DISCUSSION PAPER SERIES

IZA DP No. 3195

Direct Evidence on Income Comparisons and their Welfare Effects

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November 2007

Forschungsinstitut
zur Zukunft der Arbeit
Institute for the Study
of Labor

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Discussion Paper No. 3195
November 2007

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IZA Discussion Paper No. 3195
November 2007

ABSTRACT

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This paper provides unheard direct evidence that comparisons exert a significant effect on subjective well-being. It also evaluates the relative importance of different types of benchmarks. Dynamic comparisons outweigh static ones. Internal benchmarks are more important than external reference groups. Local comparisons (to parents, former colleagues or school classmates) are more powerful than general comparisons such as my rank in the social ladder. The most important impact comes from the deterioration of my living standard and from under-performing my former schoolmates or colleagues. A possible interpretation is that comparisons benchmarks are all the more significant as they are interpreted in terms of seized or lost opportunities.

JEL Classification: C25, D31, D63, I31, J31, O57, P3, Z13

Keywords: subjective well-being, income comparisons, income mobility, internal and external benchmarks, transition

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* I thank participants to the “labour market and inequality” seminar at the Paris School of Economics. I am grateful to Pierre-Thomas Leger for useful comments. This research has benefitted from the financial support of the CEPREMAP. The usual disclaimer applies.

1. Introduction

Happiness studies have loomed in last ten decade, with an acceleration at the end of the period (Clark et al., 2006). Based on the increasing availability of large datasets including subjective attitudinal questions, these studies are associated to a certain come-back to utilitarianism. Moreover, they have often come with a twist to the classical representation of rational decision-making agents. In the same time as they regained interest in experienced utility, emotions and affects (Kahneman, 2004), economists have endeavoured to include more realistic "behavioural" assumptions into their general axiomatic framework. It is not a pure coincidence that the same researchers often question the basic framework of utility maximization and the basis of happiness. Indeed, if one cannot rely on the theorem that action-revealed preferences=utility, it becomes interesting to elucidate preferences and happiness directly.

Once in the world of behavioural abnormalities, economists naturally crave to question one of the milestones of consumer theory: the link between income and happiness. One of the earliest and most provocative findings of this line of research was that happiness does not seem to increase with income, or rather that average self-declared happiness does not increase with national income (Easterlin, 1974, 1995). This paradox has opened the ink bottle and stimulated a large part of the corpus of happiness studies. A consensus has emerged that the so-called Easterlin paradox is due to the existence of thresholds in the welfare function of income (or consumption). In more mundane words, my utility is relative to benchmarks formed by my aspirations, my expectations, or some relevant others. Clearly, if the utility of income is relative, it is no wonder that "increasing the income of all does not increase the happiness of all" (Easterlin, 1974, 1995).

"Relative utility" has been widely investigated in the psychological corpus under the appellation of "discrepancy theory" (e.g. Michalos, 1985). The general idea is that individuals compare themselves to a series of standards that include other persons, past situation, aspirations and ideals, needs and objectives. Satisfaction judgements then depend on the gap between their actual situation and their comparison benchmarks. Of course, aspirations and norms themselves change with the personal history of individuals.

If happiness is relative and based on comparisons, a natural question is whom people compare themselves to, and which comparison groups are most important. Essentially, comparators can be grouped into two types: (i) relevant others, e.g. schoolmates, colleagues, neighbours, parents, which can also be thought of as "external benchmarks", (ii) past observations, e.g. my own past attainments, my parents' living standard, etc. The latter can be seen as "internal norms". They involve dynamic comparisons, i.e. comparisons between my current self and myself in different points of time. Hedonic treadmill, habituation and adaptation lie at the foundations of such dynamics.

This classification of benchmarks should not give the misleading impression that identifying comparison groups is an easy task. On the contrary, an important strand of the psychological literature shows that reference groups are far from being given once and for all and exogenously. According to Diener et Lucas (2000), « *The « new look » in social comparison research is based on the idea that the comparison process is very flexible and can be used to serve many motives* […] *such as self enhancement*». The choice of a given reference group and the direction of comparisons vary with individual characteristics. Comparisons can be used instrumentally as a motivation device or a self-validation strategy. Diener et Fujita (1997) show that the choice of one's reference group depends on the personality of the individual or on his potential performance. Some studies suggest that optimistic people only compare downward, whereas pessimistic people compare with more successful ones (Lyubomirski et Ross, 1997). Falk et Knell (2000) claim that the choice of one's reference group is the outcome of two opposite forces : *self enhancement*, which tends to promote downward comparisons, and *self improvement* which elicits upward comparisons. Identically, the level of aspiration of people depends on their capacities. Falk et Knell (2000) show that in a sample of Swiss students, the aspirations of students in terms of university diploma depends on their capacity, as measured by the grade they obtained at the end-of-secondary-education exam. Aspirations can also change with time (*framing theory*). Lastly, psychological tellic theories state that goals are a factor of happiness per se (Michalos, 1985, Diener et Lucas, 2000), as is the fact of progressing towards one's goal (Carver et al., 1996, Csikszentmihaly, 1990), or the congruence between one's skills and aspirations (Diener and Fujita, 1997). This set of observations shows that one cannot establish a simple relation of the type « weak aspirations-higher happiness » à la Wilson (1967).

Clearly, the idea that utility is relative has an important background in the psychological corpus. It seems to make no doubt that comparisons are an important aspect of satisfaction and a complex one

too. However, there is not much direct evidence to date about whom people really compare themselves to.

How do researchers know whom people compare themselves to?

De facto, most of the time, the evidence about comparisons is indirect. Researchers sometimes recourse to lab experiments, where the choices of the subjects over the sharing of a given amount of money reveals "some sort of comparative process" (Clark et al., 2006). But when they use survey data, researchers usually have to decide for themselves the delimitations of the reference groups, and then verify that the "reference income" that they have constructed does have some statistical influence on the variable of interest. This is because surveys usually contain no direct questions about the composition of reference groups.

Following this general method, some papers hypothesize that comparisons are made with respect to neighbours. The authors simply define the reference group as the inhabitants of the geographical area where the respondent lives. They calculate the average income of the inhabitants of the area and include this calculated variable in the regression of happiness, together with the individual income of the respondent. The scope of the geographical reference varies, from being as large as East and West Germany (Ferrer-i-Carbonnel, 2005), American States (Blanchflower and Oswald, 2004), to smaller units such as the primary census units of the American *National Survey of Families and Households* (Luttmer , 2005), or the census tract of the Canadian *General Social Survey* (Helliwell and Huang, 2005).

Certain authors define the reference group as being composed of daily interactions people such as family members and friends (MacBride, 2001, Clark, 1996). Others elicit colleagues or people exerting the same profession as being the relevant others, in particular concerning job satisfaction (Cappelli and Sherer, 1988, Clark and Oswald, 1996, Brown et al., 2006, Senik, 2005, 2007). The punch line of these articles is precisely to show that the reference group that they have picked up is relevant and that its average income does exert a significant (negative or positive) effect on satisfaction.

Of course, when it comes to "internal benchmarks", i.e. comparisons with my income at other points of time, the identification of the relevant benchmark is easier. Basically, researchers model the dependence of current satisfaction over lagged periods of income. The question is then whether, because of adaptation effects and rising aspirations, past levels of income or consumption exert a

negative influence on current satisfaction.

The Leyden school has made a major and inaugural contribution in this field by illustrating the existence of a "*preference drift"* in the income satisfaction of individuals (see van Praag, 1971 or van Praag and Ferrer-i-Carbonell, 2004). They estimate that about 60% of the satisfaction associated with a rise in my income evaporates due to a change in my aspirations. More classical studies of life satisfaction based on panel household surveys mostly confirm the presence of adaptation effects. Moreover, they stress the importance of contrast effects, i.e. of the importance of variation in income rather level of income, comforting the prospect theory of Kahneman and Tversky (1979). Studies in income adaptation and aspirations include Clark (1999), di Tella et al. (2003), Grund and Sliwka (2003), Stutzer (2004), Weinzierl (2005) and Burchardt (2005). However, the type of evidence provided by these studies remains indirect: the internal benchmark is chosen by the researcher and injected in the satisfaction regression; the assumption that the variable is capturing the adaptation process remains an interpretation. As noted by Clark et al (2006), "one of the very few papers ever to appeal to respondent-defined (rather than researcher-defined) reference groups is Melenberg (1992)". Melenberg uses two waves of the Dutch Socio-Economic Panel data in which individuals are asked about "the *people whom they meet frequently*". Following the method of the Leyden school based on the "Minimum Income Question[1]", he shows that the aspirations of individuals are increasing in the average income of their social network. Clark and al. (2006) quote another study by Knight and Song (2006), who use a survey of Chinese households. When asked explicitly to whom they compare themselves, 68% of survey respondents report that their main comparison group consists of individuals in their own village.

Hence, in the blooming literature dedicated to income comparisons and adaptation, there is almost no direct evidence to date about the composition of reference groups. Displaying some direct evidence about the composition of people's reference groups thus remains an important challenge that lies ahead of the literature dedicated to comparisons and relative deprivation. True, such direct

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[1] Led by Bernard Van Praag, studies of the Leyden school have shown that the relation between my individual income and satisfaction, the *Welfare Function of Income*, is best approximated by a log-normal functional form $W_i = N(\log y_i, \mu_i, \sigma_i)$, where y_i stands for the income of individual i. Parameter, μ_i, the estimated mean, plays the role of a norm of comparison; it is the median value of the income distribution imagined by individual i. Melenberg shows that μ_i is increasing in the average income of the social network of individual i.

questions are quite difficult to formulate –as is clear to those who have already tried to write such questions. In the third round of the *European Social Survey*, a special module of questions has been added by a team of researchers including the author of this paper. Individuals are first asked "*How important is it to you to compare your income with other people's incomes?*" and then "*Whose income would you be most likely to compare your own with?"* with responses on a showcard of *« Work colleagues/ Family members/ Friends/ Others/ Don't Compare*". In France, a group of researcher including myself, Christian Baudelot, Michel Gollac and Olivier Godechot has added some questions touching upon comparisons in the national survey on the wage structure (*Enquête Structure des Salaires*), a two-sided survey of employers and employees. The questions are "*compared to other firms in your branch, does your firm pay relatively well/in the average/relatively bad/don't know*", and "*compared to other wage-earners in France, do you belong in best-paid tier, to the average tier, or to the less paid tier*." These surveys should deliver their lessons in the course of the academic year 2007-2008.

