head (2)	n.a.	2	1	0	1
Age of hh head (3)	6	3	2	0	0
Education of head (4)	8	18	25	23	25
Employment composition of household (5)	12	15	14	11	11
Number of children (4)	5	3	6	5	7
Ethnicity (2)	n.a.	4	7	7**	5
Total MLD	92	121	143	147	145

*e=.73

** 2001

Values in dimensions:

education of head: primary, vocational, secondary, tertiary

age (years): -35, 36-59, 60+,

age-education combined: 12 categories combination in the previous two dimensions, economic activity status: head employed, head + somebody else employed, head inactive, head pensioner, head pensioner + somebody else employed

Number of children: 0, 1, 2, 3+

Source: 1987: KSH Income survey, 1992-1996: HHP (B), 2000-2005 TÁRKI Household Monitor Surveys

To explain the changes in inequalities between subsequent years, we need identifying effects of background factors on increments of inequalities. When comparing the inequality data for the two (start and end of period) years with each other, in addition to differences of subgroup means (illustrated by distances of mean values of the subpopulations) and to differences of within group inequalities (illustrated by the shape of the individual subgroup density functions) a third component comes into the picture, the structural differences within the two overall distributions (illustrated by the relative sizes of areas below the subgroup density functions, Jenkins and Van Kerm, 2004). The change of inequalities can be shown as a sum of inequality change attributable to changes in these three components in dynamic decomposition (see Table 15 for empirical results). It should be read as follows. The level of inequalities, as measured by MLD, has increased from 0.092 from 1987 to 0.119 in 1992, constituting a 27 points increment between the two dates. When concentrating on the education dimension only, it can be seen that both within group and between group inequalities played an important role in this increase. While the growth of the within group inequalities accounted for 17 point increase in MLD, the between group inequality accounted for an additional 15 points. However, there were structural changes in the meantime (that is, the relative size of lower educated and higher educated groups has changed) and this had a decreasing effect on the overall inequalities. Therefore, we can conclude that education was also an important dimension of changes in inequalities as well, not only in the levels of inequalities. This result enforces findings of labour market studies emphasizing that transition (especially in its second phase after the mid-nineties) was skill biased, resulting in large returns to higher education (Kertesi and Köllő, 2002, Kézdi, 2002)[22]

In terms of age differences, the change of the between group differences did not play a very substantial role, only within group differences mattered in this respect. Economic activity status of the household was very important in explaining inequality decrease between 1987-1992 and then, even more importantly, between 1992 and 1996.

[22] The returns to higher education in Hungary are, in fact, outstanding in international comparisons. Earnings advantages of those having tertiary education are by far the highest in Hungary among the OECD countries. (OECD 2005: Table A9)

Table 15. Decomposition of inequality change for different periods between 1987 and 2005, along various socio-demographic dimensions

Dimension (number of categories)		1987-1992	1992-1996	1996-2000	2000-2005
	MLD*1000 (t_0)	92	119	143	147
	Δ MLD*1000	27	24	4	-2
Education of head (4)	Within group change	17	10	7	-17
	Structural change	-5	-2	0	8
	Between group change	15	16	-3	8
Age of head (3)	Within group change	29	24	7	-2
	Structural change	0	1	0	0
	Between group change	-2	0	-3	0
Age-education combined (12)	Within group change	21	10	7	-5
	Structural change	-5	0	0	1
	Between group change	11	15	-2	2
Household economic activity status (5)	Within group change	11	20	7	-4
	Structural change	17	2	1	-3
	Between group change	-1	2	-5	4
Number of children (4)	Within group change	27	17	8	-5
	Structural change	1	2	-4	1
	Between group change	-1	5	0	1

Notes: see notes to Table 13.

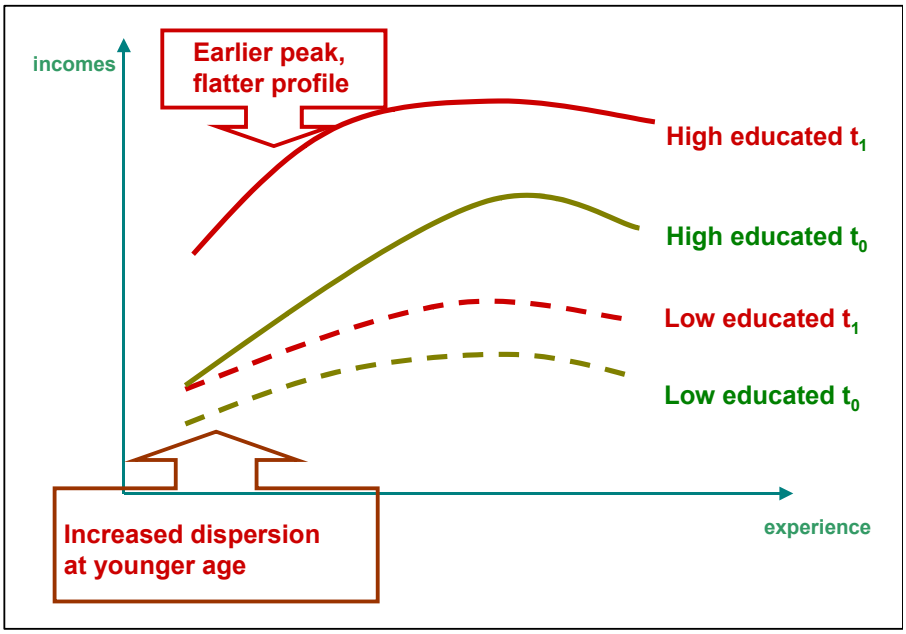
Source: 1987: KSH Income survey, 1992-1996: HHP (B), 2000-2005: Tárki Monitor surveys

