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(UN)HAPPINESS IN TRANSITION

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ABSTRACT

(Un)Happiness in Transition

Despite strong growth performance in transition economies in the last decade, residents of transition countries report abnormally low levels of life satisfaction. Using data from the World Values Survey and other sources, we study various explanations of this phenomenon. First, we document that the disparity in life satisfaction between residents of transition and non-transition countries is much larger among the elderly. Second, we find that deterioration in public goods provision, an increase in macroeconomic volatility, and a mismatch of human capital of residents educated before transition which disproportionately affected the aged population explain a great deal of the difference in life satisfaction between transition countries and other countries with similar income and other macroeconomic conditions. The rest of the gap is explained by the difference in the quality of the samples. As in other countries, life satisfaction in transition countries is strongly related to income; but, due to a higher non-response of high-income individuals in transition countries, the survey-data estimates of the recent increase in life satisfaction, driven by 10-year sustained economic growth in transition region, are biased downwards. The evidence suggests that if the region keeps growing at current rates, life satisfaction in transition countries will catch up with the "normal" level in the near future.

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Keywords: happiness, satisfaction, transition and unhappiness

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The transition from plan to market in post-communist countries is an economic transformation of remarkable scale. Starting around 1990s, countries of the former Soviet Union and of Central and Eastern Europe have removed central planning, liberalized prices and foreign trade, and introduced modern institutions of taxation, banking, customs, and independent central banking. In this time, the typical transition country privatized the majority of its industrial enterprises, overcome the initial output fall at the start of the transition, and embarked on a path of strong and sustained growth. Considering the challenge of large-scale institutional transformation, sustained economic growth since the mid or late 1990s in these countries suggests that economic transition has largely been a success. As shown in Figure 1, in Russia and other countries, formerly members of the Soviet Union, GDP has been growing at 7% per annum on average since 1999. The economies in the Central and Eastern Europe have been growing at 4% per year since the late 1990s; on average, per capita GDP in these countries exceeds pre-transition levels by 40%.

The economic benefits of transition can also be measured in other ways. Table 1 shows per capita household consumption expenditures and other consumption indicators for selected years from 1985 to 2004 in transition countries and, for comparison, in the US and in the middle-income countries which, on average, lag behind transition countries in terms of GDP per capita.¹ Household consumption per capita fell for transition economies by more than 10 percent between 1990 and 1995 and then started to grow in the mid-1990s, reaching pre-transition levels by 2000. By 2004, per capita consumption in transition economies was 34 percent above pre-transition levels. Despite the initial fall, the overall increase in consumption in 15 years of transition is not vastly different from the average consumption growth in middle-income countries that did not experienced a transition shock and started from a lower level. Per capita household consumption in middle-income countries grew by 44 percent from 1990 to 2004.

¹ The World Bank classifies countries as middle-income if their 2007 Gross National Income per capita ranges from \$936 to \$11,455. There are 95 middle income countries including 20 transition countries. Three transition countries are classified as low-income countries, and five are high-income countries.

The improvements in household consumption are even more evident in the data series for consumption of specific goods. For example, growth in residential housing per capita in the former Soviet Union region is uniformly positive across countries and stages of transition with the exception of the war-affected Tajikistan (there are no comparable data for this indicator for all transition countries). On average, housing per capita in the countries making up the Commonwealth of Independent states has grown from 172 square feet per capita in 1991 to 215 in 2006 (this is still much lower than the US figure, namely, 752 square feet per person, but already comparable to the Western Europe's range of 300-400 square feet per person).

During the transition, the number of cars per capita doubled from 110 per thousand people in 1990 to 223 per thousand people by 2006. By comparison, in middle-income countries as a whole, car ownership increased by only 46 percent over the same period. The numbers of telephone lines and personal computers also exhibited fast growth in transition economies during this time: from 125 telephone lines in 1990 to 264 by 2004, and from four computers per thousand people in 1990 to 110 by 2004. The rate of growth in these indicators for transition countries is similar or slower than that in middle-income countries, although middle-income countries as a group were starting at lower levels, so large percentage gains could come more easily.

The increase in real incomes and consumption should be viewed as a lower bound for the improvement in the quality of life of transition country residents: this measurement does not take into account the time and effort no longer wasted waiting in lines for rationed good, nor does it take into account the improvement in personal and political freedoms. Thus the benefits of transition should be greater than Table 1 suggests. However, many residents of transition economies believe that transition hasn't brought any gains at all. In a recent large-scale survey of 28,000 individuals in 28 transition countries carried out by the World Bank and the European Bank for Reconstruction and Development (EBRD, 2007), 49 percent of respondents disagreed with and only 35 percent agreed with the statement that the economic situation in their country today is better than it was around 1989.² Similarly, 44 percent disagreed with the statement that

² According to the Pew Research Center's Social and Demographic Trends survey (2008), in the recent decades, about 50% Americans agreed that they were better off now than five years ago and 15-25% said that they were worse off (year 2008 was an exception when only 41% felt better off and 31% felt worse off).

political situation in their country is better now than before transition had started, compared to 35 percent who agreed with this statement. These percentages vary across countries, but in many countries the vast majority of respondents expressed strong dissatisfaction with transition. For example, 75 percent of Hungarians, 70 percent of Ukrainians, 70 percent of Kyrgyz, 63 percent of Bulgarians, and 61 percent of Moldovans disagree that the economic situation in their country today is better than around 1989.³ Dissatisfaction with transition translates into low scores of what is, perhaps, the ultimate survey-based measure of utility – self-reported life satisfaction. In this paper, we survey the available evidence and analyze new data sources to document this widespread unhappiness in transition countries, and to consider the factors that might explain this phenomenon.

Are People in Transition Countries Unhappy?

The most comprehensive source of data on the life satisfaction around the world is World Values Survey, which asks representative samples of individuals in up to 84 countries about their attitudes and values. Among other questions, the World Value Survey questionnaire asks: “All things considered, how satisfied are you with your life as a whole these days?” Respondents can choose an answer from a scale of 1 (“Dissatisfied”) to 10 (“Satisfied”). According to these data, self-reported life satisfaction has fallen during transition and is below the levels of life satisfaction in other countries with similar per capita income.

The slope of the best-fit lines in Figure 2 illustrate the correlation between per capita GDP by country and the average country response to the World Values Survey question on life satisfaction in waves 3 and 4 of the Survey which took place in 1994-1999 and 1999-2003, respectively. The figure shows that transition economies are consistently below the best-fit line in both periods. A more complex calculation, which controls for the usual determinates of life satisfaction (see, for instance, Frey and Stutzer, 2002, Blanchflower and Oswald, 2004, Layard, 2005) does not alter this basic qualitative pattern. Table 2 presents detailed regression results at the level of individuals, which show that after adjusting for a variety of country-level and

³ Interestingly, in two countries that are among the least reformed in Europe – Belarus and Albania – the population is very positive about the recent history: 70 percent of Albanians and 68 percent of Belorussians agree that their respective countries are better off today than in 1989, compared to 17 percent of Albanians and 13.5 percent of Belorussians who disagree with this statement.

individual level variables, transition countries' residents express significantly lower degrees of life satisfaction.⁴ In each regression, the dependent variable is a measure of life satisfaction, measured for each individual respondent on a scale from 1-10, in the World Values Survey. All regressions in the table include standard controls: both country-level (inflation, inequality, unemployment, the level of democracy and media freedom) and individual-level (age, both linear and quadratic terms, gender, employment, marital status, and education level). The lists of countries included in the regressions vary according to data availability.

The key finding in Columns 1 and 2 of Table 2 is that life satisfaction in transition countries is 1.40 points below the predicted level in the wave 3 of the World Value Survey and 1.13 points below its predicted level in wave 4 of the survey (as shown by the coefficients on the dummy variable for whether the respondent comes from a transition economy). The difference in life satisfaction between transition and non-transition countries—which we will refer to as 'happiness gap'—is statistically significant at the 1 percent level and large in magnitude since life satisfaction is measured on a scale from 1 to 10, and a standard deviation of life satisfaction around the world is only about 2.5 points. To illustrate the size of the gap, consider the US where the difference between the 25th and 75th percentiles is only 2 points in every wave of the World Values Survey.

In Columns 3 and 4 of Table 2, we report regression results on all the waves of the World Values Survey pooled together, controlling for dummies for each wave of the survey. Coefficients on the interaction terms between transition country dummies and wave dummies estimate the average difference in life satisfaction between transition and non-transition countries for the respective wave of the World Values survey. They are negative and statistically significant.

Overall, the average difference between life satisfaction of residents in transition and non-transition countries is robust and large: about one half of standard deviation in life satisfaction. Deaton (2008) reports similar findings using the World Gallup Poll data for 2006.

⁴ The detailed description of all variables, their sources, and specifications mentioned in this paper are available in the technical (not-for-publication) appendix, which is available both as part of the on-line version of this paper at <http://www.e-jep.org> and also at http://www.cefir.ru/ezhuravskaya/research/Appendix_happiness.pdf. In this paper, we follow the happiness literature's tradition of assuming away the issue of reverse causality that may arise due to the effect of life satisfaction on income, employment, educational attainment, and health outcomes. While these effects may well be important in reality, they are usually neglected due to the data limitations. See Deaton (2007) for a discussion of some of these issues.

The “Happiness Gap” Increases with Age

The size of the gap in life satisfaction between residents of transition countries and non-transition countries increases sharply with age, as illustrated in Figure 3, which shows the non-parametric relationship between life satisfaction and age for transition countries and for non-transition countries that have a level of per capita GDP comparable to transition countries. The shape of the relationship between age and life satisfaction is strikingly different for transition and non-transition countries. In transition countries happiness decreases monotonically with age, whereas in other countries the relationship between age and life satisfaction is U-shaped. Deaton (2008) provides similar graphs for individual countries based on World Gallup Data for 2006. If one controls for individual determinants of life satisfaction, such as employment status and education, life satisfaction in transition countries also becomes U-shaped, but the minimum point of happiness is achieved in transition countries on average at a substantially older age than in non-transition countries: 60 vs. 40 years old (see Frey and Stutzer. 2002, Blanchflower and Oswald 2004, on relationship of happiness and age, and Graham et al. 2004, Sanfey and Teksoz 2007, on application to transition countries). The relationship between age and life satisfaction estimated on the full sample of the World Values Survey is as follows:

$$LS = -\underset{(.007)}{.056} Age + \underset{(.00008)}{.00065} Age^2 - \underset{(.010)}{.035} Age \times TC + \underset{(.00011)}{.00019} Age^2 \times TC + \beta' X + \varepsilon$$

where LS stands for the respondent's life satisfaction, Age is the respondent's age in years, TC is a dummy that equals one if the respondent resides in a transition country, and X denotes all standard control variables (as in Table 2). The coefficients on the interaction terms of age and age-squared with the transition country dummy estimate the difference between the effects of age in transition and non-transition countries. The coefficient on the interaction between the transition country dummy and the linear age term is large, negative and significant, whereas the coefficient on the interaction of transition country with the quadratic term is very small in magnitude (even though the quadratic term is positive, the gap between people in transition countries and non-transition countries increases with age for all ages below ninety two years old). This evidence supports the conclusion that happiness gap in transition economies increases with age.

Has Economic Growth Improved Happiness in Transition Economies?