Eliciting comparison groups

Reference groups are mysterious on many accounts. Their composition is unknown. Equally unclear is the nature of the interactions that are going on when comparisons are at work: possible interpretations include affective reactions, feelings of relative deprivation, emulation, learning, acquisition of information, etc. This paper is one of the first studies that try not only to provide direct evidence of comparisons, but also to assess the relative importance of the various types of comparison effects. Another one is Weinzerl, 2005, who shows evidence of relative income together with adaptation.

This paper relies on the *Life in Transition Survey*, a cross-section representative survey of households of all countries of the former socialist bloc. Transition countries have been undergoing a 15 years process of deep restructuring leading to the transformation from an administered economy to a market economy, and in many cases, from an authoritarian political regime to democracy. Amongst the concerned countries, most former so-called Soviet "Satellites" have now entered the European Union; two of them have gone as far as adopting the Euro as their national currency (Montenegro and Slovenia).

The *Life in Transition Survey* is an investigation into the perception of this period of transformation by the inhabitants of these countries. In particular, an important part of the questionnaire is composed of questions that explicitly ask people to compare the economic and political situation in

2006 with respect to the pre-Transition period (i.e. before 1989). More specifically, some questions ask people to compare their current living standard with the pre-transition period (before 1989), with that of their parents, of their former colleagues, and of their former schoolmates. Two other questions ask respondents to place themselves on a subjective economic ladder reflecting their situation in 2006 and their past situation in 1989.

My objective is to use this survey in order to evaluate the relevance and the relative importance of different kinds of benchmarks, whether static or dynamic, external or internal. The main finding is that internal benchmarks are more important than external reference groups. Dynamic comparisons have more impact on well-being than static ones. Comparisons are asymmetric: under-performing one's benchmark, whether internal or external is always more important than out-performing it: the survey offers pervasive confirmations of loss-aversion. Finally, local comparisons (to parents, former colleagues or school classmates) are more powerful than general comparisons such as my rank in the social ladder and its evolution. The most important impact comes from the deterioration of my living standard and from under-performing my former schoolmates or colleagues. A possible interpretation is that comparisons benchmarks are all the more powerful as they are interpreted by people in terms of seized or lost opportunities.

In the next section, I present the LITS survey. Section 3 presents the method, section 4 the results and the last section concludes.

2. Data

The study hinges on the Life in Transition Survey (LITS), a survey conducted by the EBRD in 2006, in 28 post-Transition countries (plus Turkey). Respondents to the survey were drawn randomly, using a two stage sampling method, with census enumeration areas as primary sampling units, and households as secondary sampling units. The survey includes 1000 observations per country, for a total of 29000 observations. The sample is equally balanced in terms of gender, but is biased in favour of elder people: the age of the respondents varies from 1 to 99 years old, with a means of 50 years for respondents A and 46 years old for respondent B. Descriptive statistics are presented in the Annex.

The main attitudinal questions that are exploited in this paper are labelled in the following way:

"To what extend do you agree with the following statements:

- *I have done better in life than most of my high school mates.*
- *I have done better in life than most of my colleagues I had around 1989.*
- *I have done better in life than my parents.*
- *My household lives better nowadays than around 1989 .*
- *All things considered, I am satisfied with my life now" (Life satisfaction).*

Respondents had to tick one answer out of 7 proposed modalities: "*strongly disagree/disagree/neither disagree nor agree/agree/strongly agree/not applicable/don't know*".

Two other questions were asked:

- *"Please imagine a ten-step ladder where on the bottom, the first step, stand the poorest people, and on the highest step, the tenth, stand the rich. On which step of the ten is your household today?"*
- *"Now imagine the same ten-step ladder around 1989, on which step was your household at that time?"*

Regrettably (in my view) the authors of the survey have chosen to ask a first series of general questions concerning the household (sections 1-2) to a person (respondent A), including the two latter "subjective ranking" questions above, and then to ask all the other questions (sections 3-6) to the "last birthday person" in the household (respondent B). In many cases, it fortunately turned out that the same person actually answered all the questions, so that respondent A = respondent B. When it is not the case, it would be questionable to include in the same regressions the answers of respondent A and respondent B, especially in the case of subjective questions. Of course, this concerns only the two "subjective ranking" questions above-mentioned, which are relative to the standard of living of the household and not to the individual himself. This attenuates the problem, conditional on the fact that the household is still the same in 2006 as it was in 1989. To be safe, I take a very conservative approach, which consist in keeping only the observations when respondent A and respondent B are the same person. This involves losing about 11556 observations. As the main questions of interest concern comparisons between one's situation in 2006 and one's past situation in 1989, it is also sensible to retain only respondents who are aged over 40 years old; this implies an additional loss of 5258 observations. Eventually, the regressions are run on sample of

3514 observations for 28 countries, leaving aside Turkey. I have also run the same regressions on the entire sample of people aged over 40, without the restriction that respondent A= respondent B; the results are identical.

3. Method

In a nutshell, Transition can be described as a series of macroeconomic and microeconomic changes that have affected the citizens of the former Soviet block. These include the liberalization of prices and transactions, privatization, industrial restructuring and the redeployment of the trade patterns of these countries. It is not farfetched to assume that many of these changes have hit the population randomly, so that part of people's trajectory since 1989 is due to exogenous shocks (e.g. a shock on the value of their skills). The method thus consists in analyzing the subjective perception of the changes brought about by Transition as if they had been imposed on people, i.e. as though part of the trajectory of people between 1989 and 2006 were somewhat allegeable to pure chance, or to shocks. The objective is to infer some causality running from relative income trajectories to life satisfaction.

Of course, omitted variables and reverse causation stand on the way to causal interpretation. People who estimate that they have done better in life than their former colleagues may just be "happier" people: they may have a higher satisfaction baseline or circumstances that cause both happiness and success. In order to avoid these caveats, I partition the sample into categories of people who have experienced different evolutions in different dimensions. The rationale is that there is no obvious general reason why some people should have done better than their colleagues but worse than their former classmates, or better then their parents but worse than in 1989. No obvious omitted variable or reverse causation is available for these concomitant opposite variations. I thus regress Life Satisfaction on these interaction categories, controlling for the usual socio-demographic variables and for country dummies. I also run the regression of life satisfaction on sub-samples of people who have experienced particular income dynamics or who were in a specific situation at the start of the transition period.

The interest of this paper is with the welfare effect of cognitive perceptions, not on the impact of objective income mobility, hence in all regressions, I systematically control for the objective level of household consumption and the actual income decile of the household.

For simplicity, I use an OLS specification, where the coefficients are directly interpretable in terms

of elasticity. As a robustness check, I also present the same regressions with a logit model; finally I checked that the results are the same with an ordered probit specification.

Using subjective questions

In the prime infancy of the happiness literature, a discussion unavoidably had to be dedicated to the legitimacy of using subjective variables, to the justification of departing from the action-revealed method and to the reliability, the robustness and the meaningfulness of subjective variables, based on cross-ratings, neuro-psychological experiments and other tests of validity. With time and the accumulation of such advocacies, readers have become accustomed to the use of subjective data and the literature has gained its *lettres de noblesse* in the *Journal of Economic Literature* (Frey and Stutzer, 2002), the *Journal of Economic Perspectives* (Di Tella and MacCulloch, 2006, Kahneman and Krueger, 2006) and the *American Economic Review* (Frijters et al., 2004, Kahneman et al., 2004). I leave it to these articles, or to the recent survey by Clark et al. (2006), to reassure the reader about the reliability of subjective questions.

4. Results

The results show that comparisons are relevant and exert a significant impact on well-being. Comparisons appear to be asymmetric; a clear ranking also emerges among the type of interactions that are being analyzed: “intra-personal” comparisons are more important than inter-personal ones. Dynamic comparisons are more important than static ones; local comparisons are more significant than general ones.

4.1 Comparison questions are relevant

A first look at the data allows to shed some light on the reality of comparisons. To be sure, the survey does not ask directly “do you often compare yourself to your former schoolmates” or “how important is it to you to compare with your former colleagues”. However, when asking people to compare themselves to their schoolmates, their colleagues or their parents, the survey proposes a separate “don’t know” modality, together with “not applicable”. It is thus interesting to look at the proportion of people who choose this modality. As many questions refer to the situation in 1989, I only retain households whose respondents are aged 40 years and over. This implies a loss of 12505 observations.

Simple descriptive statistics (Table A1 in the Annex) show that about 16% of respondents don't know whether they have "done better in life than most of their high school classmates"; 13% of respondents don't know whether they have outpaced their 1989's colleagues; 4 % choose this modality for the comparison with their parents; 2% for the comparison of their living standard to their 1989 level (and 2% for the life satisfaction question). Concerning the self-ranking questions, only 1% of respondents "don't know" where they stand on a subjective economic ladder, and 2% where they used to stand back in 1989.

Hence, a clear hierarchy in the relevance of the comparison questions appears: static comparisons are straightforward and relevant to 99% of the population; then come comparisons to the past and to one's parents, followed by comparisons to colleagues and to schoolmates. In summary, dynamic comparisons to other people seem to be relevant to about 85% of the population; dynamic comparisons to one's own past are relevant to 98% of the respondents. Given the large changes undergone by the economy and the society during the considered period, these figures are quite impressive. To appreciate them, note that more straightforward questions such as one's father's profession attract 6% of "don't know" answers.

Table A2 in the Annex shows that these orders of magnitudes are quite stable across countries. Further analysis shows that respondents who choose the "don't know" modality are slightly older and poorer, more often women, less educated, and more often independent, especially independent farmers (Tables A3 to A7 in the Annex).

4.2 Comparisons are important… and asymmetric

Table A1 to A3 have illustrated the fact that comparisons are relevant enough for people to answer such complex questions as the comparison of one's position or ranking with respect to fifteen years ago. Self-references appear to be more relevant than external norms. But the fact that these questions are relevant does not necessarily mean that they are important to people.

In order to assess the actual impact of comparisons, I now regress life satisfaction over each of the concerned variables; I check that comparisons do explain part of the variance of life satisfaction. I present the OLS estimates, which are immediately interpretable in terms of elasticity.

Regressing life satisfaction over one of the subjective mobility variable runs into the risk of capturing different effects in the same time: both the effect of the subjective comparisons and the effect of individuals' objective current situation. Controlling for the level of current expenditure

and the objective income decile may not be sufficient, as the effect of income comparisons is likely to differ from one income group to another.