For our analysis the important thing is that during the transition years, increase of returns to education was probably the most important factor behind inequality changes. To put it differently, fortunes of people with different education levels varied to a much greater extent in the transition years than people got accustomed to that earlier. Relative positions of those having maximum vocational education have decreased, of those with higher education increased while of those who attained secondary school remained stagnant. These changes affected differently the various age cohorts (when controlled for education levels). The younger if primary educated lost while the younger if higher educated gained. As a result, the age-income profile among the lower educated has become steeper (that is, the relative gain of an older head with primary education over a younger head with the same education have increased through the period, provided they managed to stay at the labour market). Among the higher educated, the contrary holds. While in 1987, the members of the household of a higher educated, 35 years or younger head enjoyed an income of 7% higher than the average and the members of the household of a higher, 60 years or more head enjoyed an income of 22% above the average, by 2001 these relative gains increased to 53% and 55%, respectively. In sum, there has been an increase of income dispersion among the young in each education subgroups, while among the old the general dispersion decreased somewhat (true, with variations between education levels). These data however, provide a strong support to the hypothesis that revaluation of human capital investments had taken place in the labour market (Kertesi and Köllő 2002) and it was transferred soon to relative income positions of households as well.

Chart 7 serves as a good illustration to these trends. If returns to higher education increase for the young, income dispersion will be higher in this cohort. However, in the same vein, income dispersion within the higher educated will decrease. Nevertheless, older and higher educated can feel inequities (as their experience seems devalued) while overall income dispersion (at least in their education

category will decrease. This can, in itself, lead to a feeling of growing inequalities, while actually there is no change or decrease in them[23].

Chart 7. Stylised age-incomes profiles, before and after the transition



Note: stylised illustration based on personal distribution of person equivalent incomes, 1987 and 2000 in Hungary. Household heads with different age-education combinations

3.5. Links between income changes and inequality attitudes

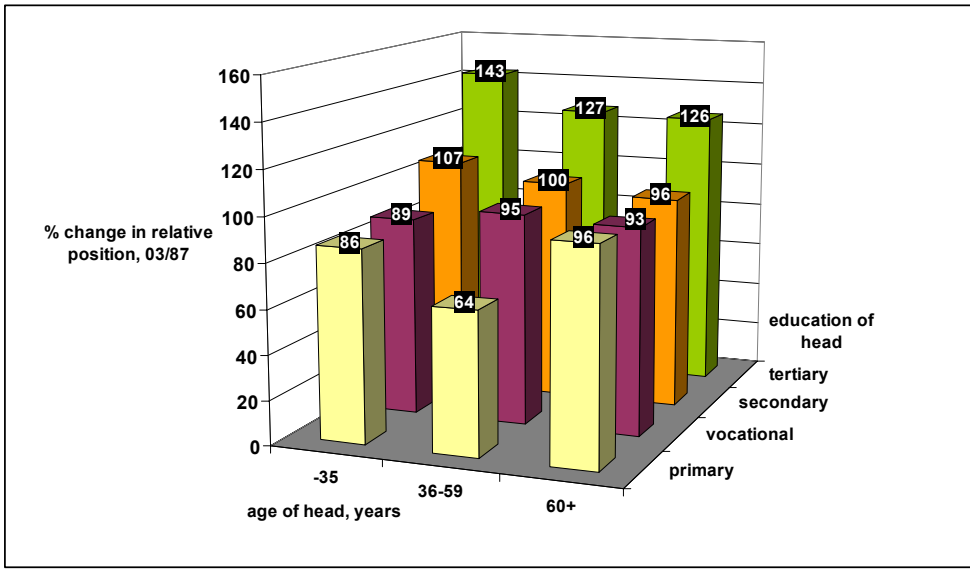
To understand the changes of relative positions of the various age/education groups, consider Chart 8 (and, for a better understanding of the chart, Table A10). Heights of the columns depict relative changes of material positions of the group members. To read the figure for the higher educated 60+ years of age (143), compare figures in panel 4 and panel 5 for this group in Table A10. In terms of the overall average, person equivalent incomes of household members with a higher educated 60+ household head were at 122%. The relative position of the group with the same characteristics improved to 155% by 2003. This meant a 43 percent increase improvement in their relative positions. With these in mind, it is worth quickly going through the changes of relative positions of household members with heads of various age-education categories.