Regressions presented in Columns 3-6 of Table 2 examine the relationship between life satisfaction and income in transition countries. Country-level income is measured by the log of

per capita GDP and the respondent's household income is measured in three different ways: by the *relative* income of the respondent's household (in columns 1-4)⁵, by the log of *absolute* nominal income of respondent's household (in column 5), and by the log of *absolute* nominal income of respondent's household per household member (in column 6). Country GDP per capita and household relative and absolute income significantly increase life satisfaction both in transition and non-transition countries, as one would expect based on the earlier survey by Frey and Stutzer (2002), the articles by Deaton (2008) and Stevenson and Wolfers (2008). Regressions presented in Columns 3-6 also include interaction terms between the transition country dummy and these measures of country-level and household-level income. The coefficients on these interaction terms show that the sensitivity of life satisfaction to a country's wealth and household relative and absolute income is significantly larger in transition countries than in non-transition countries. (In these interaction terms, we subtract sample mean from the income variables, and as a result, the coefficient on the transition country dummy estimates the full difference in life satisfaction between transition and non-transition countries evaluated at the mean of the respective income variable).

Column 4 shows that, on average, a move up by one step on a ten-step relative income ladder in nontransition countries increases life satisfaction by 0.13 points (as shown by the coefficient on the relative household income) and by an additional .07 in transition countries (as seen by the coefficient on transition country dummy in interaction with relative household income, which is significant at the 1 percent level) for a total of 0.20 points. This result is robust to including the full set of country dummies to the list of covariates.

Columns 5 and 6 show the effect of the *absolute* income level on life satisfaction. Since the income measures are nominal, to have comparability across countries we control for the full set of country dummies and limit the sample to wave 4 of the survey. The results are similar to the results for relative income. A 10 percent increase in the total absolute household income increases life satisfaction in non-transition countries by 0.041 points and in transition economies by 0.067 points (=0.041+0.026). A 10 percent increase in the absolute household income *per*

⁵ The *relative* income of the respondent's household is the answer to the following question: "On this card is a scale of incomes on which 1 indicates the "lowest income decile" and 10 the "highest income decile" in your country. We would like to know in what group your household is. Please, specify the appropriate number, counting all sources of income." It is discrete and ranges from 1 to 10.

household member increases life satisfaction in non-transition countries by 0.023 points and in transition economies by 0.044 points ($=0.023+0.021$).⁶

The fact that in transition economies life satisfaction is even more sensitive to changes in income than in other countries implies that, once the growth restarts, people in transition countries should start to feel better about their lives.⁷ Do we see in the data an increase of life satisfaction in transition countries following growth? We do – once we look carefully.

For example, columns 3 and 4 of Table 2 show that people in transition economies express lower life satisfaction than would be predicted by their individual characteristics and the characteristics of their countries in all three waves of the data used. However, the size of the gap between the actual and predicted life satisfaction varies across waves: the gap increases from wave 2 of the survey to wave 3, and then diminishes by wave 4. The change between the second and the third waves of the survey represents the situation in the midst of the initial output decline (1994-1999). Wave 4 took place during the recovery and growth – between 1999 and 2003, albeit mostly in the early years of this period. This was when many transition countries just started their recovery, yet this initial increase in income was enough to boost life satisfaction. The two panels of the Figure 2 illustrate this point as well: transition countries get closer to the best-fit line in wave 4 compared to wave 3 of the World Values Survey.

Has happiness in transition countries been improving since the fourth wave of the World Value Survey circa 2003? Until another round of the World Values Survey is published, we need to draw on other data sources to find out what has been happening.

In 2006, the European Bank for Reconstruction and Development and the World Bank conducted a survey of representative samples of individuals in 28 post-communist countries

⁶ The decrease in the number of observations in column 6 of Table 2 is due to the fact that data on the number of household members necessary to calculate household income per household member are missing for a large number of countries in the World Values Survey.

⁷ There is a controversy over the extent to which life satisfaction scores rise with income. Frey and Stutzer (2002) use World Values Survey data to argue that at high levels of per capita income, that is, starting at about \$10 000 per capita, marginal utility of income diminishes. The fact that GDP growth does not result in increased happiness in rich countries, especially in the US is usually referred to as ‘the Easterlin Paradox’ – due to Easterlin (1974) and Easterlin (1975). Jointly with the fact that even in the rich countries (US included) the rich are significantly happier than the poor, the Easterlin Paradox is usually interpreted as the evidence for the importance of the *relative* rather than absolute income for happiness (see a survey of this literature in Clarke et al., 2008). However, Deaton (2007) shows a universal positive effect of income on life satisfaction in the World Gallup Poll data and discusses how these results can be reconciled with the earlier findings. Stevenson and Wolfers (2008) use a few recent datasets including the World Gallup Poll, the Pew Global Attitudes Survey, and the World Values survey and obtain similar results. They conclude that (i) there is no diminishing marginal effect of income on happiness and (ii) Easterlin Paradox is not consistent with recent data even for rich countries, except, may be, for the US.

entitled “The Life in Transition Survey.” This survey included a question about life satisfaction. Unfortunately, the question about life satisfaction in this survey differs in wording and scale from the question in the World Values Survey, so that one should be extremely cautious about comparing answers.⁸ But with no better data at hand across a range of transition countries, we transform the scale of the Life in Transition Survey question to 1 to 10 (as in the World Value Survey) and treat the answers as if they were to the same question.

This exercise suggests that individual country experiences vary greatly. In 11 out of 23 transition countries (Albania, Armenia, Belarus, Estonia, Latvia, Lithuania, Moldova, Russia, Slovakia, Slovenia, and Ukraine), life satisfaction continues to grow after the fourth wave of the World Value Survey. In these countries, life satisfaction generally follows the U-shaped pattern of per capita GDP over time: decline in the early 1990s and growth starting in the late 1990s. Six countries (Bulgaria, Croatia, Czech Republics, Kyrgyzstan, Poland and Romania) had no significant change in life satisfaction despite the recent growth. Six countries (Azerbaijan, Bosnia and Herzegovina, Georgia, Hungary, Macedonia, and Serbia and Montenegro) actually experienced a fall in life satisfaction during the whole observation period – which is different for different countries – despite the growth of per capita GDP. Five of these six, however, were involved in major civil conflicts. Only Hungary experienced a large and continuous fall in life satisfaction despite a successful economic transition and peace. However, the Life in Transition Survey in Hungary took place during the street riots following the announcement of the so-called “fiscal consolidation package” – a policy aimed at combating fiscal deficit which involved a significant cut in real wages for public-sector employees and which resulted in an actual decline in the average real wage (discussed in IMF, 2007). Overall, the comparison of World Values Survey and Life in Transition Survey yields mixed results, but in a majority of countries, we find growth in life satisfaction since the end of the 1990s. In this journal, Deaton (2008) compares the results of the World Gallup Poll conducted in 2006 with the results of the last wave of the World Values Survey and also finds that in 2006 people in transition countries are happier than in earlier surveys.

⁸ The Life in Transition Survey questionnaire asks the following question: “Do you agree with the following statement: All things considered, I am satisfied with my life as a whole now.” Respondents can choose their answer from the scale from 1 (“Strongly disagree”) to 5 (“Strongly agree”).

Differences in data quality across countries and surveys complicate comparisons

To some extent, patterns observed in the data, i.e., the size of the happiness gap between transition and non-transition countries and the closing of this gap from the early to the mid 2000s, should only be viewed as suggestive. First, as Deaton (2005) points out, the non-response rate in household and individual surveys can severely undermine the representativeness of the samples. Our examination of the data from the World Value Survey suggests that samples in transition countries are substantially more biased in favor of including more of those with low incomes. The ratio of average per capita income from respondents to the World Values Survey to the country's per capita Gross National Income (from the World Development Indicators of the World Bank) is about 0.85 in non-transition countries and only about 0.40 in transition countries. A simple calculation shows that if the sample quality in transition countries improved to the average level for non-transition countries, life satisfaction in the transition countries would increase by 0.33 points. Therefore, even though the gap between transition and non-transition countries decreases by roughly one-third once we take into account the quality of the sample, it remains rather large: above one point in wave 3 and above half a point in wave 4 of the World values Survey.

Second, with regard to the comparison between the results of World Values Survey and the Life in Transition Survey, as we already discussed, the wording of the life satisfaction questions and the scaling of answers in the World Values Survey and in the Life in Transition Survey are not the same.

Third, similar examination of the quality of the samples in the Life in Transition Survey shows that the samples in this survey are less biased towards the poor compared to samples of the transition countries in the World Values Survey. We calculate that this effect implies that the estimate of the growth of life satisfaction between 1999-2003 (from World Values Survey) and 2006 (from the Life in Transition Survey) may actually be overstated by 0.24 percentage points. After adjusting for this difference in sample quality, life satisfaction should still increase substantially between 2003 and 2006 for many countries as the estimated difference between the last wave of the World Values Survey and the Life in Transition survey is much larger in magnitude for Albania, Belarus, Estonia, Latvia, Lithuania, Moldova, Russia, and Ukraine.

With concerns about the data quality duly noted, the overall results suggest that (i) there is a sizable gap in happiness between growth in life satisfaction in transition countries and (ii) it was closing from the end of the 1990s and early 2000s up to the mid-2000s.

Evidence from Longitudinal Data on Life Satisfaction for Russia

Another approach to examining the connection from economic patterns of transition economies to life satisfaction is to look at the longitudinal datasets that exist for a limited number of transition countries. For example, Russian Longitudinal Monitoring Survey provides comparable data both for a repeated cross-section and for a panel of individuals for 11 rounds between 1994 and 2006. These data provide a unique opportunity to measure the effect of GDP growth on happiness as the panel nature of this dataset—unlike most surveys used in the happiness research—allow controlling for individual fixed effects. In other words, we can check how economic conditions affect life satisfaction of the very same individuals.

Figure 4 presents the pattern of life satisfaction for an average Russian individual unexplained by his or her socio-demographic and economic characteristics (these are the estimates of time dummies from panel regressions with individual fixed effects and all the usual individual determinants of life satisfaction discussed with regard to Table 2). It is evident that life satisfaction roughly follows the pattern of Russia's GDP per capita, even though we control for household income. Therefore, 'Easterlin Paradox' does not apply to Russia: unlike the evidence on the US and other OECD countries (Easterlin 1974, 1995), growth in the average income does increase the average happiness.

The same pattern emerges when we look at the repeated cross sections of representative samples of Russian individuals. These findings are consistent with our results from the comparison of World Values Survey and the Life in Transition Survey. The effects of individual characteristics on life satisfaction are also consistent across surveys.

It is worth noting, however, that the sample in the Russian Longitudinal Monitoring Survey is also biased towards the poor, although much less so than in the samples in the Life in Transition Survey or the World Values Survey. (The ratio of household consumption in Russian Longitudinal Monitoring Survey sample to the analogous indicator from the national accounts is 0.85). In addition, the sample is biased towards people whose incomes grow more slowly compared to the national average from national accounts. Thus, growth in life satisfaction in Russia in the last few years is in all likelihood faster than estimated with data from the Russian Longitudinal Monitoring Survey.

To sum up, people in transition countries appear to have significantly lower life satisfaction compared to their counterparts in other countries with similar per capita incomes,

unemployment, inequality, and inflation. This gap in life satisfaction is particularly large among the elderly. The gap reached its maximum in the middle of the 1990s and, most probably, has been closing since then. Some of this gap can be explained by differences in the survey samples in transition and non-transition countries, but a rather large gap remains. In the next section of this paper, we examine various theories which can potentially explain this gap.

Why are People in Transition Countries so Unhappy?

Why does transition undermine life satisfaction and why are the elderly more adversely affected by transition? We consider a number of possible explanations which follow from the happiness literature as well as actual testimonies of transition country residents collected during focus-group interviews conducted in nine Russian cities by the Institute for Comparative Social Research in Moscow (CESSI) and EBRD in the spring of 2007 (CESSI, 2007). In these focus-group interviews, respondents attributed their unhappiness to factors that can be classified into five broad categories: (i) a substantial increase in inequality and perceived unfairness of the new socio-economic order; (ii) a decrease in quality and quantity of public goods provision; (iii) a sharp increase of volatility and uncertainty of earnings; (iv) an increase in aspiration levels due to better information about the quality of life in high-income countries, and (v) an unforeseen depreciation of human capital accumulated before transition as different skills are relevant in command and market systems.