One way of controlling for unobserved heterogeneity is to consider people whose situation in 1989 was comparable. The question about one's living standard in 1989 can be used for this purpose. Conditional on declaring that my standard of living was average in 1989, how do comparisons affect me? In Table 1, the regressions are run both on the whole sample (columns 0,1 3, 5, 7, 9, 11 and13) and on the sub-sample of people (20% of the sample) who used to stand on the 5^{th} rung of the 1989 economic scale (columns 2, 4, 6, 8, 10, 12 and 14). The results are qualitatively identical for both populations.

Table 1. The Explanatory Power of Comparison Questions

OLS estimates of Life Satisfaction

	0	1	2	3	4	5	6
	All	**All**	**Rank 5 in 1989**	**All**	**Rank 5 in 1989**	**All**	**Rank 5 in 1989**
Subjective Economic rank in 1989	**-0.085*****						
	[0.009]						
Subjective Economic Rank in 2006		**0.213*****	**0.296*****				
		[0.011]	[0.026]				
Rankup				**0.148*****	**0.326*****		
				[0.054]	[0.111]		
Rankdown				**-0.582*****	**-0.723*****		
				[0.046]	[0.083]		
High_rank (> 5)						**0.122****	**0.326*****
						[0.051]	[0.111]
Low_rank (< 5)						**-0.542*****	**-0.723*****
						[0.043]	[0.083]
Observations	3444	3490	705	3514	707	3514	707
R-squared	0.099	0.164	0.249	0.158	0.226	0.141	0.226

OLS estimates of Life Satisfaction.
Sub-sample of respondents aged over 40 and where respondent A=respondent B.
Controls: nb adults in household, number of children in household, age of respondent A, age of respondent B, gender of respondent B, employment status of first job (wage-earner/independent/ self-employed), dummies for state/private/foreign ownership of firm of first job, highest educational degree obtained, type of industry of first job, ever been member of Communist party, objective income decile.
Rank_up: rank in 2006> rank in 1989, rank_down: rank in 2006< rank in 1989, rank_stab: rank in 2006=rank in 1989.
High_rank: declared rank >5 (out of 10)
Mates_up: dummy for the modalities “agree” and “strongly agree” with the statement “I have done better in life than most of my high school mates”.
Coll_up: dummy for the modalities “agree” and “strongly agree” with the statement “I have done better in life than most of my colleagues I had around 1989”».
Parents_up: dummy for the modalities “agree” and “strongly agree” with the statement “I have done better in life than my parents”.

Table 1 (continued). The Explanatory Power of Comparison Questions

	1	2	3	4	5	6	7	8
	All	**Rank 5 in 1989**	**All**	**Rank 5 in 1989**	**All**	**Rank 5 in 1989**	**All**	**Rank 5 in 1989**
Livup	**0.496*** **	**0.384*** **						
	[0.045]	[0.088]						
Livdown	**-0.683*** **	**-0.755*** **						
	[0.044]	[0.095]						
Matesup			**0.314*** **	**0.252*** **				
			[0.041]	[0.087]				
Matesdown			**-0.618*** **	**-0.673*** **				
			[0.046]	[0.103]				
Collup					**0.254*** **	**0.236*** **		
					[0.041]	[0.087]		
Colldown					**-0.656*** **	**-0.655*** **		
					[0.045]	[0.098]		
Parentsup							**0.337*** **	**0.431*** **
							[0.046]	[0.098]
Parentsdown							**-0.506*** **	**-0.485*** **
							[0.054]	[0.126]
Observations	3514	707	3514	707	3514	707	3514	707
R-squared	0.282	0.279	0.178	0.199	0.174	0.195	0.164	0.194

Sub-sample of respondents aged over 40 and where respondent A=respondent B.
Liv_up : dummy for the modalities “agree” and “strongly agree” with the statement “My household lives better nowadays than around 1989”.
Symmetrically, mates_down, coll_down and parents_down are dummies that indicate that the respondent has chosen the modality “disagree” or “strongly disagree” with these statements. Liv_stab, mates_stab, coll_ stab and parents_ stab are dummies for the modality “neither agree nor disagree”.
The omitted category is “neither agree nor disagree” for each question, i.e. liv_stab, mates_stab, coll_ stab and parents_ stab.
Columns 2, 4, 6 and 8: Sub-sample of respondents who declare that in 1989 they stood on the fifth rung of a subjective 10 rungs economic ladder.

Table 1 shows that comparison questions have quite an important explanatory power in the regression of life satisfaction. Namely, a 1% move on the scale of such questions induces between a third and a half percentage point variation on the life satisfaction scale. Of course, this interpretation is based on the assumption that the answers scale is taken as continuous by respondents. In order to give more generality to these results, I have checked that the same results hold using an ordered probit model: All comparison variables are significant with about the same coefficients.

In order to be sure to compare comparable situations, I also partition the sample into three quantiles of real household consumption. Table A5 in the Annex shows that the effects are preserved even when they are estimated inside each quantile of consumption level. The coefficients on subjective comparisons do not vary much across consumption quantiles; comparisons to parents seems to be the most sensitive variable with respect to current wealth: doing better than one's parents is more important for the poorest, while doing worse is most painful for the richest.

Loss aversion

The striking result of Table 1 is the asymmetry in the effect of comparisons; namely when comparisons are unfavourable, this has a much more important (negative) impact on life satisfaction than when comparisons are favourable. Going down in a subjective ladder between 1989 and 2006 has a larger impact than going up (rankdown versus rankup). Judging that my living standard has deteriorated since 1989 has a stronger effect (in absolute value) than feeling that it has improved (livdown/livup). Assessing that I have made worse in life than my former school mates has a stronger effect (in absolute value) than having succeeded better (matesup/ matesdown); the same is true as concerns comparison of my life trajectory with that my colleagues (collup/ colldown) or my parents (parentsup/parentsdown).

This asymmetry can be interpreted as an illustration of the loss-aversion phenomenon suggested by Kahneman et Tversky (1979). It could also reflect the fact that the downside risk is more important than the upside risk in countries under review. As the questions are qualitative, there is no means to control for this. However, the general macroeconomic trends of the region do not particularly support this assumption. All the countries in the survey have

experienced large GDP fluctuations between 1989 and 2006, with an initial stage of output fall, followed by a strong resumption of growth; the context is also different for the various countries of the sample which includes new European countries aside with CIS countries (see for example, EBRD, 2006).

Tables 1 also shows that respondents who declare that they belonged to a high rank of the economic ladder in 1989 report lower levels of life satisfaction (column 0), which can be interpreted in terms of adaptation or aspirations. Of course, at this stage, one cannot rule out the reverse causation interpretation, according to which less happy people in 2006 tend to "idealize" their past economic situation.

Another variable that may help controlling for individual heterogeneity is the question whether people have ever been a member of the communist party or not. 12% of the retained sample (people aged over 40) answer this question with the affirmative. Table 2 (same controls and definitions as Table 1) shows that the loss aversion effect is particularly strong for the former members of the communist party, whereas for people who did not used to be members of the communist party, the regression coefficients are pretty much the same as those of the general population. For former communists, having done worse than their former schoolmates or colleagues, having gone down the economic ladder, living worse than in 1989 or being low on the current economic ladder has an particularly negative effect, while having outperformed these benchmark does not make them happy (by comparison with having done the same). This cannot be attributed to the fact that former members of the communist party more often declare that they have done worse than other people; on the contrary, they have slightly higher scores of success as compared to non members. A more plausible interpretation is that former members of the Communist Party have higher expectations.

Table 2

OLS Regressions of Life Satisfaction over Comparisons

Former Members and non-Members of the Communist Party

	-1	-2	-3	-4	-5	-6	-7	-8
Ever been a Member of the Communist Party ?	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**
rankup							0.160***	-0.050
							[0.057]	[0.182]
rankdown							-0.577***	-0.682***
							[0.049]	[0.139]
highrank					0.127**	0.039		
					[0.054]	[0.148]		
lowrank					-0.536***	-0.548***		
					[0.046]	[0.129]		
livup			0.521***	0.162				
			[0.048]	[0.143]				
livdown			-0.654***	-0.996***				
			[0.047]	[0.133]				
collup	0.288***	-0.091						
	[0.044]	[0.120]						
colldown	-0.651***	-0.751***						
	[0.048]	[0.138]						
Observations	3087	427	3087	427	3087	427	3087	427
R-squared	0.180	0.263	0.278	0.399	0.139	0.250	0.159	0.265

4.3 Which comparisons matter more ?

I now turn to the comparison between social norms. The idea is to operate a total partition of the sample into categories of people who have gone up in one dimension but down in another one, or have remained stable, i.e. who have undergone different shocks in different dimensions. This should reduce the risk of endogeneity or omission of variables. Concerning reverse causation, there is no obvious reason why more (or less) "naturally" happy people should have done better than their colleagues but worse than their class-mates, or better then their parents but worse than in 1989. It is also hard to think about an obvious omitted variable which would explain the concomitant and opposite variations in comparison variables.

I thus regress life satisfaction on these interacted categories, controlling for the usual socio-demographic variables and for country dummies. I also control for the objective decile of household income of the individual. This is necessary to avoid the judgement on one's relative mobility to be contaminated by her feeling of current relative position.

The question I ask is which variables are the most relevant, i.e. have the highest power in terms of explaining the variance of life satisfaction. I present OLS and logit specifications; having checked that the same results hold with an ordered probit specification. In order to run the logit specification, the life satisfaction variable is collapsed in two categories (agree/don't know and disagree). As before, I restrict the sample to respondents aged 40 years old and more (where respondent A= respondent B) in order to make sure that comparisons to the situation before 1989 are relevant.

The main results are the following: loss aversion is pervasive. "Internal" comparisons, i.e. comparisons to my own standard of living in the past, are the most relevant. They dominate the effect of any other kind of benchmarks. Local comparisons to precisely defined groups are more powerful than general self-rankings. No clear hierarchy emerges as concerns the relative power of local benchmarks (e.g. schoolmates versus former colleagues).

The tables of the following sections present the effects of various pairs of comparison benchmarks. All variables are decomposed into three parts: positive, negative and neutral. For instance, for "My household lives better nowadays than around 1989", the answers are decomposed into three variables: Livup (a dummy for the modalities "agree" and "strongly agree" with this statement), livdown (a dummy for the modalities "disagree" and "strongly

disagree") and livstab (a dummy for the modality "neither agree nor disagree").