Members of the oldest age cohort (those in the age group of 60 and more years of age in 2003) were at least 45 years of age in 1990. Among this group accumulated private human and social capital assets (for those higher educated who were able to mobilise their assets), it helped adjusting to the new market economy conditions. For the others with less abilities and capabilities, the mature and (as far as their eligibility conditions are concerned) unchanged old age and early pension system helped exiting the labour market with relatively favourable conditions when it turned necessary (due, maybe, to downsizing in newly privatised firms or in firm prior to privatisation). Gainers of this group were the higher educated (126%) while others with lower educational attainment did not loose very much (they are at 93-96 percents in relative positions compared to that of their counterparts in 1987. The next cohort, socialised in a stable socialist environment, with already finished schooling phase when entering the transition, fared with very different prospects. Higher educated, especially those capable and willing to change could improve their positions. The chances for those with low human and social capital assets, maybe in a phase of the life cycle with small children (this is a cohort entering the transition when they were between 20 and 35 years of age) were much lower to adjust. Differences within this cohort are large, indeed: while the higher educated fared well (relative positions improving

[23] This is, in fact, nothing but speculation without further analysis of good quality data on this issue (if exists).

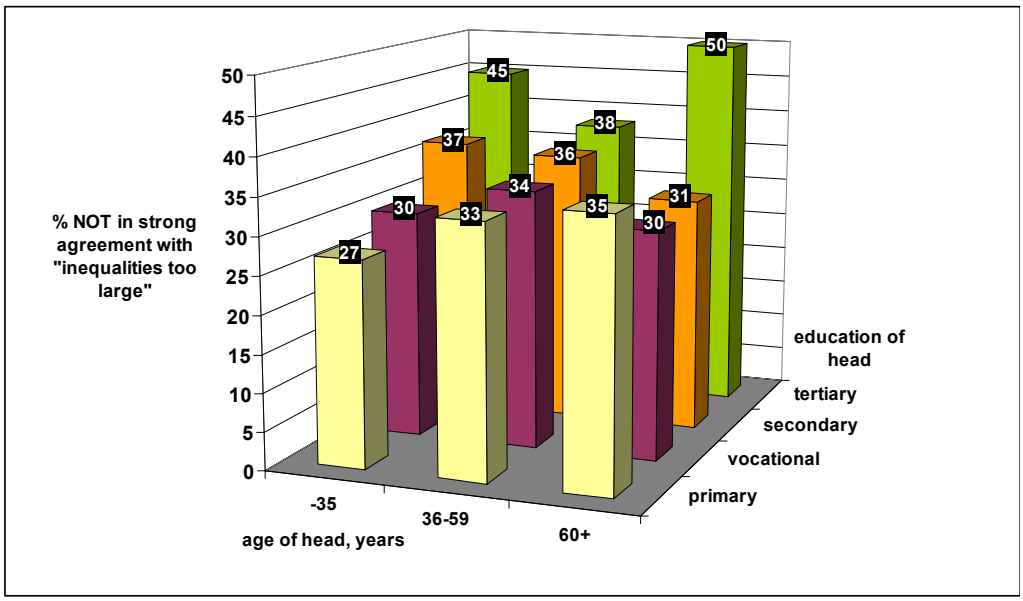
with 27 percents), lower educated have lost a great deal (relative position as compared to average in 2003 is at two thirds of the relative position of those with similar characteristics in 1987). For the third cohort, transition came at a phase of the life cycle when it was still possible to adjust, both in terms of education and in terms of demographic behaviour. Absolute gainers were the higher educated (being a member of this group in 2003 means 43 percent better relative position than it was in 1987) and relative losers in this group were the lower educated.

Chart 8. Percentage change in relative income positions of various age/education categories of households



Notes: height of columns show the percentage change in relative positions of the respective household types (defined by age/education of heads). Details of computations are in Annex Table A10

Chart 9. Perception of inequalities by age-education profiles of household heads: percent of those NOT in strong agreement with statement on „too large inequalities" in 2003



Source: Tárki Household Monitor 2003. Attitudes of household heads of the given characteristic.

