Happiness in Transition:

An Empirical Study on Eastern Europe

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Abstract

This paper analyzes the determinants of life satisfaction in a pooled data set of representative individual survey data from seven East European countries collected during the early phase of economic and political transformation using ordered logit models. Those core socio-demographic and economic variables known to be relevant from studies on the US and West European countries (u-shaped age effect, positive income effect, negative effect of unemployment, positive education effect, positive marriage effect) have a similar impact on happiness in the countries of Eastern Europe under a condition of dramatic economic, political, and social change. In addition, rural dwellers and churchgoers experience relatively greater life satisfaction. Cross-country differences in aggregate happiness can be explained to a large extent by unemployment rates and the human development index (HDI).

1. Introduction

As a research area in economics, the empirical study of subjective well-being or happiness has remained relatively dormant over almost a quarter of a century. The seminal study by Easterlin (1974) could not motivate economists to devote much research time to the systematic analysis of this topic.[1] However, presumably as a consequence of the growing dissatisfaction with the empirical application of traditional economic welfare analysis, this field has seen rapid growth over the last years (e.g. Clark and Oswald 1994; Di Tella. MacCulloch and Oswald 2001; Easterlin 2001; Frey and Stutzer 2002). In this literature, happiness is measured by answers given in representative opinion polls to a direct question about a respondent's satisfaction with his life. One may be skeptical about the ability of such a direct indicator to capture the concept of interest. However, numerous studies, primarily undertaken by Psychologists, show that survey-based results on individual life satisfaction are quite reliable (Kahneman, Diener and Schwarz 1999). They are highly correlated with alternative indicators of happiness and do not react excessively to specific circumstances in the life of the probands at the time of the interview

There are two main lines of research in the empirical literature on life satisfaction: First, the various determinants of happiness are studied. Here the focus is on individual-level variables that affect life satisfaction within countries, across countries and across time. For instance, Blanchflower and Oswald (2004) study and compare happiness for the US and the UK. Second, after the fundamental relationships between these socio-demographic and economic variables and happiness have been established, they can be used as a control framework for testing the influence of other variables on well-being, for example Frey and Stutzer (1999)

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[1] There is a longer and more sustained tradition of studying happiness in Psychology and Sociology. Most studies have a somewhat different focus than the ones by economists (see, e.g., Allardt 1973; Campbell, Converse, and Rodgers 1976; Strumpel 1974).

analyze the impact of direct democracy and Di Tella et al. (2001) study the impact of macroeconomic variables such as inflation and unemployment. To generate convincing results, this second stream requires a relatively advanced knowledge about the core determinants of happiness, as otherwise the omitted variable problem becomes insurmountable.

So far, the literature has concentrated on studying Western Europe and the US. We know little about the situation in the transition countries of Eastern Europe. Blanchflower and Freeman (1997) look at Hungary and Slovenia within a pooled cross-section data set and find that life satisfaction is on average lower in these countries than in the West. Blanchflower and Oswald (2001) analyze the impact of unemployment on happiness and conclude that it is relatively similar to Western countries. The case of Kyrgyzstan is investigated by Namazie and Sanfey (1999). Graham and Pettinato (2002) and Ravallion and Lokshin (2002) employ the same panel data set to study poverty and subjective economic well-being in Russia. Hayo and Seifert (2003) concentrate their analysis on economic well-being, a sub-category of life satisfaction. They find that during early stages of transition, subjective well-being is not very well proxied by indicators based on national accounting variables, such as GDP per capita.

The present paper is in the first research stream identified above. Our core question is to understand whether the turbulent time of economic and political transition affects the impact of those variables on life satisfaction that have been found to be important for Western countries. If we find that similar determinants affect happiness and we have reasons to believe that this subjective indicator of well-being is reliable, then these models can be used as a control framework for testing the influence of other variables on subjective well-being, reflecting the second stream noted above.