The coefficients of interaction variables can be interpreted as the net effect of opposite forces. For instance, the coefficient on the interaction variable lowrank_livup captures the effect of belonging to the lower part of the subjective economic ladder but declaring an improvement in one's living standard as compared to 1989. In all tables, the omitted category is the "neutral_neutral" (here, the middle-rung 5 and "neither improved nor deteriorated"), hence the effect of interacted comparisons is evaluated against the omitted category constituted by the group of individuals who declare that their situation has remained stable, or their subjective position on a ladder is average.

4.3.1. The primary importance of internal benchmarks

What matters most, the comparison to my former living standard or my static rank in the social hierarchy? My own income dynamics or the evolution of my economic rank? The answer suggested by the data is that internal benchmarks are more important. The time dimension is more important than the social dimension.

As shown by Table3, the evolution in my standard of living, as compared to 15 years ago, is more important that my relative position on the social ladder. I prefer to stand low on the social ranking but with a living standard on the rise (livup_lowrank), to being up in the social ladder but with a situation that has deteriorated since 1989 (livdown_highrank). A low rank is defined as a declared rank under 5, whereas a high rank is defined as a declared subjective rank over 5 (out of the 10 proposed rungs of the economic ladder); the reference category is the average fifth rank.

Table 3 shows that a low subjective rank together with the feeling that my situation has deteriorated as compared to 1989 exert a significant negative effect on my satisfaction (livdown_lowrank). Then, conditional on ranking low, people who declare that their situation has improved are not less satisfied than the reference category (livup_lowrank). Symmetrically, people who declare a high subjective rank and an improvement in their material situation (livup_highrank) are significantly more happy than those whose rank is average and whose situation has not changed (the reference category). But this effect is totally reversed for people whose rank is high but whose situation has deteriorated livdown_highrank): those are significantly less happy than the reference category. Hence,

one's own dynamics clearly dominate one's social ranking.

Another formulation of the results of Table 3 is the following: conditional on belonging to the lower part of the subjective economic ladder (lowrank), the feeling that my living standard has improved as compared to 1989 exerts a significant and positive effect on my life satisfaction (controlling for my actual level of consumption). But the reverse is not true. For individuals who declare that their living standard has improved (or worsened) as compared to 1989, belonging to a high rank or a low rank on the subjective economic ladder in 2006 does not seem to exert a crucial impact on their life satisfaction.

Table 3. Static Ranking versus Income Dynamics

Regressions of Life Satisfaction

	-1	-2
	OLS	**Logit**
Livup_lowrank	0,116	0.446**
	[0,074]	[0.181]
Livup_highrank	0,533***	1.445***
	[0,075]	[0.200]
Livdown_lowrank	-0,901***	-1.712***
	[0,068]	[0.175]
Livdown_highrank	-0,428***	-0.547**
	[0,087]	
Observations	3514	3514
R-squared	0,378	

Controls: same as Table 1. Sub-sample of respondents aged over 40 and where respondent A=respondent B.
lowrank: declared rank <5 (out of 10), highrank: declared rank >4 (out of 10)
livup : dummy for the modalities "agree" and "strongly agree" with the statement "My household lives better nowadays than around 1989". livdown : dummy for the modalities "disagree" and "strongly disagree" with the statement "My household lives better nowadays than around 1989".
The variables lowrank_livup etc. are constructed as the interactions between the main effects lowrank, higrank, livup, livdown.
The omitted category is averank_livstab.

Table 3 compares individuals' own dynamics with their static ranking on a subjective social ladder. The primacy of the dynamic evolution could be due to the time dimension rather than to the fact that this question evokes the comparison to an internal instead of a social norm. What if, between 1989 and 2006, I moved up the economic ladder but my living standard went the other way? The answer is that the evolution in my absolute living standard always dominates the change in my relative ranking. Table 4 interacts the same variable (livup/livdown) with the evolution of one's subjective social ranking (rankup/rankdown). It show that internal comparisons largely dominates social ranking, even in dynamics. Living

better than in 1989 largely dominates the effect of having gone done in the social ladder (livup_rankdown); living worse than in 1989 also largely dominates the fact of going up on the subjective social ladder (livdown_rankup).

Table 4. Absolute versus Relative Own Dynamics

Regressions of Life Satisfaction

	-1	-2
	OLS	**Logit**
Livup_rankdown	0,209***	0.773***
	[0,073]	[0.179]
Livdown_rankdown	-0,786***	-1.407***
	[0,064]	[0.158]
Livup_rankup	0,431***	1.135***
	[0,070]	[0.174]
Livdown_rankup	-0,557***	-0.729***
	[0,105]	[0.260]
Observations	3514	3514
R-squared	0,361	

Regressions of life satisfaction. Sub-sample of respondents aged over 40 and where respondent A=respondent B.
Controls: same as Table 1.
rankup: rank in 2006> rank in 1989, rankdow: rank in 2006< rank in 1989, rankstab: : rank in 2006= rank in 1989.
livup : dummy for the modalities “agree” and “strongly agree” with the statement “My household lives better nowadays than around 1989”. Symmetrically, livdown indicates that the respondent has chosen the modality “disagree” or “strongly disagree” with this statement. Livstab: indicates that the respondent has chosen the modality “nor agree nor disagree”.
The omitted category is “livstab_rankstab”
Control decile of household income

A related observation is that my own absolute dynamics dominate my attainments relative to some local external benchmarks. The variables livup and livdown always dominate other dynamic comparisons. Conditional on declaring that my living standard has deteriorated since 1989 (livdown), having outpaced my former colleagues, classmates or parents still leaves me significantly less happy than the omitted group (livstab_matestab): livdown_collup, livdown_matesup and livdown_parentsup are all significantly negative. The symmetrical effect is less strong: conditional on acknowledging an improvement in my standard of living since 1989 (livup), faring worse than my former colleagues, classmates or my parents is not sufficient to reduce my welfare. Both forces seem to compensate each other. Hence, the lesson from Tables 5.a to 5.c seems to be that (i) my own income dynamics matters more than my relative income dynamics, (ii) the effect of my income dynamics is asymmetric in the sense that a negative evolution has a stronger impact than a positive one.

Table 5.a Absolute versus relative evolution: former schoolmates

Regressions of Life Satisfaction

	-1	-2
	OLS	**Logit**
Livup_matesdown	0,073	0.735***
	[0,082]	[0.203]
Livup_matesup	0,686***	2.151***
	[0,062]	[0.169]
Livdown_matesdown	-0,925***	-1.367***
	[0,064]	[0.187]
Livdown_matesup	-0,331***	-0.142
	[0,066]	[0.168]
Observations	3514	3514
R-squared	0,397	

Controls: same as Table 1. Sub-sample of respondents aged over 40 and where respondent A=respondent B
livup : dummy for the modalities “agree” and “strongly agree” with the statement “My household lives better nowadays than around 1989”.
matesup: dummy for the modalities “agree” and “strongly agree” with the statement “I have done better in life than most of my high school mates”. Symmetrically, matesdown and livdown are dummies that indicate that the respondent has chosen the modality “disagree” or “strongly disagree” with these statements.
The omitted category is livstab_matestab.

Table 5.b. Absolute versus relative evolution: former colleagues

Regressions of Life Satisfaction

	-1	-2
	OLS	**Logit**
Livup_colldown	0,049	0.554***
	[0,082]	[0.199]
Livup_collup	0,558***	1.620***
	[0,061]	[0.160]
Livdown_colldown	-0,975***	-1.576***
	[0,062]	[0.173]
Livdown_collup	-0,404***	-0.443***
	[0,066]	[0.166]
Observations	3514	3514
R-squared	0,391	

Regressions of Life Satisfaction.
Controls: same as Table 1. Sub-sample of respondents aged over 40 and where respondent A=respondent B.
livup : dummy for the modalities “agree” and “strongly agree” with the statement “My household lives better nowadays than around 1989”. collup: dummy for the modalities “agree” and “strongly agree” with the statement “I have done better in life than most of my colleagues I had around 1989”». Symmetrically, livdown and colldown are dummies that indicate that the respondent has chosen the modality “disagree” or “strongly disagree” with these statements.
The omitted category is livdstab_collstab.

Table 5.c. Absolute versus relative evolution: parents

Regressions of Life Satisfaction

	-1	-2
	OLS	**Logit**
Livup_parentsdown	0,218**	1.020***
	[0,097]	[0.241]
Livup_parentsup	0,650***	2.078***
	[0,069]	[0.180]
Livdown_parentsdown	-0,779***	-0.856***
	[0,072]	[0.200]
Livdown_parentsup	-0,324***	-0.015
	[0,071]	[0.184]
Observations	3514	3514
R-squared	0,378	

Controls: same as Table 1. Sub-sample of respondents aged over 40 and where respondent A=respondent B
parentsup: dummy for the modalities "agree" and "strongly agree" with the statement " I have done better in life than my parents". livup : dummy for the modalities "agree" and "strongly agree" with the statement "My household lives better nowadays than around 1989". Symmetrically, livdown and parentsdown are dummies that indicate that the respondent has chosen the modality "disagree" or "strongly disagree" with these statements. The omitted category is livstab_parentstab.

The results of Tables 5.a to 5.c suggest that the comparison to my own past is a primary order psychological process. Decading is an inconsolable pain, even for respondents who outperformed their former colleagues, schoolmates or parents.

4.3.2 Local comparisons dominate general comparisons

The next question is whether local comparisons to precise groups of comparators are more or less important than the general social ranking of an individual. Here, we compare local comparisons to parents, schoolmates and colleagues to one's general static social ranking (highrank, lowrank) or to one's general mobility on the social ladder (rankup, rankdown).

Tables 6.a to 6.c show that local comparisons are significantly more powerful than general ranking. It is true that positive local comparisons are not always powerful enough to reverse the negative sign of a low rank, but the coefficient on lowrank_parentsup, lowrank_collup or lowrank_matesup is significantly higher (typically about twice higher) than that of highrank_parentsdown, highrank_colldown or highrank_colldown. Note that the lower significance of the coefficients in the logit spectification may be due to the loss of information imposed by the collapsing of the life satisfaction variable into two categories.