What does this mean for the evaluation of income inequalities? If we assume that subjective evaluation of household material positions corresponds (at least to some extent) to actual differences

in material positions, then we might assume that this age- education categorisation will be a better predictor of inequality evaluations. In Chart 9, the population share of those NOT strongly agreeing ton the statement that inequalities are too large in Hungary are shown, separately for each age-education groups as defined above. With this, the heights of the columns correspond (to some extent) to acceptance of (or, at least, less strong aversions to) inequalities. Comparing Chart 8 and Chart 9, there are some similarities. Among the youngest cohort, the higher the education, the bigger the improvement in relative positions and, also the bigger is the acceptance of inequalities. Within the oldest age cohort, the highest acceptance of inequalities can be found among the higher educated, who are also the winners of relative positions. Also, there are some dissimilarities between patterns in the two charts. The most important is that in the middle age group, there is no difference in inequality attitudes while they experienced drastic variations in relative position changes.

Reasons for dissimilarities and improper fit of these two data series may come from essentially three different sources. First, it may still be the case that not objective positions but subjective evaluations of household positions that will drive inequality assessments. Second, there might be composition effects behind, conflating effects of various background factors. Third, our relative positions analysis comes from two dates in time but (naturally) not for the same households. This might be a problem as (say) a large improvement of relative positions of the higher educated young in our table means that for those higher educated entering the labour market now, life career starts at a much higher relative level than it was the case for those entering 18 years ago. But this may not matter at all for the current job starters now. The possibilities set out in the first two points will further be analysed in the next section.

3.6. Multivariate results with refined variables

As a final step of the analysis, we ran logistic regressions to explain inequality intolerance. The variable to be explained was defined as a dummy: 1 for those in strong agreement to the statement that “inequalities are too large in Hungary” and 0 for those not in full agreement to this statement.

The explaining variables in the model can be classified into four groups. First, some socio-economic attributes of the respondents (gender, age and education categories), second, some household characteristics the respondents live in (relative income position of the household in terms of personal equivalent incomes in percentage groups of the overall median, household employment characteristics, number of children, type of settlement and the combined age-education characteristics of the households heads). The third group included variables about approximating the tunnel effect and the subjective mobility hypotheses (12 months expectations and practices of improvements in material positions, evaluation of a ten years development path of the households, medium term material prospects of the households and the index of redistributive attitudes). Finally, a dummy indicating if somebody is a household head (1) or another member of the household (0) was introduced. The results are shown in Table 16.

The first striking result is a very poor performance of the respondents’ personal socio-demographic attributes. From this group, only the gender of the respondent is significant. Females seem to dislike inequalities more than males. Even the dummies for heads (separating breadwinners from the others) were not significant. The second striking result is that many of household characteristics are also not significant. Most importantly, incomes and employment characteristics of the household are not significant, with the exception of a surprising negative sign effect for those living in a household headed by an inactive person. Their agreement to the large inequality claim is much lower than that of the other groups (taken all other things equal). Also, the combined age-education categorisation does not seem to work well either: taking persons living in household with a secondary educated head in the 36-59 age bracket as a reference, household members of 60+ higher educated heads seems less intolerant to income inequalities while among members of households of young low educated, the intolerance for inequalities is remarkably high.

The third group of variables, that is, those about the subjective material position paths and prospects show some significant and string effects. The largest odds ratio (among all) is of those experiencing significant worsening in their households’ material position in the last one year. The probability of a person feeling this way to be frustrated by the level of income inequalities is 2.5 higher than for those reporting no change in their relative material positions. Al other groups reporting negative experiences

of negative prospects have significantly higher than average propensity to strongly oppose the current level of inequalities. People with pro-market redistributive attitudes, in contrast, show less opposition to the level of inequalities.

Table 16. Socio-demographic determinants of the "large inequality" claim (percent agreements in the relevant groups and odds ratios from a logistic regression model)

Category	% intolerant to inequalities	Population share	Odds ratio (exp(b))*	Category	% intolerant to inequalities	Population share	Odds ratio (exp(b))
Gender				**Age-education combined**			
Female	68	56	1	Primary, -35	73	4	1,7
Male	64	44	0,85	Primary, 36-59	67	11	n.s.
Age				Primary, 60+	65	11	n.s.
-35	62	29	n.s.	Vocational, -35	70	9	n.s.
36-59	69	44	1	Vocational, 36-59	66	24	n.s.
60+	66	27	n.s.	Vocational, 60+	71	7	n.s.
Education				Secondary, -35	63	6	n.s.
Less than secondary	67	63	n.s.	Secondary, 36-59	64	13	1
Secondary	66	27	n.s.	Secondary, 60+	69	3	n.s.
Tertiary	59	10	n.s.	Tertiary, -35	56	2	n.s.
Household income (% of median)				Tertiary, 36-59	63	8	n.s.
-50	67	7		Tertiary, 60+.	50	2	0,45
50-80	69	22	n.s.	**Household material position in last year**			
80-120	67	35	n.s.	Significantly worsened	83	8	2,5
120-200	65	27	n.s.	Worsened	69	41	n.s.
200+	57	9	n.s.	Did not change	61	44	1
Household employment status				Improved	63	8	N.s.
Head is the only employed	67	23	n.s.	**Household material position next year…**			
Head is employed, other(s) also	64	33	1	Will be much worse	78	7	n.s.
Head inactive	64	8	0,69	Will be worse	72	36	1,39
Head pensioner, no employed in household	68	27	n.s.	Will not change	62	43	1
Head pensioner, other person employed in hh	67	9	n.s.	Will improve	60	14	n.s.
Number of children				**Position in ten grade income ladder now, as compared to ten years ago…**			
0 child	67	62	n.s.	Down, 5+	80	5	1,58
1 child	67	18	1	Down, 3-4	76	19	1,68
2 children	62	14	0,75	Down, 2	69	19	1,35
3+ children	62	6	0,59	Up or down, max 1	60	47	1
Settlement				Up, 2	63	6	n.s.
Rural	66	36	0,83	Up, 3+	61	4	n.s.
Urban	66	46	1	**Satisfaction with income prospects**..			
Capital	65	18	1,12	Not very good	73	26	1,3
Redistribution index				Nothing special	65	43	1
Pro market	59	40	0,66	Quite good	61	31	n.s.
Pro state	71	60	1				