Unfairness and inequality

“In this country, we don’t have a situation where everybody can have what they need. One person lives in luxury and another has to save a long, long time just for one apartment... Not even an apartment. Some people do not have anything to eat.” (Source: CESSI 2007)⁹

Several respondents in the focus-group interviews complained about increased inequality during transition (CESSI, 2007). Theoretically, the effect of inequality on life satisfaction is ambiguous. On the one hand, people may feel dissatisfied with the sharp increase in inequality

⁹ Henceforth, as epigraphs to various sections of the paper, we use the direct quotes from interviews of Russian people reported in CESSI (2007).

during transition because they perceive it as unfair (Milanovic, 1998).¹⁰ On the other hand, greater inequality may show that opportunities are opening up as a result of market-oriented reforms, which may be considered a positive factor. For example, Senik (2004) uses panel data on Russia to confirm the validity of the “tunnel effect” introduced in Hirschman and Rotchild (1973): high earnings of others may provide information on opportunities and therefore increase happiness. Bénabou and Tirole (2006) build a model with multiple equilibria where the effect of inequality may be different in different equilibria; their theory is consistent with evidence. Alesina et al. (2004) show that inequality has a large negative and statistically significant effect on happiness in Europe, but not in the United States. Grosfeld and Senik (2008) document a shift between two equilibria in transitional Poland: inequality was perceived by Polish citizens as a positive signal of increased opportunities in the beginning of transition, whereas a significant public aversion to inequality emerged in the second half of the 1990s.

The standard measure of income inequality is the Gini coefficient, which reflects dispersion of income in the economy, so that a score of 0 represents perfect equality and a score of 1 represents a situation where one individual receives all the income in the economy and everybody else get nothing. Since the Gini coefficient is a standard determinant of life satisfaction in the happiness literature, we include the average Gini coefficient from the World Development Indicators database for all available years in the 2000s in all regressions among other standard controls (see all regressions in Table 2 and Column 1 of Table 3).¹¹ If we excluded Gini from the list of controls, the gap in happiness between transition and non-transition countries would have increased by about 0.2 points in all waves (unreported). In the

¹⁰ Fehr and Schmidt (2002) provide extensive evidence that most individuals (including those in transition countries) attach a non-trivial value to fairness. Using the Life in Transition Survey data, Denisova et al. (2007) show that in many transition countries the public is in favor of altering the results of privatization, and that these sentiments are driven by the sense of unfairness of extremely unequal privatization outcomes rather than the belief in superiority of public ownership.

¹¹ A better measure of inequality would have varied over time in addition to varying across countries. Unfortunately, there are no good data on changes in the Gini coefficient for a large set of countries (Barro, 2000), and therefore, we have to rely on cross-sectional variation.

whole World Values Survey sample, the Gini coefficient has a positive (albeit not always significant) effect on life satisfaction (consistent with the “tunnel effect”) as shown in Column 1 of Table 3. In transition countries, in contrast, the effect of Gini is negative. Column 2 of Table 3 reports regression results with an interaction term between Gini coefficient and transition country dummy, which estimates the difference in the effects of Gini in transition and non-transition countries. While in non-transition countries, the effect of inequality on happiness is positive (0.02); in transition countries it is negative ($0.02 - 0.07 = -0.05$) albeit also not quite statistically significant; at the same time, the difference in the effect for transition and non-transition countries is statistically significant. Alternative measures of Gini based on household survey data constructed by Milanovic and Ersado (2008) (available only for transition countries) also yield a negative, but statistically significant, effect of inequality on happiness in transition countries. Since Gini reduces the gap between life satisfaction in transition and non-transition countries and it increases dissatisfaction in transition; we can conclude that inequality does, indeed, contribute to low levels of life satisfaction in transition countries. In the rest of the paper, we focus on factors which can explain the gap in happiness between transition and non-transition economies after one takes into account inequality and other standard determinants of life satisfaction.

Deterioration of Public Goods

“If I plan to have a child then I will need to send him or her to kindergarten, but they are all so expensive now. Kindergartens used to be free but now almost none of them are...”
(Source: CESSI 2007)

In a command economy, most public goods were provided without charge at time of use. Since transition has sharply reduced the amount of resources in the hands of governments, public goods both deteriorated and began to charge users directly. This problem is most salient in health outcomes. Even though infant and child mortality has been falling uniformly across transition countries, this has not been the case for adult mortality and life expectancy. Several transition

countries--most importantly, Russia--have experienced a sharp decline in life expectancy. According to the World Development Indicators, average life expectancy in transition countries fell from 69.6 years in 1990 to 67.7 in 1995 and then increased to 68.5 years in 2005—which was still below the 1985 level of 68.9 years (see Brainerd and Cutler, 2005 for possible explanations of the decline of life expectancy). Similarly, tuberculosis, a preventable disease which almost disappeared in high-income countries, grew sharply in the early transition and reached a peak in 2000.

A stark decline in the quantity or quality of public good provision may have been responsible for the increased unhappiness. The World Values Survey asked questions about respondents' confidence in their country's education system, police, social security system, health care system, and justice system. The responses of transition country residents to these questions imply that confidence in public goods fell sharply during transition. Yet, declined confidence in public goods may be a mere consequence of general dissatisfaction because people's feelings about their own life influence their perceptions of the world around them. In order to test whether public goods help to explain the difference in life satisfaction between transition and non-transition countries, we use *objective* country-level indicators of public good provision from the World Development Indicators. Table 3 reports regression results with life satisfaction as dependent variable and all standard determinants of life satisfaction as regressors (just as in Table 2) and with additional explanatory variables that can potentially explain the difference in life satisfaction between transition and non-transition countries. Column 1 presents the benchmark regression without any additional regressors and the subsequent columns add various covariates. In the regression of Column 3, we add regressors which reflect the following *outcomes* of public goods provision: infant mortality, the share of children immunized against diphtheria, pertussis (or whooping cough), and tetanus (DPT), and pollution, measured by per capita CO₂ emissions. Infant mortality and pollution have a negative and significant effect on happiness, while the effect of immunization has a positive linear and negative quadratic term, so the effect of immunization has a positive significant effect on happiness when overall immunization levels are low, reflecting the external effects of immunization. Our main interest, however, is in comparing the size and significance of transition country dummies in each wave of the World Values Survey between the baseline regression where public goods are not included (Column 1) and the regressions with public goods (Column 3). The inclusion of these controls for public goods provision decreases the magnitude of the difference in life satisfaction between

transition and non-transition countries, but does not eliminate it: it remains statistically significant. Taking public goods provision into account reduces the size of the gap between life satisfaction in transition and non-transition countries from 1.57 to 1.25 points in wave 3 and from 0.89 to 0.70 in wave 4 of the World Values Survey. Overall, it appears that deterioration in public goods explains a significant part of the difference in life satisfaction between transition and non-transition countries.¹²

Income volatility and increased uncertainty

“Instability is inherent in our life. It seems that everything is developing rather quickly now – if you want to find a job, you will find it, it is not a huge problem here. But even if you have a job, you don’t feel secure or confident about the future. Even though business is developing very fast, it could come to an end very quickly. Regardless of how good a job you have and how good things are for you now, there is a feeling that anything could happen at any time. You cannot be confident that things will be good forever.” (Source: CESSI 2007)

People in transition may also have less life satisfaction because of an increase in economic uncertainty. In column 4 of Table 3, we test whether uncertainty can explain some of the difference between life satisfaction in transition and non-transition countries by adding a country-level measure of income volatility to our baseline regressions. In particular, as a measure of income volatility, we use the standard deviation of the logarithm of real per capita GDP growth after 1988. We find that income volatility has a large negative coefficient (albeit not statistically significant) and that once we add this variable as a covariate to the regression, the gap in life satisfaction between transition and non-transition countries falls substantially. The magnitude of the coefficient on transition country dummy in wave 3 is reduced to 1.26 and in wave 4 to 0.66 (statistically insignificant). Moreover, once we take into account both the variation in public goods and in income volatility (Column 5 of Table 3), the coefficients on transition country dummies fall even further: in Wave 3, the gap in happiness between transition

¹² The results are robust to adding deaths from tuberculosis (regressions are available upon request). We do not include life expectancy in the regressions, as it is endogenous to life satisfaction: happier people live longer. Also, we do not include the indicators that measure the quantity of public goods provided such as the number of hospital beds and physicians per 1000 people, because those do not capture the change in the quality of public goods and transition countries tend to have significantly higher values of these variables as a legacy from the communist times. Moreover, it is the quality rather than quantity of education and healthcare, as well as the lack of access to those, about which the residents of transition countries usually complain (EBRD 2007, and CESSI 2007).

and non-transition countries is only 0.80 and in Wave 4, it is only 0.36 (and not statistically significant). In other words, public goods and income volatility jointly explain about one half of the ‘abnormally’ low life satisfaction in transition.

Change in aspiration levels

“I am sure that we will not live like normal people, our lifetime will not be enough to see the change for the better. Throughout my life I worked as an engineer, lived in a good one-bedroom apartment, and was satisfied with my life. But when my brother-in-law went to Israel and told us how he lived there, then we realized that life could be different. He has two cars and a house! In our country, only a director of a plant could live like that, certainly not an engineer. Only then I realized how badly we live.” (Source: CESSI 2007)

One possible reason why life satisfaction may have dropped in transition countries is because it changed the aspiration levels of these countries’ residents. Frey and Stutzer (2002) discuss the aspiration level theory and its implications for the effect of *relative* income on happiness. According to this explanation, higher life satisfaction before transition may have resulted in part from an unawareness of the consumption standards in high-income countries. As transition resulted in more openness, media freedom and travel, transition-country residents realized how far their economies lagged behind, and this had a negative effect on happiness.

Testing this hypothesis is difficult, but one implication is that the negative shock on happiness should be lower in transition countries that were closer to Western Europe and more open during the pre-transition times. In contrast to the “iron curtain” surrounding such countries as the Soviet Union and Czechoslovakia, in some countries of Central and Eastern Europe many residents could travel to neighboring countries and watch western television at home even before transition—for example, there was a substantial exchange of information between Hungary and Austria as well as the Slovenian part of Yugoslavia and Italy. Contrary to the prediction of the change-in-aspiration-levels explanation, there is no significant difference between formerly more open and less open transition countries. No such pattern is apparent in Figure 2, nor have we

uncovered such a pattern in more formal regression analysis (unreported). In fact, changed aspirations may have contributed to dissatisfaction both in the former Soviet Union and in Hungary, but with different mechanisms at play. Soviet people are dissatisfied because in transition they learned how far their living standard is from the developed world; Hungarians are disappointed with the results of transition because at the beginning of transition they hoped that their living standard would catch up fast with the developed world which they were familiar with even before transition.