Table 6.a General ranking versus comparisons to schoolmates

Regressions of Life Satisfaction

	-1	-2
	OLS	**Logit**
Lowrank_matesup	-0,110*	0.015
	[0,065]	[0.151]
Lowrank_matesdown	-0,844***	-1.394***
	[0,065]	[0.165]
Highrank_matesup	0,485***	1.392***
	[0,069]	[0.173]
Highrank_matesdown	-0,377***	-0.434*
	[0,101]	[0.240]
Observations	3514	3514
R-squared	0,315	

Controls: same as Table 1. Sub-sample of respondents aged over 40 and where respondent A=respondent B
matesup: dummy for the modalities "agree" and "strongly agree" with the statement "I have done better in life than most of my high school mates". Symmetrically, matesdown indicates that the respondent has chosen the modality "disagree" or "strongly disagree" with this statement. Lowrank: < 5, highrank: >5. The omitted category is averank_matestab.

Table 6.b General ranking versus comparisons to parents

Regressions of Life Satisfaction

	-1	-2
	OLS	**Logit**
Lowrank_parentsup	-0,270***	-0.270
	[0,078]	[0.179]
Lowrank_parentsdown	-0,917***	-1.590***
	[0,082]	[0.204]
Highrank_parentsup	0,352***	1.009***
	[0,082]	[0.194]
Highrank_parentsdown	-0,425***	-0.350
	[0,110]	[0.254]
Observations	3514	3514
R-squared	0,305	

Controls: same as Table 1. Sub-sample of respondents aged over 40 and where respondent A=respondent B .
parentsup: dummy for the modalities "agree" and "strongly agree" with the statement "I have done better in life than my parents". Symmetrically, parentsdown indicates that the respondent has chosen the modality "disagree" or "strongly disagree" with this statement. Lowrank: < 5, highrank: >5. The omitted category is averank_parentstab.

Table 6.c General ranking versus comparisons to former colleagues

Regressions of Life Satisfaction

	-1	-2
	OLS	**Logit**
Lowrank_collup	0,187**	0.287
	[0,083]	[0.195]
Lowrank_colldown	-0,513***	-1.030***
	[0,081]	[0.202]
Highrank_collup	0,805***	1.659***
	[0,086]	[0.212]
Highrank_colldown	-0,081	-0.159
	[0,110]	[0.263]
Observations	3514	3514
R-squared	0,314	

Controls: same as Table 1. Sub-sample of respondents aged over 40 and where respondent A=respondent B .
Collup: dummy for the modalities "agree" and "strongly agree" with the statement "I have done better in life than most of my colleagues I had around 1989". Symmetrically, colldown indicates that the respondent has chosen the modality "disagree" or "strongly disagree" with this statement. Lowrank: < 5, highrank: >5. The omitted category is averank_collstab.

Note that the coefficient on lowrank_collup is significantly positive. Outperforming one's former colleagues seems to be an important source of satisfaction.

Concerning the evolution of one's position on the social ladder, the observation is identical. Tables 7.a to 7.c show that the negative effect of being outperformed by local competitors (matesdown, colldown, parentsdown) is much more important than the impact of going up on the social ladder (rankup). Identically, the averse effect of downward mobility on the social ladder (rankdown) seems to be partially offset by a favourable comparison with local reference groups (matesup, collup, parentsup).

Table 7.a General mobility versus comparisons to schoolmates

Regressions of Life Satisfaction

	-1	-2
	OLS	**Logit**
Rankdown_matesup	-0.153**	-0.032
	[0.070]	[0.161]
Rankdown_matesdown	-0.918***	-1.622***
	[0.071]	[0.179]
Rankup_matesup	0.449***	1.125***
	[0.076]	[0.190]
Rankup_matesdown	-0.326***	-0.440*
	[0.097]	[0.226]
Observations	3514	3514
R-squared	0.321	

Controls: same as Table 1. Sub-sample of respondents aged over 40 and where respondent A=respondent B.
rankup: rank in 2006> rank in 1989. rankdow: rank in 2006< rank in 1989
matesup: dummy for the modalities "agree" and "strongly agree" with the statement "I have done better in life than most of my high school mates". Symmetrically, matesdown indicates that the respondent has chosen the modality "disagree" or "strongly disagree" with this statements. The omitted category is rankstab_matestab.

Table 7.b General mobility versus comparisons to colleagues

Regressions of Life Satisfaction

	-1	-2
	OLS	**Logit**
Rankdown_collup	-0.240***	-0.393**
	[0.069]	[0.160]
Rankdown_colldown	-0.964***	-1.825***
	[0.069]	[0.174]
Rankup_collup	0.367***	0.751***
	[0.075]	[0.187]
Rankup_colldown	-0.408***	-0.733***
	[0.100]	[0.233]
Observations	3514	3514
R-squared	0.319	

Controls: same as Table 1. Sub-sample of respondents aged over 40 and where respondent A=respondent B.
rankup: rank in 2006> rank in 1989, rankdow: rank in 2006< rank in 1989
collup: dummy for the modalities "agree" and "strongly agree" with the statement "I have done better in life than most of my colleagues I had around 1989"». Symmetrically, colldown indicates that the respondent has chosen the modality "disagree" or "strongly disagree" with this statement. The omitted category is rankstab _collstab.

Table 7.c General mobility versus comparisons to parents

Regressions of Life Satisfaction

	-1	-2
	OLS	**Logit**
Rankdown_parentsup	-0.191**	-0.080
	[0.082]	[0.186]
Rankdown_parentsdown	-0.827***	-1.332***
	[0.087]	[0.208]
Rankup_parentsup	0.416***	1.080***
	[0.086]	[0.201]
Rankup_parentsdown	-0.387***	-0.444*
	[0.116]	[0.267]
Observations	3514	3514
R-squared	0.306	

Controls: same as Table 1. Sub-sample of respondents aged over 40 and where respondent A=respondent B.
rankup: rank in 2006> rank in 1989. rankdow: rank in 2006< rank in 1989
parentsup: dummy for the modalities "agree" and "strongly agree" with the statement " I have done better in life than my parents". Symmetrically, parentsdown indicates that the respondent has chosen the modality "disagree" or "strongly disagree" with this statement. The omitted category is rankstab _parentstab.

4.3.3. Comparing different reference groups

Amongst those local comparisons, which are the most important determinants of subjective well-being? Which reference groups are the most important: colleagues, parents or schoolmates?

The comparison between colleagues and schoolmates, and even parents (collup_matesdown, colldown_matesup, collup_parentsdown) does not produce clear-cut results. Going down in one dimension always seems to dominate the interaction, which is always associated with a significantly negative coefficient (Tables 8.a to 8.c).

Table 8.a Dynamic comparisons: colleagues versus schoolmates

Regressions of Life Satisfaction

	-1	-2
	OLS	**Logit**
Colldown_matesup	-0.355***	-0.327
	[0.089]	[0.209]
Colldown_matesdown	-0.680***	-1.028***
	[0.052]	[0.134]
Collup_matesup	0.392***	1.112***
	[0.047]	[0.111]
Collup_matesdown	-0.383***	-0.640**
	[0.100]	[0.251]
Observations	3514	3514
R-squared	0.302	

Controls: same as Table 1. Sub-sample of respondents aged over 40 and where respondent A=respondent B.
matesup: dummy for the modalities "agree" and "strongly agree" with the statement "I have done better in life than most of my high school mates". collup: dummy for the modalities "agree" and "strongly agree" with the statement "I have done better in life than most of my colleagues I had around 1989"». Symmetrically, matesdown, colldown are dummies that indicate that the respondent has chosen the modality "disagree" or "strongly disagree" with these statements. The omitted category is collstab_matestab.

Table 8.b Dynamic comparisons: parents versus schoolmates

Regressions of Life Satisfaction

	-1	-2
	OLS	**Logit**
Matesdown_parentsup	-0.184**	0.244
	[0.074]	[0.176]
Matesdown_parentsdown	-0.790***	-1.205***
	[0.072]	[0.205]
Matesup_parentsup	0.495***	1.502***
	[0.062]	[0.149]
Matesup_parentsdown	-0.149*	0.257
	[0.085]	[0.201]
Observations	3514	3514
R-squared	0.313	

Controls: same as Table 1. Sub-sample of respondents aged over 40 and where respondent A=respondent B.
matesup: dummy for the modalities "agree" and "strongly agree" with the statement "I have done better in life than most of my high school mates". parentsup: dummy for the modalities "agree" and "strongly agree" with the statement " I have done better in life than my parents". Symmetrically, matesdown and parentsdown are dummies that indicate that the respondent has chosen the modality "disagree" or "strongly disagree" with these statements. The omitted category is matestab_parentstab.

Table 8.c Dynamic comparisons: colleagues versus parents

Regressions of Life Satisfaction

	-1	-2
	OLS	**Logit**
Colldown_parentsup	-0.288***	-0.037
	[0.073]	[0.171]
Colldown_parentsdown	-0.807***	-1.139***
	[0.070]	[0.191]
Collup_parentsup	0.449***	1.320***
	[0.061]	[0.145]
Collup_parentsdown	-0.239***	-0.110
	[0.086]	[0.205]
Observations	3514	3514
R-squared	0.313	

Controls: same as Table 1. Sub-sample of respondents aged over 40 and where respondent A=respondent B. collup: dummy for the modalities "agree" and "strongly agree" with the statement "I have done better in life than most of my colleagues I had around 1989"». parentsup: dummy for the modalities "agree" and "strongly agree" with the statement " I have done better in life than my parents". Symmetrically, colldown and parentsdown are dummies that indicate that the respondent has chosen the modality "disagree" or "strongly disagree" with these statements. The omitted category is collstab_parentstab.

Hence, the subjective change in one's position on a subjective economic ladder seems to be a much weaker determinant of life satisfaction than the relative change in one's position as compared to more precise categories of persons (colleagues, classmates). For a given subjective rank declared by the respondent, having done worse or better than her former schoolmates or colleagues has the power to significantly influence her life satisfaction. But for a given comparison to my former classmates or colleagues, ranking high or low does not have such a strong explanatory power (it does not suffice to change the coefficient on the interaction variable). Comparing this result with the impact of own dynamics (livup and livdown) conforts the idea that internal benchmarks constitute a more important determinant of life satisfaction than external benchmarks. Indeed, rankup, rankdown and rankstab are dominated by livup, livdown and livstab to a much greater extend than was the case with variables such as collup, matesup, etc.

Another important lesson of these interactions is the asymmetry of effects: moving up in the economic subjective ladder is always clearly dominated by a negative evolution as compared to some reference group (the coefficient on rankup_colldown, rankup_matesdown and rankup_parentsdown is significantly negative) whereas the effect of the interaction between

rankdown and another variable is not so clear-cut.