Source: Tárki Household Monitor 2003.

Note: Simple logistic regression model, odds ratios (Exp (B) values) significant only at 5% are shown. Groups with a value of 1 are the reference categories.

4. Summary and conclusions

The paper first presented some basic facts on Hungarian income inequalities. Then, we summarized survey results on the tolerance for inequalities and made a simple attempt to describe some socio-economic determinants of attitudes. As these accounts seemed to show a poor result, additional hypotheses on possible reasons behind changing levels of inequality aversion were presented. First, the argument that preferences are conditional and also dependent upon future economic expectations was shown and compared. Then an account of change in the structure of inequalities was presented with the help of inequality decompositions by various subgroups. Finally, within the constraints of data availability, we tested the alternative explanations in a multivariate model.

The most important conclusions of the paper are as follows:

- After a long period of increase, income inequalities stabilised in Hungary at a range comparable to the inequality patterns of continental European countries. Overall inequality measures do not show increasing trends between the mid nineties and 2005.
- Perceptions of inequalities showed, with some time lag, similar patterns: the share of those declaring income inequalities "too large" also reached its maximum value (though, due to lack of data for each years, simultaneity cannot be shown or even investigated).
- The ratios of top to bottom incomes (in terms of occupational earnings) also have shown similar patterns: after 1999 even a decrease in perceived inequalities could be traced, though there was no significant change in the share of those declaring intolerance towards income inequalities. Norms of legitimate inequalities have, together with the spread of the market economy, widened, following a much more prevalent increase in observed pay ratios.
- It is, therefore, not the dynamics but, rather, the actual level of dissatisfaction of income inequalities that gives reasons for worries. Though by alternative data sources Hungary does not belong to the most unequal countries in Europe, the level of dissatisfaction is much larger than it would be justified by income statistics in itself. Also, legitimacy of the structure of inequalities is widely questioned.
- Several alternative explanations of inequality intolerance were tested in the paper. Most importantly, overlapping theories about reference groups and perceptions of subjective mobility proved to be helpful in explaining variance in answers. Those feeling lagging behind the others ("tunnel effect") and those fearing less future upward mobility prospects (POUM hypothesis) do show significantly higher level of dissatisfaction with perceived inequality levels.
- An account of gains and losses of the transition could be organised along the term "skill biased transition". MLD decompositions of inequalities have shown tremendously increased returns to education and (especially at the beginning of the transition) an overwhelming employment polarisation (again, with large variance between the high skilled and the low skilled). This differentiation, when investigated in a two variable model, seems influencing inequality aversion as well.
- In a multivariate context, however, the effect of combined age-education variables evaporates and only the effects of subjective mobility prospects that remain.
- The general dissatisfaction with levels of income inequalities seems also linked to the demand for redistribution. Opinion surveys do show a continued and very high support of state redistribution in Hungary, at least as the demands on responsibilities of the state in various fields is concerned. This (if transferred into public expenditure preferences) may mean such a strain on public budgets that may be unsustainable on the long run and constitutes clearly a crowding out effect for private initiatives in self-help.

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Annex 1.Description of datasets used in the paper

What follows is a short description of the datasets used in the paper. For Hungarian datasets, a bit more detailed description, for better known international survey programmes, the central websites is mentioned only.

KSH (Hungarian Statistical Office) Income Survey. This series of surveys of the Central Statistical Office (KSH) started in 1962 and continued until 1987 (KSH [1990]). After the never published 1992 attempt, the last income survey was carried out in 1996, with 1995 as a reference year (KSH [1998]). For this paper the 1988 survey of 20000 households is used. This survey, referring to 1987, was larger than usual (above 56 thousand individuals) and produced an exceptionally good quality data: it was able to capture some 96 percent of total household incomes measured in macro assessments. This ratio is by far better than any of the consecutive surveys of the nineties. Results of the 2005 KSH survey are reported in KSH [2005]. Comparisons for major inequality statistic is shown in Table A3.