Effects of public goods, uncertainty, and inequality for young and old

In Figure 3, we documented a large difference in the size of the happiness gap between transition and non-transition countries for different age groups. Therefore, to explain the puzzle of abnormally low life satisfaction in transition, it is important to know how deterioration of public goods, growth of uncertainty and inequality affected the gap in life satisfaction for different age cohorts. In Column 6 and 7 of Table 3 we compare the gap in life satisfaction between transition and non-transition countries for two groups of respondents: “the young” (i.e., respondents, who were born in 1971 or later, and thus, did not reach 18 years of age before 1989) and “the old” (i.e., born before 1971). Column 5 presents estimates of the happiness gap for the two groups of respondents without taking uncertainty and public goods into account, whereas regression in Column 6 controls for the outcomes of public goods provision and income volatility. In columns 6 and 7, coefficients on the transition country dummies for each wave of the survey (the first three rows) estimate the happiness gap for “the young,” while the coefficients on the interaction of transition country dummies for each wave of the survey with the dummy indicating whether the respondent was born before 1971 estimate the difference in happiness between “the old” and “the young.” Column 6 confirms that the happiness gap is much larger for the old than for the young. For the young the difference in happiness between transition and non-transition countries in wave 3 is only 1.01 (compared to $1.01+0.68=1.69$ for the old); and in the wave 4, the difference is only 0.46 and is not significant (compared to $0.46+0.55=1.01$ for the old). Furthermore, when we add proxies for public goods and income volatility (in Column 6), the difference in life satisfaction between the young residents in transition and non-transition

countries disappears altogether in all waves. For the older generations, the difference between those in transition and nontransition countries shrinks but remains large (particularly in wave 3) and statistically significant; it is equal to -0.91 (= -0.23-0.68) in wave 3 and -0.48 (= 0.09-0.57) in wave 4.

Younger people in transition could be less affected by income volatility, inequality, and worse public goods for at least two reasons: first, young people, in contrast to older people, in transition countries did not live in a paternalistic command economy; and second, in all countries, the young are less dependent on such public goods as healthcare and social security. We include interactions of age, transition country dummies and measures of public good outcomes, income volatility, and inequality as additional regressors to our baseline specification. The results are reported in Columns 1-3 of Table 4 (all regressions include the standard list of controls as in Tables 2 and 3). The coefficients in the first four rows indicate whether age affects the relationship between public goods, uncertainty, and inequality on the one hand, and life satisfaction on the other, in non-transition countries, whereas the coefficients in the next four rows indicate whether this relationship is different for transition countries. We find that in non-transition countries, age does not affect the link between life satisfaction and public goods, volatility, and inequality. In contrast, in transition countries, age aggravates the negative effect of public goods under-provision and increased volatility on life satisfaction. Thus, it is true that older people in transition countries are especially unhappy about bad public goods and income volatility.¹³ This result is consistent with the earlier findings by Alesina and Fuchs-Schundeln (2007) who show that the preferences to redistribution of older East Germans converge slower to the level of West Germans than the preferences to redistribution of young East Germans. The plot of the movie “Good Bye Lenin” which Alesina and Fuchs-Schundeln use for the title of their paper is based on the idea that accepting transition is extremely hard for the older generation.

The Age Effect and Human Capital Depreciation

¹³ The magnitude of the triple interaction of age, transition country dummy, and public goods is rather small, however. For example, a 10% change in income mortality affects the abnormal unhappiness of a 60-year old resident of transition country (relative to his/her counterpart in a non-transition country) by only 0.06 points less than for a 20 year old.

“People who found a good place for themselves in life are very satisfied. But we are not. Just because we missed the last train.” (Source: CESSI 2007)

As we have shown, public goods and volatility explain all of the difference between unhappiness in transition and non-transition countries for the young, but not for older generations. In this section, we consider another potential explanation of the difference in life satisfaction which applies specifically to the old. It is related to the effect of transition on human capital and, therefore, the expected lifetime earnings of those who started their professional careers before transition. Much of the value of the human capital stock accumulated during the command economy could have been wiped out by transition, because it was comprised of skills specific to the planned economy and irrelevant for the market economy. Therefore transition delivered an unexpected negative shock to the present value of lifetime earnings should have negatively affected life satisfaction. We cannot test for this theory directly because specific skills are unobserved. Neither occupation nor education level capture the relative value of skills in the command economy and in the newly created market economy.

Yet this theory does generate a testable prediction. If the human capital hypothesis holds true, then those educated under the last years of the old regime should feel substantially less happy than those who were educated just after the start of the new regime. For example, students of the history of the communist party, if they had known the transition was coming, should have switched to studying foreign languages or computer science. In Columns 4 and 5 we directly test this prediction. Using the sample of transition countries in the wave 4 of the World values Survey, we regress individual life satisfaction on a variable which measures whether the reform had begun by the time the respondent completed his or her education. We control for the age of the respondent, the current state of reform, and all the other standard individual and country-level controls. To proxy for the reform progress on a year-to-year basis, we construct an index based on the European Bank for Reconstruction and Development (EBRD) Transition Indicators (<<http://www.ebrd.com/country/sector/econo/stats/timeth.htm>>), an index based on an average of country scores on privatization, enterprise restructuring, price liberalization, trade liberalization, financial liberalization, and infrastructure reform for each year. We construct a continuous measure of the extent of reform which varies from 0 to 3 (used in Column 4) and a dummy, which switches from zero to one in the year when liberalization starts in a country (Column 5). The differential timing of reforms across countries and differences in the time of study across individuals of the same age allow us to single out the

human capital effect even controlling for age and educational attainment. As Columns 4 and 5 of Table 4 illustrate, the human capital depreciation theory is consistent with the data. The presence and the extent of reform in the year when respondent completed education has a positive significant effect on life satisfaction controlling for age and educational attainment. We find that life satisfaction is 0.2 higher for people who were still in school when liberalization started. This effect is robust to using the Life in Transition Survey data instead the World Values Survey.

An alternative interpretation of the results is as follows. A person who graduated just before transition had secured a nice job is unhappy after the transition as this job is likely to be discontinued or paid less. A person who graduates right after the transition makes an informed career choice and, therefore, is happier. This explanation is very similar to the human capital depreciation story above and we do not have data to distinguish between the two.¹⁴

What Factors Explain the Unhappiness in Transition

“My parents got their apartment from the state. They had a guaranteed salary that was in line with prices in the shops. They had a guaranteed pension. They knew they would get free medical care, they studied for free and their jobs were guaranteed. So they had no need to worry about anything... I do not have any of these hopes.” (Source: CESSI 2007)

We have presented evidence consistent with the hypotheses that depreciation of human capital, deterioration of public goods, and income volatility play a role in explaining lower life satisfaction in transition. Once we control for age, public goods, and income volatility at the same time (Column 5 in Table 3), the value of the coefficient on wave 4 of the transition country

¹⁴ Our analysis is based on the assumption that the graduation year is exogenous. Suppose, in contrast, that individuals can choose to drop out of school or stay in school longer. This could bias our results both ways. First, one would expect a behavioral response to difference in quality of education. Suppose that students in the same cohort privately observe idiosyncratic shocks to quality of their education. Those who expect that their education would be useless under a market economy have incentive to quit earlier in order to increase their happiness; while those whose education is useful would stay longer to increase their happiness. The observed gap in happiness between these two groups of people can increase or decrease depending on the relative size of the behavioral response of the two groups. If most of the action is among those with "useless" education, the resulting bias would be towards zero. Second, major socioeconomic transformation may have affected the unhappy individuals' willingness to stay in school. If unhappy people have a harder time staying in school in times of major change in the economy, our results would be biased upwards. Which of the two effects dominates is not clear.

dummy drops to 0.36 – and is no longer statistically significant. We strongly suspect that if we had more direct and precise measures of the change in quality of public goods and the depreciation of human capital over time, the coefficient on the transition economies would fall still closer to zero. Moreover, our analysis of the sample selection effect (that the surveys in the transition economies are biased toward greater sampling of the poor and those whose incomes are not rising) implies that this coefficient is biased upward by about 0.33.

Thus, the seeming puzzle of abnormally low life satisfaction in transition countries largely disappears once we control for income, age, public goods, inequality, income volatility and account for the sample bias effect.

Robustness checks

To make sure that our results are not driven by the particularly large measurement error of GDP in transition countries or by unmeasured changes in the unofficial economy in transition countries, we verified that the results are also robust to using various alternative data sources. Some of these have been mentioned in the preceding discussion. We also used alternative measures of economic well-being such as per capita GDP from the Penn World Tables; per capita GDP and consumption in constant U.S. dollars (without a purchasing power parity adjustment), energy use, and automobiles per capita. These results are presented in a technical appendix, available at <http://www.cefir.ru/ezhuravskaya/research/Appendix_happiness.pdf>.

The analysis above is based on the answers to the “life satisfaction” question. We have also repeated the whole exercise for World Values Survey “happiness” question as well (“Taking all things together, would you say you are: Very happy, Quite happy, Not very happy, Not at all happy?”). The happiness and life satisfaction variables are highly correlated. The results for happiness are similar to those for life satisfaction. That is, there appears at first to be a substantial difference between transition and non-transition countries in happiness, but once we control for age, public goods, income volatility, and our other control variables, along with the selection bias between transition and non-transition countries, the remaining gap in happiness is virtually trivial.

Conclusion

The transition from communism to a more market-oriented economy did make people unhappy. But when we take a closer look, the unhappiness in transition countries is positively associated with income, very much like in other countries. Once we account for depreciation of human capital stock accumulated under central planning, deteriorating public goods, and rising income inequality, along with other individual and country-level controls, the difference in life satisfaction between transition and non-transition countries essentially disappears.

Our results imply that life satisfaction in transition countries will continue to rise. The first reason for this is the continued growth of income and the subsequent eventual improvement in public goods provision. The second reason is a gradual reduction in the number of people brought up under the command economy who are suffering because of a depreciation of human capital and unmatched expectations of high public good provision.

This increase in life satisfaction may have already happened even though it has not been observed in the World Values Survey data yet. The latest available rounds of the World Values Survey were conducted in 1999-2003, either before or shortly after the resumption of growth in most transition countries. In more recent data—such as Life in Transition Survey or Russian Longitudinal Monitoring Survey—levels of happiness are rising, following the growth in per capita GDP. Both income levels and income growth rates of survey respondents are below per capita GDP levels and growth rates in these countries (because of problems with sample construction), and so the improvement of the survey-based estimates of life satisfaction takes longer than economic recovery.

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The dynamics of GDP per capita (PPP, 2000\$)

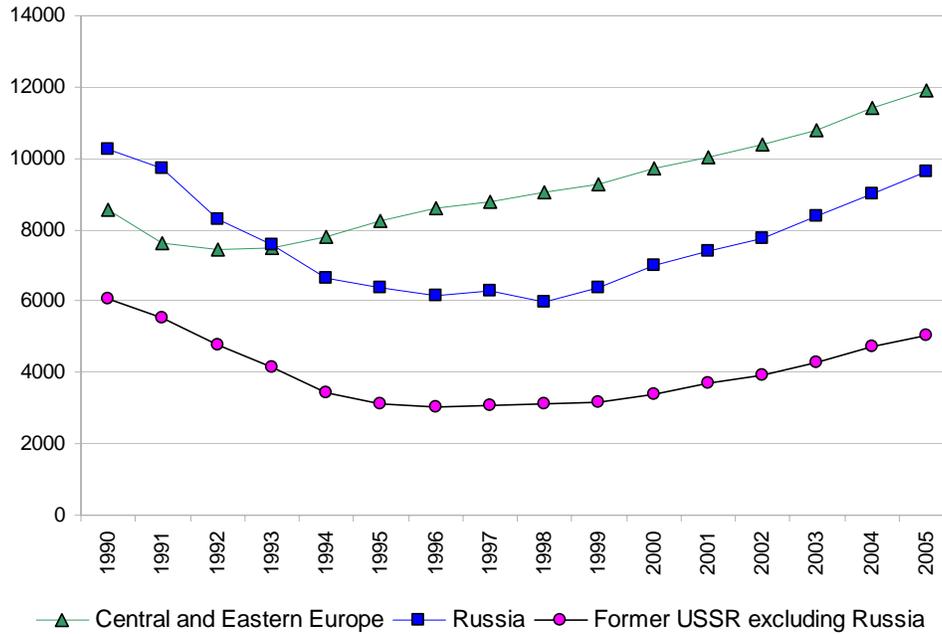
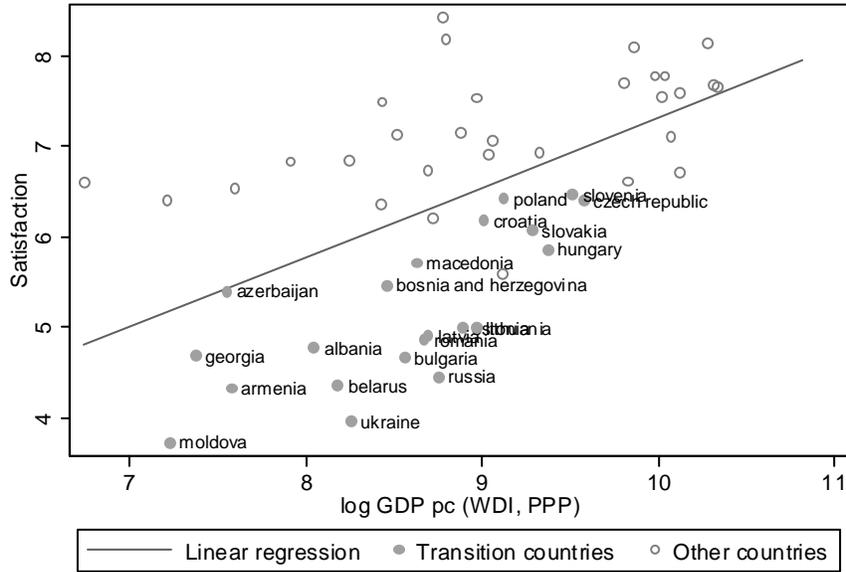