5. General conclusions

The main lesson that can be drawn from this survey is that internal dynamic benchmarks are the most powerful. The analysis also provides pervasive evidence of loss aversion. Unfavourable comparisons are always more powerful than positive ones. Hence, what seems to matter most for people is not so much inequality or comparisons to external reference groups as internal benchmarks. This does not mean that external benchmarks are not important; local external benchmarks prove to be more important than general comparisons such as self-ranking on the social ladder.

A related question is whether local comparisons and social inequality are more or less influent depending on the integration of the considered countries into the world market. One could expect, for instance, that citizens of the former socialist countries, now members of the European Union are more integrated into the rest of the world, hence less sensitive to local comparisons. However, Tables A9.a to A.9.b in the Annex show that there is no difference in the impact of comparisons between citizens of the European Union and citizens of the CEI.

These results can be interpreted as the effect the lost or seized opportunities. What is painful is to have done worse than people who were like you at some point. This is much more important than moving along the general economic ladder. People suffer less from going down in the social hierarchy if all their former peers share the same fate. But they hate under-performing their former companions. This may be because reference groups represent some virtual, potential achievement. In summary, the findings of this paper support the idea that comparisons matters not so much because of relative deprivation but rather because people care about having seized their opportunities.

What do we learn in terms of general policy recommendation? What matters most to people is the impression to have progressed and not to have under-performed their peers. Hence, giving people the opportunity to progress and achieve their projects could be more welfare improving than equalizing outcomes or narrowing the income ladder.

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Annex

Table A1. Proportion of "don't know" answers to comparison questions

Variable	Obs	Mean	Std. Dev.
Class-mates	16495	0,16	0,37
Colleagues	16495	0,13	0,34
Parents	16495	0,04	0,20
Live better than89	16495	0,02	0,15
Satlife	16495	0,02	0,13
Economic rank	16495	0,01	0,10
Economic rank89	16495	0,02	0,14

All respondents aged over 40 years old. Weighted statistics

Table A2. Proportion of "don't' know" answers by country

	Class-mates	Colleagues	Parents	Live better than in 89	Life Satisf.	Econ rank	Econ rank89
Albania	0,09	0,10	0,01	0,00	0,00	0,00	0,01
Armenia	0,21	0,17	0,14	0,06	0,03	0,02	0,02
Azerbaijan	0,24	0,14	0,06	0,01	0,01	0,00	0,01
Belarus	0,19	0,20	0,03	0,04	0,01	0,05	0,07
Bosnia	0,08	0,08	0,04	0,01	0,01	0,00	0,00
Bulgaria	0,11	0,11	0,04	0,02	0,02	0,00	0,01
Croatia	0,05	0,06	0,02	0,01	0,01	0,01	0,01
Czechrep	0,13	0,13	0,03	0,02	0,01	0,02	0,03
Estonia	0,12	0,07	0,01	0,01	0,00	0,01	0,01
Fyrom	0,09	0,11	0,05	0,03	0,03	0,02	0,02
Georgia	0,17	0,13	0,04	0,01	0,00	0,01	0,00
Hungary	0,14	0,14	0,02	0,01	0,00	0,00	0,00
Kazakhstan	0,18	0,10	0,02	0,01	0,01	0,01	0,01
Kyrgyzstan	0,18	0,16	0,03	0,02	0,01	0,02	0,02
Latvia	0,09	0,06	0,01	0,01	0,01	0,00	0,01
Lithuania	0,04	0,03	0,00	0,00	0,00	0,00	0,00
Moldova	0,14	0,14	0,06	0,03	0,03	0,01	0,01
Mongolia	0,19	0,13	0,07	0,02	0,01	0,01	0,00
Montenegro	0,14	0,16	0,08	0,06	0,04	0,00	0,00
Poland	0,18	0,15	0,01	0,01	0,01	0,01	0,03
Romania	0,08	0,11	0,04	0,01	0,02	0,00	0,01
Russia	0,22	0,15	0,05	0,04	0,03	0,01	0,03
Serbia	0,06	0,07	0,03	0,03	0,01	0,00	0,01
Slovakrep	0,22	0,19	0,02	0,01	0,01	0,02	0,01
Slovenia	0,28	0,25	0,05	0,03	0,02	0,04	0,05
Tajikistan	0,13	0,10	0,07	0,04	0,02	0,03	0,04
Turkey	0,11	0,14	0,07	0,02	0,01	0,00	0,01
Ukraine	0,09	0,07	0,02	0,01	0,01	0,00	0,02
Uzbekistan	0,08	0,05	0,04	0,01	0,01	0,01	0,02

All respondents aged over 40 years old. Weighted statistics

Table A3. Age and proportion of don't know answers by socio-economic categories

	Class-mates	Colleagues	Parents	Live better	Life Satisf.	Econ rank	Econ rank89
Age							
40-50	0,11	0,10	0,04	0,02	0,01	0,01	0,02
51-60	0,12	0,10	0,03	0,01	0,01	0,01	0,01
over60	0,17	0,15	0,05	0,02	0,01	0,01	0,01
Poor	0,17	0,15	0,05	0,02	0,02	0,01	0,02
Middle	0,13	0,11	0,03	0,02	0,01	0,01	0,02
Female	0,15	0,13	0,04	0,02	0,01	0,01	0,02
Male	0,12	0,11	0,04	0,02	0,01	0,01	0,02
wage_emp	0,11	0,09	0,03	0,02	0,01	0,01	0,02
self_emp	0,11	0,11	0,03	0,02	0,01	0,00	0,01
indep_farmer	0,12	0,14	0,05	0,02	0,02	0,04	0,04
Highest education Degree obtained (1-6)							
No_degree_ed	0,17	0,17	0,10	0,05	0,03	0,01	0,01
Compulsory_ed	0,15	0,14	0,04	0,02	0,01	0,01	0,01
Secondary_ed	0,15	0,14	0,04	0,02	0,01	0,01	0,02
Professional_vocational	0,13	0,11	0,03	0,02	0,01	0,01	0,02
High_prof_degree	0,11	0,09	0,03	0,02	0,01	0,01	0,01
Post_grad	0,05	0,06	0,04	0,01	0,00	0,00	0,01
Ever been member of the Communist party?							
No	0,14	0,12	0,04	0,02	0,01	0,01	0,01
Yes	0,12	0,11	0,03	0,01	0,01	0,01	0,01

All respondents aged over 40 years old. Weighted statistics

Table A.4 The Explanatory Power of Comparison Questions

Ordered Probit estimates of Life Satisfaction

	-1	-2	-3	-4	-5	-6	-7	-8
Log expend.	0.194***	0.223***	0.211***	0.202***	0.247***	0.162***	0.230***	0.179***
	[0.033]	[0.033]	[0.033]	[0.033]	[0.033]	[0.033]	[0.033]	[0.033]
econrk	0.219***							
	[0.012]							
econrk89		-0.083***						
		[0.009]						
livup								0.604***
								[0.051]
livdown								-0.684***
								[0.049]
collup							0.300***	
							[0.042]	
colldown							-0.632***	
							[0.047]	
parentsup						0.366***		
						[0.047]		
parentsdown						-0.471***		
						[0.056]		
matesup					0.363***			
					[0.043]			
matesdown					-0.593***			
					[0.048]			
rankup				0.188***				
				[0.056]				
rankdown				-0.574***				
				[0.047]				
highrank			0.156***					
			[0.052]					
lowrank			-0.526***					
			[0.044]					
Observations	3490	3444	3514	3514	3514	3514	3514	3514

Controls and notes: same as Table 1.a.

Table A 5. Life satisfaction and subjective comparisons, by quantiles of real household consumption

OLS estimates of life Satisfaction

	-1	-2	-3	-4	-5	-6	-7	-8	-9	-10	-11	-12
	poor	**middle**	**rich**	**poor**	**middle**	**rich**	**poor**	**middle**	**rich**	**poor**	**middle**	**rich**
Log	0,154***	0,218***	0,100**	0,248***	0,257***	0,157***	0,186***	0,228***	0,131***	0,193***	0,250***	0,121***
expenditure	[0,055]	[0,054]	[0,047]	[0,058]	[0,056]	[0,048]	[0,056]	[0,054]	[0,046]	[0,055]	[0,054]	[0,047]
Econrk	0,230***	0,200***	0,210***									
	[0,023]	[0,020]	[0,017]									
Econrk_89				-0,062***	-0,098***	-0,088***						
				[0,021]	[0,014]	[0,013]						
Rank_up							0,224*	0,179**	0,098			
							[0,132]	[0,090]	[0,080]			
Rank_down							-0,606***	-0,541***	-0,614***			
							[0,107]	[0,074]	[0,071]			
High_rank										0,720***	0,518***	0,605***
										[0,084]	[0,060]	[0,057]
Observations	761	1224	1505	752	1202	1490	767	1231	1516	767	1231	1516
R-squared	0,207	0,138	0,148	0,105	0,096	0,091	0,178	0,143	0,148	0,178	0,116	0,129

Controls and notes: same as Table 1.a

.

Table A 5 continued. Life satisfaction and subjective comparisons by quantiles of real household consumption

OLS estimates of life Satisfaction

	-13	-14	-15	-16	-17	-18	-19	-20	-21	-22	-23	-24
	poor	**middle**	**rich**	**poor**	**middle**	**rich**	**poor**	**middle**	**rich**	**poor**	**middle**	**rich**
Log expenditure	0,203***	0,250***	0,170***	0,185***	0,207***	0,071	0,206***	0,241***	0,141***	0,154***	0,211***	0,098**
	[0,054]	[0,052]	[0,046]	[0,054]	[0,055]	[0,046]	[0,054]	[0,053]	[0,046]	[0,049]	[0,050]	[0,043]
Mates_up	0,347***	0,360***	0,256***									
	[0,099]	[0,068]	[0,062]									
Mates_down	-0,617***	-0,588***	-0,652***									
	[0,100]	[0,074]	[0,076]									
Liv_up										0,604***	0,504***	0,465***
										[0,104]	[0,075]	[0,068]
Liv_down										-0,775***	-0,588***	-0,705***
										[0,093]	[0,073]	[0,069]
Coll_up							0,308***	0,133**	0,309***			
							[0,097]	[0,068]	[0,061]			
Coll_down							-0,724***	-0,714***	-0,583***			
							[0,096]	[0,074]	[0,073]			
Parents_up				0,533***	0,273***	0,301***						
				[0,104]	[0,077]	[0,071]						
Parents_down				-0,413***	-0,400***	-0,641***						
				[0,115]	[0,091]	[0,085]						
Observations	767	1231	1516	767	1231	1516	767	1231	1516	767	1231	1516
R-squared	0,208	0,177	0,152	0,21	0,121	0,167	0,224	0,163	0,15	0,342	0,253	0,269

Controls and notes: same as Table 1.a.