TÁRKI Hungarian Household Panel study. Starting from the 1992 base survey, referring to 1991, a longitudinal panel of 2000 households was interviewed in one year intervals (in April of the survey year, with reference to the previous March-March period. The survey focussed on labour market position, incomes, housing conditions and attitudes of all 16 years and older household members. The design was similar to that of GSOEP and BHPS. In addition to HHP closing reports (most recently Sik–Tóth [1998]), books (Kolosi–Tóth–Vukovich [1998]) and sectoral papers with international comparisons (like Smeeding- Gottschalk, [1997], Gottschalk-Smeeding, [2000], World Bank [1995], [2001] on poverty and inequalities) have presented the data. Although fieldwork discontinued in 1997, work on the dataset continued. Cleaning of the panel dataset was finished, the two originally separate Budapest and country subsamples were merged retrospectively and a new weighting system was created. This paper uses data from both the original (A) and the merged (B) dataset.

TÁRKI Household Monitor. This survey followed the methodology of the HHP, except that it was a yearly cross section of 2000 Hungarian households. However, results of Monitor surveys data can be fitted into a time series of cross sections drawn from HHP, without any serious problems of comparability. For more on the survey see Szivós and Tóth [eds, 2006], for results put in international comparisons see Förster [2000], Förster and D'Ercole, [2005]. Comparisons of the 1996 KSH survey with the corresponding HHP cross section data find by and large the same level of income inequalities (KSH [1998], Havasi et. Al. [1998], UNDP–MTA VK [n. d.]) Also, major inequality measures from the 2005 KSH Income survey (KSH, 2005) correspond closely to the ones shown by TARKI Household Monitor. From this we can suspect that putting KSH 1987 survey with later TÁRKI datasets does not create comparability problems.

KSH Household Budget Survey (HBS) This survey was carried out every second year until 1993, replaced by a yearly design afterwards. Sampling procedures changed from time to time. Nevertheless, it was always a multiple stratified sample of some 8-10000 households. In addition to a very detailed consumption record, the survey also contains income questions. On methodology and actual practice in the nineties, please see KSH [2002]. However, as detailed consumption tracking causes selection biases, use of income distribution data drawn from the survey warns for caution. (Révész [1994]). There have been very interesting time series comparisons and decomposition analyses published using HBS (Kattuman–Redmond [1997], Kapitány and Molnár [2002]), but it should be noted here that income distribution measures of HBS put Hungary into a group of a much more equal countries than alternative (TÁRKI or KSH) surveys would put (Andorka–Ferge–Tóth [1997], Kapitány–Molnár [2002], World Bank [1996], [2000a 2000b], Kattuman–Redmond, [1997]). Offical "Laeken" indicators for Hungary are based on this survey. However, for the purpose of this paper, TÁRKI data is used.

TÁRKI Monthly omnibus surveys. TÁRKI Social Research Institute carries out regular monthly surveys on personal representative samples of the Hungarian Population. Sample sizes vary between 1000 and 1500. Descriptions on www.tarki.hu, download and availability information from TÁRKI Data Archive: http://www.tarki.hu/adatbank-e/index.html

In addition to the Hungarian datasets, various international survey instruments are quoted in the paper:

Survey instrument	Information and availability
European Social Survey	http://www.europeansocialsurvey.org/
International Social Survey Programme	http://www.issp.org/homepage.htm
International Social Justice project	http://www.butler.edu/isjp/
World Values Survey	http://www.worldvaluessurvey.org/

Annex 2 Tables

Table A1. Some historical inequality measures for personal distribution of annual per capita net household incomes in Hungary: 1962–1987

	1962	1967	1972	1977	1982	1987
P10, % of median	–	57	56	61	62	61
P90, %of median	175	165	165	161	162	173
P50/P10		1.8	1.8	1.6	1.6	1.6
P90/p50	1.8	1.6	1.7	1.6	1.6	1.7
P90/P10	–	2,89	2,94	2,65	2,61	2,81
S1	3,6	4,1	4,0	4,5	4,9	4,5
S5+S6	18,0	18,7	18,6	18,7	18,6	17,9
S10	20,8	19,1	19,7	18,6	18,6	20,9
S10/S1	5,8	4,7	4,9	4,1	3,8	4,6
Robin Hood index	18,5	16,0	17,6	15,0	14,9	17,0
Éltető–Frigyes index	2,09	1,92	1,96	1,84	1,82	2,00
Gini-coefficient	0,257	0,227	0,236	0,214	0,209	0,244

Source: 1962-1982: Atkinson–Micklewright ([1992. Table HI1]), 1987: CSO Income Survey, own computations

Notes: Measures are computed on the basis personal distribution of per capita incomes.