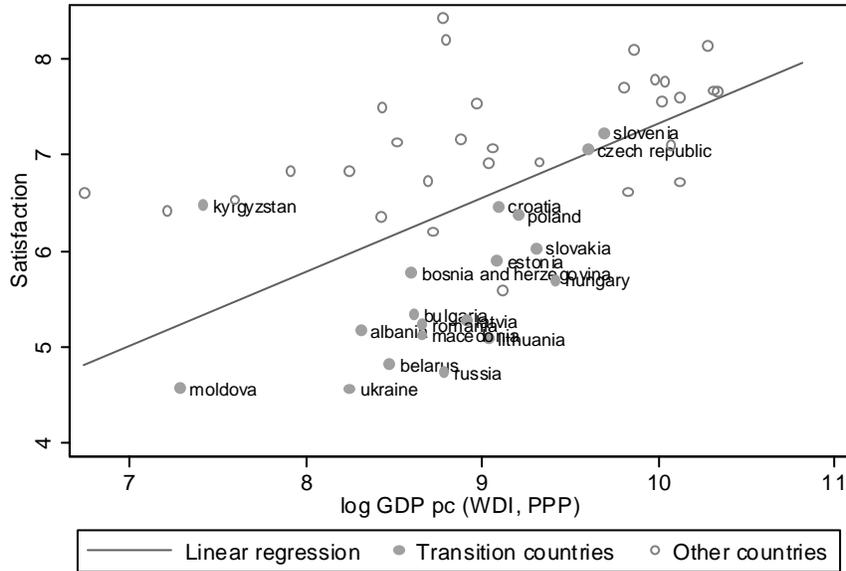
Figure 1. The dynamics of real GDP per capita in constant international 2000 US dollars adjusted for purchasing power parity (PPP). Source: World Development Indicators data base, World Bank.

Wave 3 of the World Values Survey (1994-1999):



WVS wave 3, 51 countries total, 21 transition countries

Wave 4 of the World Values Survey (1999-2003):



WVS wave 4, 66 countries total, 19 transition countries

Figure 2. Life satisfaction and per capita GDP.

Vertical axis: average country-level value of live satisfaction on a scale from 1 to 10 (source: World Values Survey). Horizontal axis: natural logarithm of per capita GDP in purchasing power parity-adjusted \$ (source: World Development Indicators). Set of countries: all included in the surveys; only transition countries marked with names.

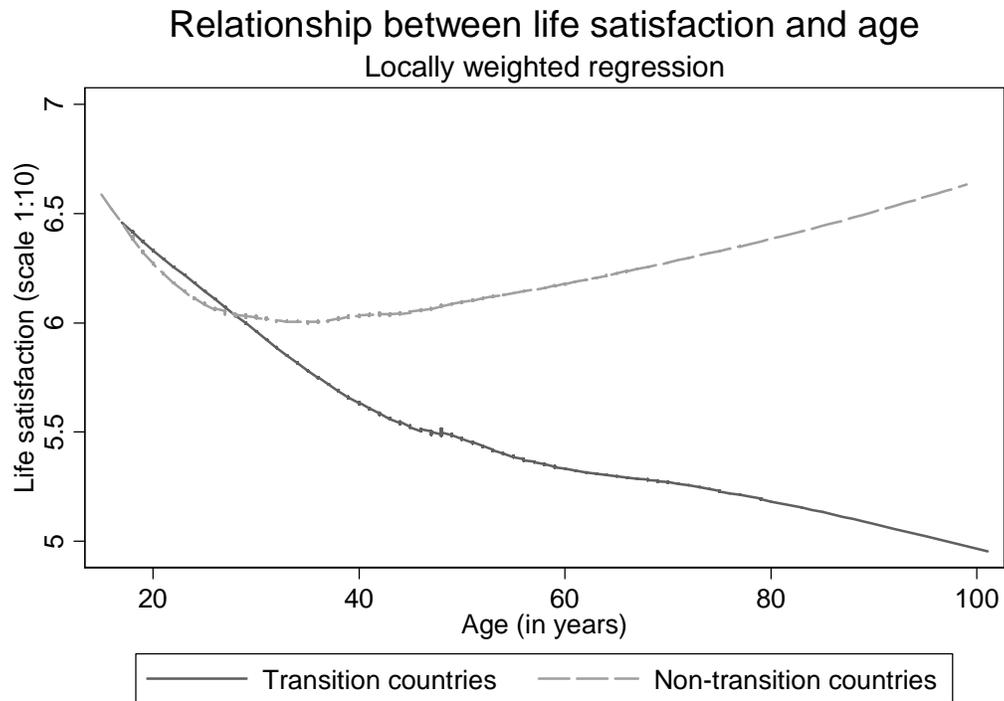


Figure 3. Age and life satisfaction in transition countries and non-transition countries with per capita income comparable to transition countries. The lines depict the results of the non-parametric locally weighted regressions (*lowess* smoother) with bandwidth = 0.8.

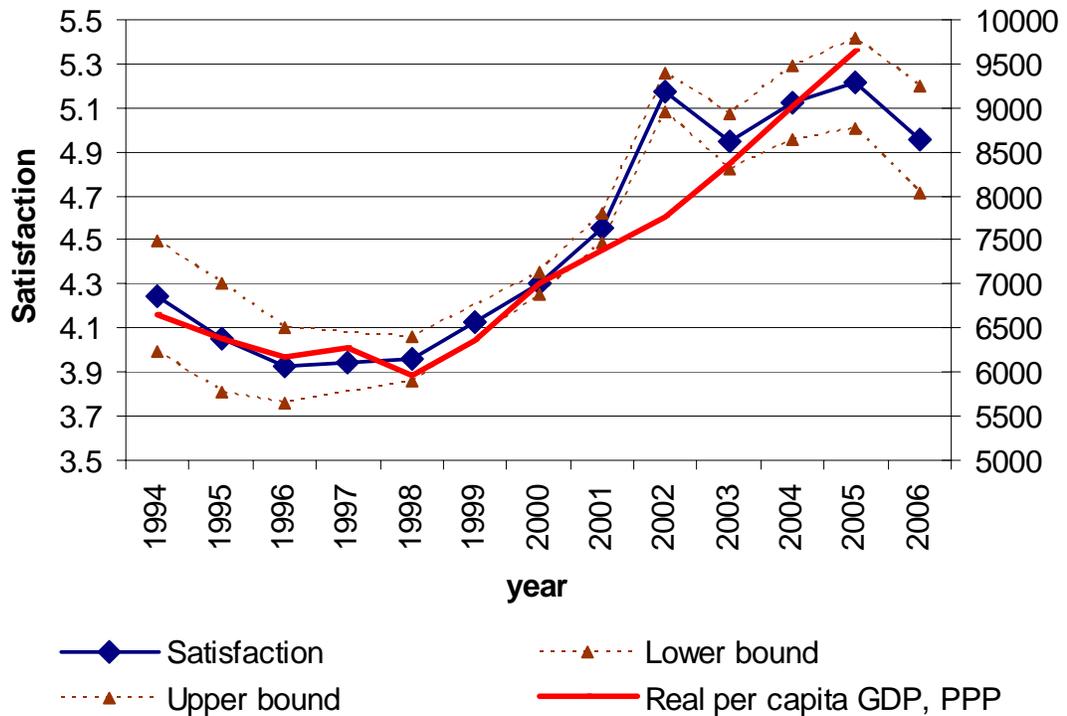


Figure 4. Dynamics of life satisfaction and per capita GDP in Russia.

Left scale: Life satisfaction for an average individual from the panel regressions with person fixed effects and other usual controls (with 95% confidence interval). In 1997 and 1999, there were no Russian Longitudinal Monitoring Survey surveys; we use linear interpolation. Right scale: Real per capita GDP in purchasing power parity-adjusted 2000 US dollars. Source: For satisfaction, the Russian Longitudinal Monitoring Survey. For GDP per capita, the World Development Indicators data base. (According to the Penn World Tables, in 2004, the purchasing power parity-adjusted GDP per capita in Russia reached \$11,794.)

Table 1. Selected indicators of consumption (cross-country average)

	1985	1990	1995	2000	2004
<u>HH consumption expenditure per capita (constant 2000 US\$)</u>					
Transition countries	-	1154	1009	1155	1543
Middle income countries	774	813	925	1044	1174
USA	17081	19110	20405	23880	25841
<u>Housing (square feet per person)</u>					
CIS	-	172	-	183	215*
USA	-	-	694	720	<u>752</u>
<u>Cars (per 1,000 people)</u>					
Transition countries	-	110	134	187	223**
Middle income countries	-	37	50	69	54**
USA	-	758	756	785	-
<u>Telephone mainlines (per 1,000 people)</u>					
Transition countries	94	125	159	216	264
Middle income countries	29	40	68	127	195
USA	487	545	600	682	606
<u>Personal computers (per 1,000 people)</u>					
Transition countries	-	4.1	19.2	57.3	109.8
Middle income countries	-	2.2	9.5	29.1	58.3
USA	106	217	324	570	762

The list of transition countries is as follows: Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, FYR Macedonia, Moldova, Poland, Romania, Russia, Serbia and Montenegro, Slovak Republic, Slovenia, Tajikistan, Ukraine, and Uzbekistan (there are no reliable data on Turkmenistan). The last column of the table reports data for the last year available. No asterisk in the last column refers to data for 2004; * refers to data for 2006; ** - for 2003. "-" denotes missing data. CIS stands for the Commonwealth of Independent States, which consists of all countries of the former USSR except for Baltic states. The source of all variables with the exception of housing is the World Development Indicators data base. Housing data come from the CIS statistical abstracts and American Housing Survey, US Census Bureau (the housing data for the US refer to median rather than mean square footage per person). The middle income countries group is defined as in the World Development Indicators data base 2006; the classification criteria and the list of middle income countries are available at <http://go.worldbank.org/K2CKM78CC0>. Using population-weighted average instead of a simple cross-country average does not change the overall pattern found in the data.

Table 2. Is life satisfaction lower in transition?