Table A.6. Descriptive statistics

Variable	*Obs*	*Mean*	*Std. Dev.*	*Min*	*Max*
satlife	11979	2,94	1,16	1	5
econrk	12049	3,94	1,79	1	10
econrk89	11916	5,54	2,14	1	10
highrank	12186	0,17	0,38	0	1
lowrank	12186	0,60	0,49	0	1
averank	12186	0,23	0,42	0	1
rankup	12186	0,18	0,39	0	1
rankdown	12186	0,63	0,48	0	1
rankstab	12186	0,19	0,39	0	1
livup	12186	0,30	0,46	0	1
livdown	12186	0,50	0,50	0	1
livstab	12186	0,20	0,40	0	1
matesup	12186	0,43	0,50	0	1
matesdown	12186	0,27	0,44	0	1
matestab	12186	0,30	0,46	0	1
parentsup	12186	0,54	0,50	0	1
parentsdown	12186	0,25	0,44	0	1
parentstab	12186	0,20	0,40	0	1
collup	12186	0,39	0,49	0	1
colldown	12186	0,29	0,45	0	1
collstab	12186	0,32	0,47	0	1

Table A.6 Continued

Variable	*Obs*	*Mean*	*Std. Dev.*	*Min*	*Max*	*freq*
Livup_rankup	12186	0,12	0,33	0	1	1495
Livup_rankdown	12186	0,10	0,30	0	1	1248
Livdown_rankup	12186	0,03	0,17	0	1	356
Livdown_rankdown	12186	0,42	0,49	0	1	5143
Livup_rankstab	12186	0,07	0,26	0	1	863
Livdown_ranstab	12186	0,05	0,22	0	1	637
Livstab_rankup	12186	0,03	0,17	0	1	371
Livstab_rankdown	12186	0,10	0,30	0	1	1237
Livstab_rankstab	12186	0,07	0,25	0	1	835
Livup_matesup	12186	0,17	0,38	0	1	2122
Livup_matesdown	12186	0,04	0,20	0	1	486
Livdown_matup	12186	0,18	0,38	0	1	2147
Livdown_matdown	12186	0,19	0,39	0	1	2338
Livup_matestab	12186	0,08	0,27	0	1	998
Livdown_matestab	12186	0,14	0,34	0	1	1651
Livstab_matupp	12186	0,08	0,27	0	1	998
Livstab_matdown	12186	0,04	0,19	0	1	476
Livstab_matestb	12186	0,08	0,27	0	1	969
Livup_collup	12186	0,17	0,37	0	1	2031
Livup_colldown	12186	0,04	0,20	0	1	486
Livdown_collup	12186	0,15	0,36	0	1	1825
Livdown_coldown	12186	0,21	0,41	0	1	2538
Livstab_collup	12186	0,08	0,26	0	1	915
Livstab_colldown	12186	0,04	0,19	0	1	470
Livup_collstab	12186	0,09	0,29	0	1	1089
Livdown_collstab	12186	0,15	0,35	0	1	1773
Livstab_collstab	12186	0,09	0,28	0	1	1059
Livup_parentsup	12186	0,22	0,42	0	1	2727
Livup_parentsdown	12186	0,03	0,17	0	1	374
Livdown_parentsup	12186	0,21	0,41	0	1	2552
Livdown_parentsdown	12186	0,19	0,39	0	1	2353
Livstab_parentsup	12186	0,11	0,31	0	1	1316
Livstab_parentsdown	12186	0,03	0,17	0	1	377
Livup_parentstab	12186	0,04	0,20	0	1	506
Livdown_parentstab	12186	0,10	0,30	0	1	1231
Livstab_parentstab	12186	0,06	0,24	0	1	751
Rankup_matesup	12186	0,10	0,30	0	1	1203
Rankup_matesdown	12186	0,03	0,18	0	1	392
Rankdown_matesup	12186	0,24	0,43	0	1	2970
Rankdown_matesdown	12186	0,20	0,40	0	1	2405
Rankup_matestab	12186	0,05	0,22	0	1	627
Rankdown_matestab	12186	0,18	0,39	0	1	2254
Rankstab_matestab	12186	0,09	0,29	0	1	1095
Rankstab_matesdown	12186	0,04	0,20	0	1	504
Rankstab_matestab	12186	0,06	0,24	0	1	736

Table A.6 Continued

Variable	*Obs*	*Mean*	*Std. Dev.*	*Min*	*Max*	*Freq*
Rankup_collup	12186	0,09	0,29	0	1	1132
Rankup_colldown	12186	0,03	0,17	0	1	369
Rankdown_collup	12186	0,21	0,41	0	1	2616
Rankdown_colldown	12186	0,21	0,41	0	1	2597
Rankup_collstab	12186	0,06	0,24	0	1	721
Rankdown_collstab	12186	0,20	0,40	0	1	2415
Rankstab_collup	12186	0,08	0,28	0	1	1023
Rankstab_colldown	12186	0,04	0,20	0	1	528
Rankstab_collstab	12186	0,06	0,25	0	1	784
Rankup_parentsup	12186	0,12	0,33	0	1	1510
Rankup_parentsdown	12186	0,03	0,16	0	1	336
Rankdown_parentsup	12186	0,31	0,46	0	1	3725
Rankdown_parentsdown	12186	0,19	0,39	0	1	2327
Rankup_parentstab	12186	0,03	0,17	0	1	376
Rankdown_parentstab	12186	0,13	0,34	0	1	1576
Rankstab_parentsup	12186	0,11	0,31	0	1	1360
Rankstab_parentsdown	12186	0,04	0,19	0	1	440
Rankstab_parentstab	12186	0,04	0,21	0	1	536
Collup_parentsdown	12186	0,06	0,23	0	1	714
Collup_parentsup	12186	0,27	0,44	0	1	3311
Colldown_parentsup	12186	0,10	0,29	0	1	1162
Colldown_parentsdown	12186	0,14	0,35	0	1	1717
Collstab_parentsup	12186	0,17	0,38	0	1	2122
Collstab_parentsdown	12186	0,06	0,23	0	1	672
Collup_parerentstab	12186	0,06	0,24	0	1	746
Colldown_parentstab	12186	0,05	0,22	0	1	615
Collstab_parentstab	12186	0,09	0,29	0	1	1127
Collup_matesup	12186	0,30	0,46	0	1	3713
Collup_matesdown	12186	0,03	0,17	0	1	376
Colldown_matesup	12186	0,05	0,21	0	1	572
Colldown_matesdown	12186	0,20	0,40	0	1	2451
Collstab_matesup	12186	0,08	0,27	0	1	982
Collstab_matesdown	12186	0,04	0,19	0	1	474
Collup_matestab	12186	0,06	0,23	0	1	682
Colldown_matestab	12186	0,04	0,19	0	1	471
Collstab_matestab	12186	0,20	0,40	0	1	2465
Matesup_parentesup	12186	0,30	0,46	0	1	3606
Matesup_parentsdown	12186	0,07	0,26	0	1	875
Matesdown_parentsup	12186	0,09	0,28	0	1	1079
Matesdown_parentsdown	12186	0,13	0,34	0	1	1603
Matestab_parentsup	12186	0,16	0,36	0	1	1910
Matestab_parensdown	12186	0,05	0,22	0	1	625
Matesup_parentstab	12186	0,06	0,25	0	1	787
Matesdown_parentstab	12186	0,05	0,22	0	1	618
Matestab_parenstab	12186	0,09	0,28	0	1	1082

Table A.6 Continued. Descriptive Statistics

Variable	*Obs*	*Mean*	*Std. Dev.*	*Min*	*Max*	*Freq*
Lowrank_matesup	12186	0,22	0,42	0	1	2729
Lowrank_matesdown	12186	0,20	0,40	0	1	2448
Highrank_matesup	12186	0,10	0,30	0	1	1195
Highrank_matesdown	12186	0,03	0,16	0	1	325
Highrank_matestab	12186	0,05	0,22	0	1	609
Lowrank_matestab	12186	0,17	0,38	0	1	2106
Averank_matesup	12186	0,11	0,31	0	1	1344
Averank_matesdown	12186	0,04	0,20	0	1	528
Averank_matestab	12186	0,07	0,26	0	1	902
Lowrank_parentsup	12186	0,29	0,45	0	1	3476
Lowrank_parentsdown	12186	0,18	0,39	0	1	2254
Highrank_parentsup	12186	0,11	0,32	0	1	1397
Highrank_parentsdown	12186	0,03	0,17	0	1	343
Highrank_parentstab	12186	0,03	0,18	0	1	388
Lowrank_parentstab	12186	0,13	0,33	0	1	1554
Averank_parentsup	12186	0,14	0,35	0	1	1722
Averank_parentsdown	12186	0,04	0,20	0	1	506
Averank_parentsab	12186	0,04	0,21	0	1	545
Lowrank_collup	12186	0,20	0,40	0	1	2449
Lowrank_colldown	12186	0,21	0,41	0	1	2572
Highrank_collup	12186	0,09	0,29	0	1	1109
Highrank_colldown	12186	0,03	0,16	0	1	341
Highrank_collstab	12186	0,06	0,23	0	1	679
Lowrank_collstab	12186	0,19	0,39	0	1	2263
Averank_collup	12186	0,10	0,30	0	1	1214
Averank_colldown	12186	0,05	0,21	0	1	582
Averank_collstab	12186	0,08	0,27	0	1	978
Lowrank_livup	12186	0,12	0,33	0	1	1496
Lowrank_livdown	12186	0,37	0,48	0	1	4457
Highrank_livup	12186	0,09	0,28	0	1	1058
Highrank_livdown	12186	0,05	0,22	0	1	617
Highrank_livstab	12186	0,04	0,19	0	1	454
Lowrank_livstab	12186	0,11	0,31	0	1	1330
Averank_livup	12186	0,09	0,28	0	1	1053
Averank_livdown	12186	0,09	0,28	0	1	1061
Averank_livstab	12186	0,05	0,23	0	1	660