Table A2. Basic socio-economic background statistics, Hungary, 1990 and 2001

Key data	1990	2001
Total population, 000	10375	10200
% employed	43,6	36,2
% unemployed	1,2	4,1
% inactive earner	25,6	32,4
% dependent	29,5	27,3
% males	48,0	47,6
% females	52,0	52,4
% 0-14	20,5	16,6
% 15-64	66,2	68,3
% 65+	13,2	15,1
% Budapest	19,4	17,2
% city	47,3	48,0
% village	33,2	34,7
% at least primary of 15+	78,1	88,8
% at least secondary of 18+	29,2	38,2
% at least higher of 25+	10,1	12,6
No. of hholds	3889	3862
average hhold size	2,6	2,57
% one person hhold	24,3	26,2
% 2 person hhold	29	28,8
% 3 person hhold	20,6	19,7
% 4-5 person hhold	23,7	22,4
% 5+ person hhold	2,4	2,9
GDP/cap, PPS, EUR	n.a.	12250
% GDP/1990	100	114,2
% GDP/previous year		104,1
% CPI/1990	100	682
% CPI/previous year	135	109,2
% real income/1990	100	99,1
% real income/previous year	98,3	103,6
% food share	38,5	35,1

Sources: Census and Statistical yearbooks.

Table A3. Official income distribution estimates for Hungary, 1987-2005 (personal distribution of per capita household incomes)

	1987	1995	2005
S10/S1	4,6	7,5	7,5
Robin Hood index (%)	17,0	21,0	21,4
Gini	0,236	0,296	0,309

Source: KSH, 2005: 13

Table A4. Perceptions of inequalities in Hungary, 1987-1999

	1987	1992	1999
Inequalities are too large: agreements..			
… not	11	8	3
… „yes and no”	12	8	4
… rather	36	39	26
… fully agree	41	45	67
Total	100	100	100
Avg score	4.0	4.2	4.5
N=	2498	1213	1199
State should reduce inequalities			
… not	9	11	7
… „yes and no”	12	13	12
… rather	47	43	33
… fully agree	32	33	48
Total	100	100	100
Average score	4.0	4.0	4.2
	2370	1155	1141

Note: The wording of the question was as follows: “To what extent do you agree with the following statements: 1: Inequalities are too large in Hungary and 2: The state should reduce income inequalities.” Original answers are on a scale of five („not at all and rather not” recoded in the table).

Source: Recalculations of Róbert (2002) based on ISSP „Inequality” modules from 1987, 1992 and 1999

Table A5. "Large inequality"-claim: part of an undifferentiated pro-redistribution attitude. (Distribution of responses to the question: It is the responsibility of the government to …)

	Definitely should be	Probably should be	Probably should not be	Definitely should not be	Cannot choose	total
Provide a job for everyone who want to have one	52	38	8	1	1	100
Keep prices under control	37	49	12	1	1	100
Provide healthcare for the sick	75	24	1	0	0	100
Provide a decent standard of living for the old	66	33	1	0	0	100
Provide industry with the help it needs to grow	38	51	9	0	2	100
Provide a decent standard of living for the unemployed	25	43	25	4	3	100
Reduce income differences between the rich and the poor	50	35	11	2	2	100
Give financial help to university students from low income families	39	51	7	0	2	100
Provide decent housing for those who cannot afford it	25	49	20	3	3	100
Impose strict laws to make industry do less damage to the environment	54	41	4	0	0	100

Source: ISSP 2006 Role of Government Module for Hungary (N=1014)

Table A6. The demand for redistribution (agreements with dichotomous trade-off questions on the role of state and the market)

Wording of the questions:

A: Redistributive option		B: Market option		Total
Unconditional A (4)	Rather A (3)	Rather B (2)	Unconditional B (1)	
It is the duty of the state to provide jobs for the unemployed		Solving employment problems should be left to the market		
46	36	13	5	100
The state has the duty to provide higher education for the young, without tuition fees		Education is an investment and high quality operation of universities can be ensured via tuition fees only		
50	32	12	6	100
It would be an important task of the state to spend more on health, education and social expenditures		Reducing taxes would be more important even if less remains for health, education and social expenditures		
56	30	9	5	100
Housing problems of the young can only be achieved with state building constructions		The young should solve their housing problems, the state should enter only with favourable mortgages and tax concessions		
21	20	29	30	100
Agricultural production should be supported by the state: without it the producers would have problems of living		Agricultural products are just like products of other sectors: agricultural producers should also survive under market terms		
38	37	17	8	100
Incomes should be more equal		Individual performance should be acknowledged to a greater extent		
31	26	24	20	100

Source: Tárki Household Monitor survey, 2003

Table A7. To what extent do you agree: those breaking rules (laws) manage avoiding beeing prosecuted? (Hungary, 2001, %)

Agreement …	Percentage distribution
… fully	43
… partly	50
… rather not	6
… not at all	1
Total	100

Source: TÁRKI monthly omnibus survey 2001/7.