	Dependent variable: life satisfaction (1-10)					
	(1)	(2)	(3)	(4)	(5)	(6)
					Absolute HH income	Absolute HH income per member
Transition country dummy	-1.40*** [0.33]	-1.13*** [0.33]				
Transition country dummy * wave 2			-0.72*** [0.22]	-0.67*** [0.24]		
Transition country dummy * wave 3			-1.44*** [0.28]	-1.56*** [0.27]		
Transition country dummy * wave 4			-0.87*** [0.29]	-0.90*** [0.32]		
Log GDP pc (PPP \$)	0.47*** [0.17]	0.35 [0.24]	0.42*** [0.12]	0.44*** [0.12]		
Relative HH income (1-10)	0.14*** [0.02]	0.20*** [0.02]	0.14*** [0.02]	0.13*** [0.02]		
Log absolute HH income					0.41*** [0.06]	0.23*** [0.04]
Transition country dummy * (Log GDP pc - mean)			0.38* [0.23]			
Transition country dummy * (Relative HH income - mean)				0.07** [0.03]		
Transition country dummy * Log absolute HH income					0.26*** [0.07]	0.21*** [0.06]
Wave dummies			yes	yes		
Country-level controls	yes	yes	yes	yes		
Country dummies					yes	yes
Sample: Wave	3	4	all	all	4	4
Observations	51 516	56 903	161 508	161 508	63 237	27 290
R-squared	0.25	0.18	0.19	0.19	0.23	0.28
Countries	39	44	55	55	53	26
Transition countries	14	16	17	17	16	11

Note: Individual-level controls are included in each regression, they are: age with a quadratic term, educational attainment, employment status, and marital status. Country-level controls are unemployment, inflation, Gini coefficient, media freedom, and democracy. “Log absolute HH income” refers to the log of the average nominal household income in column 5 and to the log of the average nominal household income per household member in column 6. SEs adjusted for clustering at country level are in brackets. Asterisks *, **, *** denote significance at 10, 5, and 1% level. The list of countries included into each regression is determined by data availability.

Table 3. Why is life satisfaction lower in transition?

	Dependent variable: life satisfaction (1-10)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Transition country dummy * wave 2	-0.82*** [0.22]	-1.05*** [0.27]	-0.48* [0.26]	-0.68*** [0.25]	-0.26 [0.29]	-0.31 [0.29]	0.27 [0.27]
Transition country dummy * wave 3	-1.57*** [0.27]	-1.51*** [0.21]	-1.25*** [0.31]	-1.26*** [0.34]	-0.80** [0.38]	-1.01*** [0.23]	-0.23 [0.35]
Transition country dummy * wave 4	-0.89*** [0.31]	-0.95*** [0.25]	-0.70** [0.32]	-0.66 [0.39]	-0.36 [0.37]	-0.46 [0.28]	0.09 [0.34]
Transition country dummy * wave 2 * born before 1971						-0.55** [0.22]	-0.56** [0.21]
Transition country dummy * wave 3 * born before 1971						-0.68*** [0.10]	-0.68*** [0.09]
Transition country dummy * wave 4 * born before 1971						-0.55*** [0.12]	-0.57*** [0.10]
Infant mortality			-0.48** [0.19]		-0.58*** [0.19]		-0.58*** [0.19]
Immunization			4.14* [2.39]		5.14** [2.45]		5.15** [2.46]
Immunization squared			-0.59* [0.33]		-0.73** [0.34]		-0.73** [0.35]
Emissions			-0.32*** [0.11]		-0.31*** [0.11]		-0.30*** [0.11]
Income volatility				-4.84 [3.31]	-7.15*** [2.60]		-7.43*** [2.56]
Inequality	0.02 [0.01]	0.02* [0.01]	0.03*** [0.01]	0.02* [0.01]	0.04*** [0.01]	0.02 [0.01]	0.04*** [0.01]
Transition country dummy * (Inequality-mean)		-0.07** [0.03]					
R-squared	0.19	0.20	0.20	0.20	0.21	0.20	0.21

Note: All regressions have 155 555 observations from 54 countries, of which 16 are transition countries. The list of individual and country-level controls is the same as in columns 3 and 4 of Table 2. Namely, all regressions include wave dummies; the following country-level controls: Log per capita GDP, unemployment, inflation, Gini coefficient, media freedom, and democracy; and the following individual-level controls: age with a quadratic term, relative HH income, educational attainment, employment status, and marital status. “Immunization” stands for the ln percentage of children between 12 and 23 months old immunized against diphtheria, pertussis, and tetanus. “Infant mortality” stands for the ln infant mortality per 1000 infants. “Emissions” stand for ln CO₂ emissions in tons per capita. “Income volatility” is the standard deviation of per capita GDP growth of GDP in 1989-2004. “Inequality” is the country’s Gini coefficient. SEs adjusted for clustering at country level are in brackets. Asterisks *, **, *** denote significance at 10, 5, and 1% level.

Table 4. Understanding the age effect

	Dependent variable: life satisfaction (1-10)				
	(1)	(2)	(3)	(4)	(5)
				Reform - continuous	Reform - dummy
Age * Infant mortality	0.002 [0.002]				
Age * Emissions	0.005* [0.002]				
Age * Income volatility		-0.054 [0.082]			
Age * Inequality			0.001 [0.001]		
Transition country dummy * Age * Infant mortality	-0.015** [0.006]				
Transition country dummy * Age * Emissions	-0.011* [0.006]				
Transition country dummy * Age * Income volatility		-0.218* [0.114]			
Transition country dummy * Age * Inequality			0.001 [0.001]		
Extent of reform in the year when respondent completed education				0.30** [0.12]	0.20* [0.10]
Age	-0.064*** [0.006]	-0.062*** [0.006]		-0.04* [0.02]	-0.05** [0.02]
Age * Age / 100	0.068*** [0.007]	0.069*** [0.007]		0.06*** [0.01]	0.07*** [0.01]
Reform in the current year				0.42* [0.22]	0.49* [0.24]
Year when finished education				0.02 [0.02]	0.02 [0.02]
Countries in the sample	all	all	all	TC	TC
Waves	all	all	all	4	4
Observations	155 555	155 555	155 555	26 385	26 385
R-squared	0.22	0.20	0.21	0.15	0.15
Countries	54	54	54	16	16
Transition countries	16	16	16	16	16

Note: The list of individual and country-level controls is the same as in table 3 and columns 3 and 4 of Table 2. Namely, all regressions include wave dummies and the following country-level controls: Log per capita GDP, unemployment, inflation, Gini coefficient, media freedom, and democracy; and the following individual-level controls: relative HH income, educational attainment, employment status, and marital status. “Immunization” stands for the ln percentage of children between 12 and 23 months old immunized against diphtheria, pertussis, and tetanus. “Infant mortality” stands for the ln infant mortality per 1000 infants. “Emissions” stand for ln CO₂ emissions in tons per capita. “Income volatility” is the standard deviation of per capita GDP growth of GDP in 1989-2004. “Inequality” is the country’s Gini coefficient. SEs adjusted for clustering at country level are in brackets. Asterisks *, **, *** denote significance at 10, 5, and 1% level.

Appendix (not for publication, available on the web)

Part A.I: Data Description

Table A.1 Description of the variables

Country level variables:	
Log GDP pc (PPP \$)	Natural log of GDP per capita (constant 2000 international \$, PPP-adjusted). Source: World Development Indicators (WDI), 2006; we also check robustness of our results to using Penn World Tables (PWT 6.2)
Log GDP pc (constant \$)	Natural log of GDP (constant 2005 US\$) per capita. Source: EBRD Transition Indicators and World Development Indicators (WDI), 2006
Log HH consumption pc	Natural log of HH final consumption expenditure per capita (constant 2000 US\$). Source: WDI, 2006
Log Pop	Natural log of total population. Source: World Development Indicators (WDI), 2006
Unemployment	Unemployment, total (% of total labor force) average over years where the data is available for the corresponding country. Source: World Development Indicators (WDI), 2006
Inflation	Inflation, consumer prices (annual %) average over years where the data is available for the corresponding country. Source: World Development Indicators (WDI), 2006
Gini	Gini index average over years where the data is available for the corresponding country. Source: World Development Indicators (WDI), 2006
Income volatility	Standard deviation of per capita growth of GDP (PPP \$) calculated over years 1989-2004
Log share DPT immunization	Natural log of immunization, DPT (% of children ages 12-23 months) average over the years covered by the corresponding wave in the WVS dataset. Source: World Development Indicators (WDI), 2006
Log infant mortality	Natural log of mortality rate under 5 years (per 1000 persons) average over the years covered by the corresponding wave in the WVS dataset. Source: World Development Indicators (WDI), 2006
Log emissions pc	Natural log of CO ₂ emissions (metric tons per capita) average over the years covered by the corresponding wave in the WVS dataset. Source: World Development Indicators (WDI), 2006
Media freedom	A rating of media freedom (on a scale from 0 to 2; 0 – not free media, 2 – free media). Source: Freedom House 2007
Democracy	A rating of democracy institutions (on a scale from 0 to 10; 0 – none of democratic institutions, 10 – all democratic institutions). Source: Polity IV v2004
Log Energy use pc	Natural log of energy use per capita (kg of oil equivalent). Source: WDI, 2006
Automobiles pc	Vehicles per capita. Source: World Development Indicators (WDI), 2006
Reform in the current year (for transition countries)	An index that equals the average score minus 1 of EBRD transition indicators for large scale privatization, small scale privatization, enterprise restructuring, price liberalization, trade and forex system, competition policy, banking reform and interest rate liberalization, securities markets and non-bank financial institutions, overall infrastructure reform. EBRD calculated these indices on the basis from 1 to 4.3 (4+) where the higher the index is means higher progress in corresponding area of reforms. Source: EBRD Transition Indicators
Transition country dummy	Dummy variable equals 1 for countries: Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Latvia, Lithuania, Kazakhstan, Kyrgyzstan, Macedonia, Moldova, Mongolia, Poland, Romania, Russian Federation, Serbia and Montenegro, Slovakia, Slovenia, Tajikistan, Turkmenistan, Ukraine, Uzbekistan and 0 otherwise

Table A.1 continued from previous page...

Variables from the World Values Survey, waves 1-4 (wave 1: years 1981-1984; wave 2: years 1989-1993; wave 3: years 1994-1999; wave 4: years 1999-2004)

Satisfaction_WVS	An index from 1 to 10. The answer of an interviewed person to the question: “All things considered, how satisfied are you with your life as a whole these days?”; 1 – dissatisfied, 10 – satisfied
Happiness_WVS	An index from 1 to 10. The answer of an interviewed person to the question: “Taking all things together, would you say you are 1 – very happy, 2 – quite happy, 3 – not very happy, 4 – not at all happy”; we normalized this number to the scale from 1 to 10 (the higher the number is, the happier the interviewed person)
Age	Age of an interviewed person
Relative HH income	Position on an imaginary 10-step income ladder. An index on a scale from 1 to 10. The higher the index, the higher the relative income of the household of an interviewed person in comparison with other households in the country
Log HH income	Annual total income of the household where the interviewed person belongs in the national currency
Educational attainment	6 levels of education: incomplete primary, complete primary, incomplete secondary, complete secondary, university without degree, university with degree. We construct dummy-variables for each level of educational attainment that equals 1 if an interviewed person has corresponding educational attainment and 0 otherwise
Year finished education	Calculated from the year of interview, age of the interviewee and age of completing education of the interviewee
Reform in the year when finished education	An index that equals “Reform in the current year” index (see above) when the current year is the “Year finished education” (see above)
Employment status	8 categories of employment status: full employment, self-employment, part-time, student, housewife, retired, unemployment, other type of employment. We construct dummy-variables for each category of employment status that equals 1 if an interviewed person has corresponding employment status and 0 otherwise
Marital status	6 categories of marital status: single, married, living together, divorced, separated, widowed. We construct dummy-variable for each category of marital status that equals 1 if an interviewed person has corresponding marital status and 0 otherwise
Wave X (X=1, ..., 4)	Dummy variable that equals 1 for individuals interviewed during the wave X of WVS and 0 otherwise