Table A.7. Descriptive statistics by country

	Number observations	Mean per capita expenditure	Sd per capita expenditure
Albania	420	2478	1834
Armenia	375	1402	1357
Azerbaijan	307	953	732
Belarus	440	1777	1532
Bosnia	418	2390	2027
Bulgaria	600	1725	1297
Croatia	567	4693	3338
Czechrep	529	4074	2465
Estonia	567	3377	2504
Fyrom	395	2220	1594
Georgia	488	1108	862
Hungary	614	3080	2585
Kazakhstan	420	1801	1323
Kyrgyzstan	349	996	803
Latvia	569	3127	2566
Lithuania	544	2782	2309
Moldova	501	1027	980
Mongolia	269	1024	918
Montenegro	401	3720	2754
Poland	455	3186	2116
Romania	474	1993	1716
Russia	489	2451	2083
Serbia	430	2557	2055
Slovakrep	480	3003	1731
Slovenia	485	5936	3894
Tajikistan	308	774	504
Turkey	319	3028	2503
Ukraine	471	2112	2702
Uuzbekistan	322	720	459

Table A.8. Proportion of respondents in each category, by country

	satlife	econrk	econrk89	livup	livdown	livstab	rankup	rankdown	rankstab	matesup	matesdown	matestab
Albania	3,23	4,39	4,08	0,71	0,12	0,17	0,46	0,27	0,26	0,50	0,19	0,31
Armenia	2,32	3,83	5,93	0,25	0,62	0,13	0,22	0,70	0,08	0,60	0,24	0,16
Azerbaijan	2,41	2,83	5,36	0,21	0,56	0,23	0,13	0,80	0,07	0,46	0,31	0,23
Belarus	3,49	4,70	5,01	0,46	0,23	0,31	0,37	0,40	0,22	0,64	0,12	0,25
Bosnia	2,50	3,88	6,55	0,13	0,68	0,19	0,11	0,78	0,11	0,35	0,33	0,32
Bulgaria	2,56	3,79	5,72	0,23	0,56	0,21	0,16	0,71	0,13	0,37	0,31	0,32
Croatia	3,15	4,01	5,78	0,23	0,57	0,19	0,12	0,67	0,21	0,40	0,25	0,35
Czechrep	3,29	4,43	5,22	0,38	0,38	0,25	0,26	0,45	0,29	0,34	0,31	0,35
Estonia	3,40	3,81	5,12	0,43	0,33	0,24	0,20	0,57	0,22	0,39	0,20	0,41
Fyrom	2,48	3,81	6,27	0,21	0,56	0,23	0,12	0,77	0,11	0,34	0,25	0,41
Georgia	2,29	3,33	6,40	0,17	0,67	0,15	0,07	0,85	0,08	0,34	0,43	0,23
Hungary	2,47	4,07	5,49	0,14	0,68	0,17	0,12	0,66	0,22	0,38	0,43	0,19
Kazakhstan	3,18	4,09	5,11	0,35	0,45	0,20	0,27	0,57	0,16	0,49	0,21	0,31
Kyrgyzstan	3,26	4,61	5,88	0,31	0,55	0,15	0,21	0,57	0,21	0,53	0,28	0,19
Latvia	3,07	3,64	5,44	0,29	0,56	0,15	0,17	0,65	0,18	0,45	0,26	0,29
Lithuania	3,17	3,63	5,11	0,40	0,44	0,16	0,16	0,61	0,23	0,30	0,35	0,35
Moldova	2,59	4,18	5,73	0,24	0,54	0,23	0,17	0,58	0,24	0,38	0,30	0,32
Mongolia	3,01	3,97	5,35	0,35	0,40	0,25	0,13	0,60	0,27	0,37	0,27	0,36
Montenegro	2,60	3,52	6,13	0,21	0,67	0,12	0,07	0,78	0,15	0,38	0,28	0,34
Poland	3,17	3,93	5,38	0,33	0,45	0,22	0,17	0,61	0,22	0,34	0,36	0,30
Romania	2,66	4,17	5,45	0,27	0,48	0,25	0,17	0,58	0,25	0,47	0,15	0,38
Russia	2,91	3,50	5,24	0,27	0,53	0,20	0,18	0,70	0,12	0,47	0,27	0,26
Serbia	2,41	3,63	6,10	0,18	0,70	0,12	0,10	0,78	0,12	0,44	0,27	0,28
Slovakrep	3,28	4,00	5,37	0,28	0,40	0,32	0,19	0,57	0,25	0,41	0,25	0,34
Slovenia	3,70	4,88	5,44	0,40	0,30	0,30	0,23	0,41	0,36	0,55	0,17	0,28
Tajikistan	3,49	4,34	6,41	0,34	0,46	0,19	0,20	0,67	0,13	0,52	0,24	0,24
Turkey	3,02	3,70	4,46	0,39	0,44	0,17	0,23	0,49	0,28	0,76	0,12	0,12
Ukraine	2,70	3,38	5,40	0,19	0,68	0,12	0,16	0,69	0,14	0,33	0,37	0,30
Uuzbekistan	3,42	4,17	6,17	0,31	0,52	0,17	0,15	0,69	0,16	0,50	0,19	0,32

Table A.8 continued. Proportion of respondents in each category

	parentsup	parentsdown	parentstab	highrank	lowrank	averank	collup	colldown	collstab
Albania	0,78	0,08	0,14	0,22	0,47	0,31	0,41	0,24	0,35
Armenia	0,41	0,43	0,16	0,13	0,61	0,26	0,48	0,37	0,15
Azerbaijan	0,27	0,42	0,31	0,03	0,85	0,13	0,44	0,30	0,26
Belarus	0,70	0,12	0,18	0,33	0,45	0,22	0,58	0,14	0,28
Bosnia	0,43	0,31	0,25	0,18	0,58	0,24	0,31	0,34	0,36
Bulgaria	0,53	0,26	0,21	0,20	0,68	0,12	0,39	0,32	0,29
Croatia	0,61	0,20	0,19	0,16	0,54	0,31	0,35	0,27	0,38
Czechrep	0,58	0,19	0,23	0,27	0,53	0,21	0,32	0,29	0,39
Estonia	0,65	0,16	0,19	0,08	0,65	0,27	0,39	0,23	0,38
Fyrom	0,49	0,30	0,21	0,15	0,59	0,26	0,32	0,25	0,44
Georgia	0,34	0,44	0,22	0,12	0,73	0,15	0,34	0,39	0,26
Hungary	0,44	0,33	0,23	0,21	0,58	0,21	0,32	0,44	0,24
Kazakhstan	0,59	0,22	0,19	0,19	0,56	0,25	0,40	0,25	0,36
Kyrgyzstan	0,44	0,39	0,17	0,31	0,43	0,26	0,51	0,27	0,22
Latvia	0,61	0,22	0,16	0,07	0,71	0,22	0,41	0,29	0,30
Lithuania	0,66	0,17	0,17	0,08	0,69	0,23	0,26	0,35	0,39
Moldova	0,44	0,27	0,28	0,25	0,52	0,22	0,39	0,26	0,35
Mongolia	0,32	0,40	0,28	0,12	0,62	0,26	0,35	0,28	0,37
Montenegro	0,47	0,31	0,22	0,10	0,68	0,23	0,39	0,29	0,32
Poland	0,50	0,27	0,23	0,20	0,65	0,15	0,30	0,38	0,33
Romania	0,63	0,13	0,24	0,20	0,54	0,25	0,45	0,17	0,38
Russia	0,59	0,22	0,19	0,14	0,74	0,12	0,38	0,29	0,34
Serbia	0,55	0,28	0,17	0,12	0,65	0,22	0,41	0,26	0,33
Slovakrep	0,70	0,14	0,15	0,19	0,56	0,25	0,36	0,25	0,40
Slovenia	0,68	0,12	0,20	0,34	0,33	0,34	0,49	0,19	0,32
Tajikistan	0,53	0,29	0,18	0,23	0,48	0,30	0,52	0,28	0,20
Turkey	0,45	0,33	0,22	0,18	0,66	0,15	0,57	0,20	0,22
Ukraine	0,53	0,26	0,21	0,12	0,75	0,13	0,29	0,39	0,32
Uuzbekistan	0,44	0,38	0,18	0,14	0,46	0,40	0,46	0,24	0,31

Table A.9.a Personal dynamics and static social ranking

OLS Regressions of Life Satisfaction by region

	-1 **All**	-2 **CIS**	-3 **EU**
Livdown_highrank	-0,428***	-0,607***	-0,409***
	[0,087]	[0,153]	[0,129]
Livdown_lowrank	-0,901***	-0,971***	-0,802***
	[0,068]	[0,112]	[0,099]
Livup_highrank	0,533***	0,338***	0,659***
	[0,075]	[0,128]	[0,107]
Livup_lowrank	0,116	0,028	0,190*
	[0,074]	[0,128]	[0,104]
Observations	3514	1262	1642
R-squared	0,378	0,368	0,378

Controls and notes : as in Table 1.a

Table A.9.b Personal dynamics and dynamic social ranking

OLS Regressions of Life Satisfaction by region

	-1 **All**	-2 **CIS**	-3 **EU**
Livup_rankdown	0,209***	0,213*	0,189*
	[0,073]	[0,129]	[0,099]
Livup_rankup	0,431***	0,477***	0,357***
	[0,070]	[0,124]	[0,091]
Livdown_rankdown	-0,786***	-0,712***	-0,823***
	[0,064]	[0,111]	[0,087]
Livdown_rankup	-0,557***	-0,704***	-0,480***
	[0,105]	[0,170]	[0,152]
Observations	3514	1262	1642
R-squared	0,361	0,345	0,363

Controls and notes : as in Table 1.a

Table A.9.c Personal dynamics and comparison to former schoolmates

OLS Regressions of Life Satisfaction by region

	-1 **All**	-2 **CIS**	-3 **EU**
Livup_matesdown	0,073	-0,087	0,145
	[0,082]	[0,156]	[0,109]
Livup_matesup	0,686***	0,657***	0,635***
	[0,062]	[0,108]	[0,086]
Livdown_matesdown	-0,925***	-0,902***	-0,968***
	[0,064]	[0,110]	[0,092]
Livdown_matesupp	-0,331***	-0,370***	-0,290***
	[0,066]	[0,113]	[0,094]
Observations	3514	1262	1642
R-squared	0,397	0,382	0,403

Controls and notes : as in Table 1.a