Table A8. Perceived and prescribed pay ratios for top managers and unskilled workers in Hungary

		1987	1991	1992	1996	1999	2005
Perceived pay („how much you think he/she earns"), Thousand Fts	(1)Top manager (average)	20	72	176	330	1466	1847
	(2)Top manager (median)	20	70	150	300	800	1000
	(3)Unskilled worker (average)	5	10	14	20	37	61
	(4)Unskilled worker (median)	5	9	13	20	35	55
Perceived ratio (averages, 1/3)		3,7	7,2	12,6	16,5	39,6	30,3
Perceived growth of top manager averages (1987=1)		**1**	4	9	16	72	91
Perceived growth of unskilled averages (1987=1)		**1**	2	3	4	7	11
Perceived ratio (medians, 2/4)		4,0	7,8	11,5	15,0	22,9	18,2
Prescribed pay („should earn"), thousand Fts	(5)Top manager (average)	16	48	122	181	676	819
	(6)Top manager (median)	15	40	80	120	400	500
	(7)Unskilled worker (average)	7	16	24	38	70	128
	(8)Unskilled worker (median)	6	15	20	35	60	100
Prescribed ratio (averages, 5/7)		2,5	3,0	5,1	4,8	9,7	6,4
Prescribed growth of top manager averages (1987=1)		**1**	3	7	11	41	50
Prescribed growth of unskilled averages (1987=1)		**1**	2	4	6	11	20
Prescribed ratio (medians, 6/8)		2,5	2,7	4,0	3,4	6,7	5,0
„Manager overpay" (averages, 2/6, %)		124	150	144	182	217	226
„Unskilled underpay" (averages, 4/8, %)		84	63	58	53	53	48

Source:

for 1991, 1996 and 2005 averages: Örkény and Székelyi (2005) based on data from the International Social Justice project,

for 1991, 1996 and 2005 medians: generous data communication from Antal Örkény.

for 1987, 1992, 1999, own calculations from ISSP Inequality modules

Table A9. Dispersion of gross average earnings in the Hungarian economy, 1992-2003

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
P90/P50	2,00	2,04	2,08	2,08	2,10	2,17	2,18	2,22	2,29	2,26	2,33	2,29
P50/P10	1,79	1,77	1,88	1,86	1,90	1,92	1,93	1,97	2,15	1,87	1,75	1,98
P90/P10	3,58	3,61	3,91	3,88	4,01	4,17	4,21	4,38	4,92	4,24	4,09	4,55

Source of table: The Hungarian Labour Market – Statistical Database of the Institute of Economics of the Hungarian Academy of Sciences: http://econ.core.hu/english/serv/data.html

Source of data: National Labour Center Wage Survey of the given years

Table A10. Inequality of person equivalent incomes and change of relative positions between 1987 and 2003, by combined age/education categories of households (heads)

Panel (1)	within group MLD*1000 (1987)				
	Primary	Vocational	Secondary	Tertiary	Total
- 35 years	79	88	88	75	92
36-59	77	72	77	74	82
60+ year	76	42	106	84	92
	86	80	86	81	

Panel (2)	Within group MLD*1000 (2003)				
	Primary	Vocational	Secondary	Tertiary	Total
- 35 years	161	95	173	116	164
36-59	106	116	124	165	168
60+ year	55	61	50	125	87
	104	105	131	151	

Panel (3)=(2/1)	Ratio of within group MLDs: 2003/1987, %				
	Primary	Vocational	Secondary	Tertiary	Total
- 35 years	203	107	197	155	179
36-59	138	162	160	223	205
60+ year	73	146	47	149	95
	121	132	153	187	

Panel (4)	Relative income position 1987 (subgroup mean in % of population mean)				
	Primary	Vocational	Secondary	Tertiary	Total
- 35 years	74	92	99	107	91
36-59	102	99	117	137	109
60+ year	78	101	108	122	85
	91	96	111	129	

Panel (5)	Relative income position 2003 (subgroup mean in % of population mean)				
	Primary	Vocational	Secondary	Tertiary	Total
- 35 years	64	82	106	153	92
36-59	65	94	117	174	106
60+ year	75	94	104	155	92
	68	91	112	168	

Panel (6)	Ratio of relative income positions: 2003/1987, %				
	Primary	Vocational	Secondary	Tertiary	Total
- 35 years	86	89	107	143	102
36-59	64	95	100	127	97
60+ year	96	93	96	126	108
	75	95	102	130	

Source: 1987: KSH Income survey, 2003: TÁRKI Household Monitor Survey

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