Measures of life satisfaction from alternative sources

Satisfaction_RLMS	An index from 1 to 10. The answer of an interviewed person to the question: “To what extent are you satisfied with your life in general at the present time?; 1 – fully satisfied, 2 – rather satisfied, 3 – both yes and no, 4 – less than satisfied, 5 – not at all satisfied”; we normalized this number to the scale from 1 to 10 (the higher the number is, the more satisfied the interviewed person)
Satisfaction_LITS	An index from 1 to 10. The answer of an interviewed person to the question: “All things considered, I am satisfied with my life now?; 1 – strongly disagree, 2 – disagree, 3 – neither disagree nor agree, 4 – agree, 5 – strongly agree”; we normalized this number to the scale from 1 to 10 (the higher the number is, the more satisfied the interviewed person)

Table A.2 Summary Statistics

Variable	Number of observations	Mean	Standard deviation	Min	Max
Log GDP pc (WDI, PPP)	4412	8.42	1.11	6.14	11.07
Log GDP pc (PWT, PPP)	1733	8.97	0.97	6.16	10.83
Log GDP pc (constant \$)	5833	7.49	1.54	4.03	10.88
Log HH consumption pc (constant \$)	4301	7.15	1.44	4.01	10.13
Log Pop	8555	15.10	2.07	9.62	20.98
Unemployment	144	10.24	7.27	0.57	43.5
Inflation	168	43.53	120.4	-1.67	863.4
Gini	128	40.33	10.50	19.0	74.33
Income volatility	178	0.047	0.042	0.008	0.3169
Log share DPT immunization	171	4.44	0.255	2.30	4.60
Log infant mortality	172	2.59	0.907	0.986	4.79
Log emissions pc	179	1.55	0.970	-2.77	3.01
Automobiles pc	1573	0.175	0.191	0.00037	0.808
Log Energy use pc	4116	7.20	1.08	4.45	10.51
Media freedom	4644	0.957	0.850	0	2
Democracy	1894	8.02	2.06	2	10
Log GDP pc in constant dollars	453	7.28	0.977	5.06	9.39
Reform in the current year	57	1.47	0.809	0	2.81
Transition country dummy	84	0.27	0.449	0	1
Satisfaction_WVS	263097	6.62	2.49	1	10
Happiness_WVS	257881	7.03	2.22	1	10
Age	264839	41.2	16.3	15	101
Relative HH income	228938	4.68	2.48	1	11
Log HH income	155528	10.8	2.54	4.56	19.8
Log HH income per capita	40772	10.2	2.38	3.62	18.2
Educational attainment: incomplete primary	267870	0.084	0.277	0	1
Educational attainment: complete primary	267870	0.107	0.309	0	1
Educational attainment: incomplete secondary	267870	0.063	0.243	0	1
Educational attainment: complete secondary	267870	0.115	0.319	0	1
Educational attainment: University without degree	267870	0.069	0.253	0	1
Educational attainment: University with degree	267870	0.116	0.320	0	1

Table A.2 continued from previous page

Variable	Number of observations	Mean	Standard deviation	Min	Max
Year finished education	267870	0.052	0.222	0	1
Reform in the year when finished education	267870	0.096	0.294	0	1
Employment status: full employment	267870	0.379	0.485	0	1
Employment status: self-employment	267870	0.084	0.277	0	1
Employment status: part-time	267870	0.072	0.258	0	1
Employment status: student	267870	0.067	0.250	0	1
Employment status: housewife	267870	0.139	0.346	0	1
Employment status: retired	267870	0.135	0.342	0	1
Employment status: unemployment	267870	0.077	0.267	0	1
Employment status: other type of employment	267870	0.017	0.128	0	1
Marital status: single	267870	0.234	0.423	0	1
Marital status: married	267870	0.589	0.492	0	1
Marital status: living together	267870	0.042	0.200	0	1
Marital status: divorced	267870	0.036	0.186	0	1
Marital status: separated	267870	0.015	0.122	0	1
Marital status: widowed	267870	0.066	0.248	0	1
Wave 1	190	0.111	0.314	0	1
Wave 2	190	0.226	0.420	0	1
Wave 3	190	0.289	0.455	0	1
Wave 4	190	0.374	0.485	0	1
Satisfaction_RLMS	104082	4.62	2.59	1	10
Satisfaction_LITS	26387	5.80	2.57	1	10

Part A.II: Details of empirical methodology

In the main text of the paper, we present two tables with regression results. This section describes the methodological details of all estimated regression equations in the order in which the results are reported in Tables 2 and 3.

Equations estimated in Table 2

Columns 1 and 2 of Table 2 report estimation results of the difference in satisfaction in transition and non-transition countries by wave. The estimated equation is as follows:

$$S_{it} = \alpha_0 + \alpha_1 T_c + \beta_1 Y_{ct} + \beta_2 R_{ict} + \gamma'_1 \mathbf{X}_{it} + \gamma'_2 \mathbf{Z}_{ct} + \epsilon_{ict},$$

where i indexes individuals; c indexes countries of residence of individuals i ; and t indexes years in which the particular wave of the World Values Survey took place in the country c . S_{it} denotes life satisfaction of respondent i in year t . T_c denotes transition country dummy. Y_{ct} is a measure of economic well-being of the country c . As a baseline, we report results with Log GDP per capita (WDI, PPP). In addition, we use various alternative measures of economic well-being (as discussed below). R_{ict} denotes the relative HH income, i.e., the perception of the individual i of the position of her household on the imaginary 10-step income ladder relative to other households in the country at time t . \mathbf{X} is a vector of individual-level control variables that consists of age with a quadratic term, six dummy variables for educational attainment, six dummy variables for marital status, and eight dummy variables for employment status. \mathbf{Z}_{ct} is a vector of country-level control variables, which consists of unemployment level, inflation level, Gini coefficient, Media freedom and Democracy indices. Throughout the section, we keep the same notation. All variables used in the empirical analysis are described in Table A.1 and summarized in Table A.2 in this Appendix. ϵ_{ict} denotes an error term. In all regressions presented in the paper, we adjust standard errors to allow for clusters in the error term ϵ_{ict} within countries. Without this adjustment, standard errors of all estimation coefficients (in all estimated equations) become substantially smaller. Columns 1 and 2 of Table 2 report results separately for the Waves 4 and 3 of the WVS.

Columns 3 and 4 of Table 2 report results of the estimation of differential effect of income in transition and non-transition countries where the transition country dummy T_c is interacted with income variables. These equations are estimated on the pooled sample from all waves. In the Column 3, we estimate the following specification, which looks at the effect of country-level income:

$$S_{it} = \alpha_0 + \alpha'_1 T_c \mathbf{W}_t + \beta_1 Y_{ct} + \beta_2 R_{ict} + \delta T_c (Y_{ct} - \bar{Y}) + \gamma'_1 \mathbf{X}_{it} + \gamma'_2 \mathbf{Z}_{ct} + \gamma'_3 \mathbf{W}_t + \epsilon_{ict}.$$

\mathbf{W}_t denotes a vector of dummy variables indicating the wave, in which the particular interview took place. Henceforth, the upper bars denote the overall sample mean.

In the Column 4, we include the interaction of transition country dummy with the household relative income R_{ict} :

$$S_{it} = \alpha_0 + \alpha'_1 T_c \mathbf{W}_t + \beta_1 Y_{ct} + \beta_2 R_{ict} + \delta T_c (R_{ict} - \bar{R}) + \gamma'_1 \mathbf{X}_{it} + \gamma'_2 \mathbf{Z}_{ct} + \gamma'_3 \mathbf{W}_t + \epsilon_{ict}.$$

We checked robustness of the results to estimation of the effect of relative income controlling for all country-level variation with country fixed effects:

$$S_{it} = \beta_2 R_{ict} + \phi T_c (R_{ict} - \bar{R}) + \gamma'_1 \mathbf{X}_{it} + \gamma'_3 \mathbf{W}_t + \phi_c + \epsilon_{ict},$$

where ϕ denotes country fixed effects and the rest of notation is the same. This equation is estimated on the pooled sample from all waves. The results are almost identical to the results reported in Column 4 of Table 2.

Columns 5 and 6 of Table 2 present results of estimation of the effect of the absolute nominal income controlling for all country-level variation with country fixed effects:

$$S_{it} = \xi_1 y_{it} + \xi_2 T_c y_{it} + \gamma'_1 \mathbf{X}_{it} + \phi_c + \epsilon_{ict},$$

where y_{it} denotes the Log nominal (self-reported) household income of individual i . In Column 5, we use the total household income, whereas in Column 6 total household income *per household member*. This equation is estimated on the sample of the Wave 4 of the WVS. The data on the nominal household incomes exist for the Waves 1 and 4; due to problems with identification of the units of y_{it} , we cannot deflate it properly to be able to pool both waves together.

Age equation described in text

In the subsection entitled “The “Happiness Gap” Increases with Age,” we present results of the estimation of the differential effect of age in transition and non-transition countries:

$$S_{it} = \alpha_0 + \alpha'_1 T_c \mathbf{W}_t + \beta_1 Y_{ct} + \mu_1 T_c * (A_{it} - \bar{A}) + \\ + \mu_2 T_c * (A_{it}^2/100 - \bar{A}^2/100) + \gamma'_1 \mathbf{X}_{it} + \gamma'_2 \mathbf{Z}_{ct} + \gamma'_3 \mathbf{W}_t + \epsilon_{ict},$$

where A_{it} denotes age of individual i at time t . Note that the vector \mathbf{X} controls for the direct effect of age and age squared.

Equations estimated in Table 3

Columns 1 of Table 3 presents the results of the baseline regression:

$$S_{it} = \alpha_0 + \alpha'_1 T_c \mathbf{W}_t + \beta_1 Y_{ct} + \gamma'_1 \mathbf{X}_{it} + \gamma'_2 \mathbf{Z}_{ct} + \gamma'_3 \mathbf{W}_t + \epsilon_{ict}.$$

In Columns 3-5 of Table 3 a series of regressors are added to the baseline:

$$S_{it} = \alpha_0 + \alpha'_1 T_c \mathbf{W}_t + \beta_1 Y_{ct} + \nu' P_{ict} + \gamma'_1 \mathbf{X}_{it} + \gamma'_2 \mathbf{Z}_{ct} + \gamma'_3 \mathbf{W}_t + \epsilon_{ict}.$$

where P_{ict} denotes the vector with selected components from the following list of variables: “Log share DPT immunization,” with a quadratic term, “Log infant mortality,” “Log emissions per capita,” “Income volatility,” (See Table 3 for the exact list of components of P_{ict} —different for different Columns).

Column 2 of Table 3 reports the results of estimation of the equation, in which we allow for different effect of Gini for transition and non-transition countries:

$$S_{it} = \alpha_0 + \alpha'_1 T_c \mathbf{W}_t + \beta_1 Y_{ct} + \mu_3 T_c (G_{ct} - \bar{G}) + \gamma'_1 \mathbf{X}_{it} + \gamma'_2 \mathbf{Z}_{ct} + \gamma'_3 \mathbf{W}_t + \epsilon_{ict}.$$

Notice that the direct effect of the Gini coefficient G_{ct} is controlled for in \mathbf{Z}_{ct} .

In Columns 6 and 7 of Table 3, we allow the happiness gap between transition and non-transition country to be different for two groups of individuals: born before 1971 and after 1971. The exact specification is as follows:

$$S_{it} = \alpha_0 + \alpha'_1 T_c \mathbf{W}_t + \alpha'_2 T_c \mathbf{W}_t OLD_i + \beta_1 Y_{ct} + \nu' P_{ict} + \gamma'_1 \mathbf{X}_{it} + \gamma'_2 \mathbf{Z}_{ct} + \gamma'_3 \mathbf{W}_t + \epsilon_{ict}.$$

where OLD_i denotes a dummy indicating whether the respondent was born before 1971. All regressions in Table 3 are run on the exactly same sample.

Equations estimated in Table 4

Columns 1-3 of Table 4, we explore whether the effect of public goods, uncertainty, and inequality on happiness depends on age in transition and non-transition countries. The exact specification of these equations is as follows:

$$S_{it} = \alpha_0 + \alpha'_1 T_c \mathbf{W}_t + \beta_1 Y_{ct} + \nu'_1 P_{ict} + \nu'_1 P_{ict} A_{it} + \gamma'_1 \mathbf{X}_{it} + \gamma'_2 \mathbf{Z}_{ct} + \gamma'_3 \mathbf{W}_t + \epsilon_{ict}.$$

Columns 4 and 5 of Table 4 present results of the estimation of the cohort effect educated before and after transition:

$$S_{it} = \alpha_0 + \beta_1 Y_{ct} + \eta_1 F_i + \eta_2 L_{ct} + \eta_3 L_{cF_i} + \gamma'_1 \mathbf{X}_{it} + \gamma'_2 \mathbf{Z}_{ct} + \gamma'_3 \mathbf{W}_t + \epsilon_{ict}.$$

Here, F_i denotes the year when individual i completed her education. L_{ct} stands for the reform progress in country c and year t ; and L_{cF_i} stands for the reform progress in country c at time F_i , i.e., when individual i completed education. We take two alternative measures of the reform progress: (1) the value of the EBRD reform index for the respective year and (2) a dummy, indicating the start of reform in the country, i.e., the indicator that the EBRD reform index is above a certain threshold (we describe these variables in detail in Table A.1). This equation is estimated on the subsample of transition countries and Wave 4.

Alternative measures of economic well-being

We verify that the results presented in Tables 2, 3, and 4 in the main text are robust to using the following alternative measures of economic well-being: Log per capita GDP from the Penn World Tables; Log per capita GDP and consumption in constant US\$ (without PPP adjustment), Log energy use, and automobiles per capita. This is necessary because (i) PPP estimates of GDP for transition countries are particularly noisy and (ii) it is particularly hard to account for unofficial economy in national accounts in the transition period. Tables and figures in the remainder of this Appendix (i.e., Part III) present the results of robustness checks of Table 2. We do not report the results of robustness checks for results presented in Table 3 and 4, because they do not change *at all* when we change the per capita GDP control to alternative measures of economic well-being. Overall, our results are very robust.

Part A.III: Robustness to alternative measures of economic well-being

Table A.3 Reconstruction of Table 2 with alternative measures of economic wellbeing

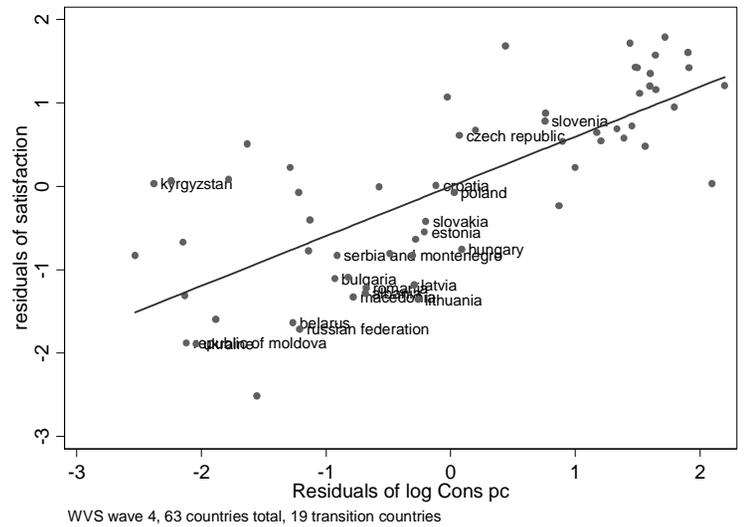
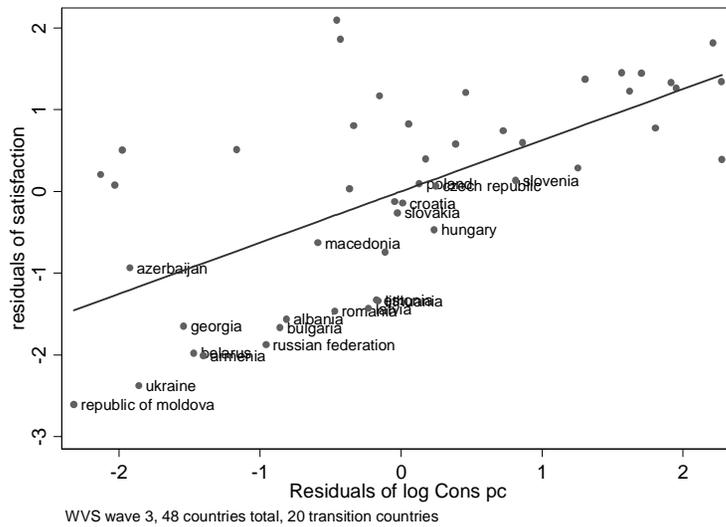
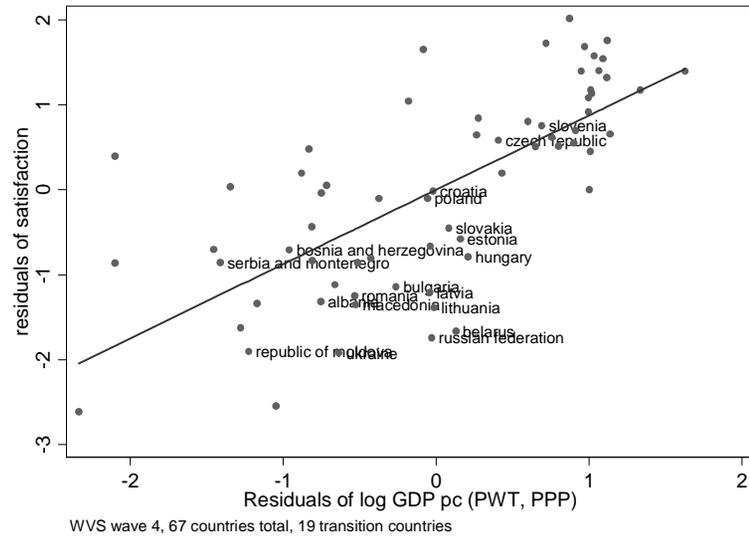
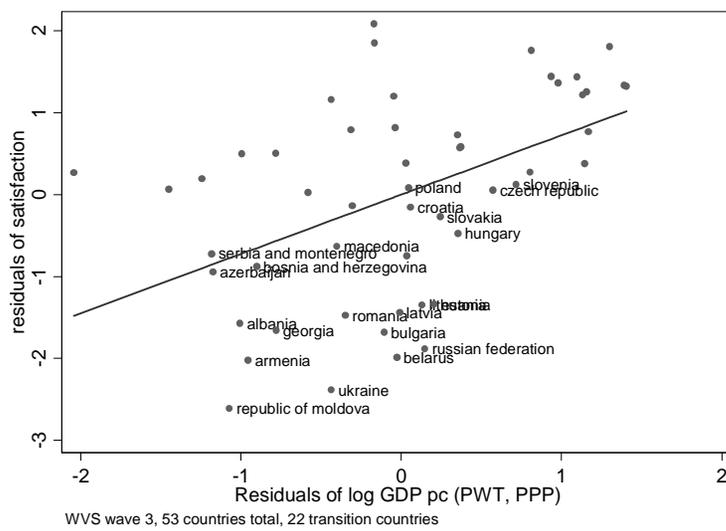
Dependent variable in all regressions: life satisfaction (1-10)

Measure of Econ. wellbeing:	Log GDP pc (WDI, PPP)			Log GDP pc (PWT, PPP)			Log GDP pc (WDI, constant \$)		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Transition country dummy	-1.11	-1.37		-1.14	-1.48		-0.91	-1.38	
	[0.33]***	[0.35]***		[0.33]***	[0.36]***		[0.34]***	[0.33]***	
Transition country dummy * wave2			-0.68			-0.49			-0.45
			[0.23]***			[0.21]**			[0.18]**
Transition country dummy * wave3			-1.43			-1.63			-1.2
			[0.28]***			[0.31]***			[0.27]***
Transition country dummy * wave4			-0.84			-0.94			-0.6
			[0.31]***			[0.32]***			[0.28]**
Econ. wellbeing	0.31	0.46	0.4	0.34	0.31	0.43	0.31	0.23	0.28
	[0.23]	[0.17]**	[0.12]***	[0.24]	[0.17]*	[0.11]***	[0.12]**	[0.09]**	[0.06]***
Relative HH income (1-10)	0.2	0.14	0.14	0.2	0.14	0.14	0.2	0.14	0.14
	[0.03]***	[0.02]***	[0.02]***	[0.02]***	[0.02]***	[0.02]***	[0.03]***	[0.02]***	[0.02]***
Transition country * (Econ. wellbeing - mean)			0.38			0.29			0.4
			[0.22]*			[0.29]			[0.15]**
Wave dummies			yes			yes			yes
Sample: Wave	4	3	all	4	3	all	4	3	all
Observations	57868	51516	162473	57868	51516	165377	57868	51516	165409
R-squared	0.18	0.25	0.19	0.18	0.25	0.19	0.18	0.25	0.19
Countries / Transition countries	45/16	39/14	56/17	45/16	39/14	56/17	45/16	39/14	56/17

Measure of Econ. wellbeing:	Automobiles pc (WDI)			Log energy use pc (WDI)			Log Consumption pc (WDI)		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Transition country dummy	-0.98	-1.56		-1.27	-1.41		-0.75	-1.4	
	[0.28]***	[0.34]***		[0.28]***	[0.37]***		[0.29]**	[0.32]***	
Transition country dummy * wave2			-0.37			-0.63			-0.26
			[0.24]			[0.25]**			[0.22]
Transition country dummy * wave3			-1.5			-1.87			-1.09
			[0.29]***			[0.25]***			[0.28]***
Transition country dummy * wave4			-0.93			-1.07			-0.55
			[0.29]***			[0.29]***			[0.25]**
Econ. wellbeing	1.38	0.48	1.45	0.22	0.02	0.27	0.41	0.21	0.31
	[0.66]**	[0.59]	[0.53]***	[0.19]	[0.13]	[0.10]**	[0.10]***	[0.09]**	[0.05]***
Relative HH income (1-10)	0.19	0.15	0.15	0.2	0.14	0.14	0.19	0.14	0.14
	[0.02]***	[0.02]***	[0.02]***	[0.02]***	[0.02]***	[0.02]***	[0.03]***	[0.02]***	[0.02]***
Transition country * (Econ. wellbeing - mean)			2.76			-0.13			0.48
			[1.49]*			[0.30]			[0.18]**
Wave dummies			yes			yes			yes
Sample: Wave	4	3	all	4	3	all	4	3	all
Observations	51752	51516	144993	56848	50887	164675	55930	51516	164386
R-squared	0.19	0.24	0.19	0.17	0.25	0.18	0.19	0.25	0.19
Countries / Transition countries	40/15	39/14	54/17	44/15	38/13	55/16	44/16	39/14	55/17

Note: Specifications are exactly the same as in regressions reported in columns (1), (2), and (3) of Table 2.

Figure A.1 Reconstruction of the Figure 2 with GDP from PWT and Consumption in constant dollars:



Note: These graphs look very similar when we use other measures of economic well-being as well.

Figure A.2 Gap between happiness in transition and non-transition countries by age cohorts. (The magnitude of estimated coefficients for on transition country dummy in the baseline regression with all standard control variables run separately for 15 age cohorts)