The data set is part of the New Democracy Barometer series and consists of opinion surveys that are representative for the general population in the sampled countries from 18 years of age onwards (about 1000 respondents per country). These studies were organized in 1991 by the

Paul-Lazarsfeld-Society based in Vienna (see Rose, Mishler and Haerpfer 1998).[2] The timing of the surveys allows us to capture these societies right at the beginning of the transformation process. Thus, we can adequately address the question of whether determinants of happiness derived under stable conditions have the same influence in a situation of dramatic political, economic, and social change. Since we aggregate these national data into a pooled cross-section, we are able to derive results for the group of East European countries as a whole as well as with respect to the differences in average national happiness levels. Statistical restriction tests on national data allow verification that pooling is acceptable in the first place. The structure of the paper is as follows. In the next section, we describe the data in more detail and analyze average life satisfaction across the countries in our sample. The third section contains a detailed multivariate analysis of individual life satisfaction in Eastern Europe. In section 4, we provide an extensive interpretation of the findings on the individual-level data set. Some considerations with regard to explaining the cross-country differences in aggregate life satisfaction are presented in section 5. Finally, we summarize the results and conclude.

2. Descriptive analysis of the data set

The dependent variable in our analysis is based on the answers to the following question:

> On the whole, are you very satisfied, not very satisfied, or not at all satisfied with the life you lead?
>
> 1. Not at all satisfied,   2. Not very satisfied,   3. Very satisfied.

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[2] Access to the raw data is restricted to primary and secondary researchers organised in the „Citizens in Transition Network". Detailed information on the survey project, including questionnaires, is available at the Centre for the Study of Public Policy (CSPP) homepage: www.cspp.strath.ac.uk. The data for the Czech and Slovak Republics are based on a split of the sample for Czechoslovakia and thus contain a smaller number of cases.

Answers are coded in three categories (no answers are coded as missing), which requires the use of an ordered logit model. We treat life satisfaction and happiness as synonyms since, at least empirically, they seem to measure a very similar concept (Blanchflower and Oswald 2004).

Important summary statistics for all variables used in the present study are given in Table 1. The last column presents Pearson's correlation coefficients of the socio-demographic variables with happiness. Relatively high positive correlations are found for married persons, highest-income earners, non-churchgoers, and Catholics, while strongly negative associations exist for divorced persons, those with only primary education, the unemployed, lowest-income earners, and Orthodox. We should be very careful when interpreting these associations, as they might very well be spurious due to missing control variables. For example, the share of Orthodox is very high in certain countries, and it is not clear whether religion causes these variations across countries or whether it is just a reflection of cross-country differences coming from other sources. The average of life satisfaction is 2.14, which is close to the median and mode (omitted here), indicating that most respondents place themselves in the middle category. Note that the means of the dummy variables correspond to the shares of these categories in overall answers to the respective question, e.g. an average of 0.53 for "female" implies that 53% of the respondents are female and 47% are male.

In a first step of the analysis, we compare *national happiness levels* in Eastern Europe. These are the arithmetic means of the dependent variable computed for each country in our sample. An important question is whether the resulting values have any meaning, within and outside the present data base. Although we have a number of studies on Western countries, and thus can draw comparisons, it is always difficult to precisely match data from different years and surveys. In particular, the wording of the question and the scale used for the answers may affect the results. To foster a meaningful comparison with Western Europe, the New

Democracy Barometer also contains happiness data for Austria. Table 2 presents the happiness averages (means) for the countries in our sample, ordered from highest to lowest value. Austrians report the highest life satisfaction, followed by Czechs and Slovaks. The lowest average levels of satisfaction can be found in Romania and Bulgaria. While averages can sometimes be misleading, the frequency count for the respective answer categories shows that the arithmetic means represent the overall distributions of answers very well.

One way of comparing country averages across studies with differences in the scale of the life satisfaction variable is via the percentage of scale maximum (%SM).[3] Cummins (2000, 136f) argues that for Western societies a representative value is 75 %SM, with a standard deviation of 2.5% SM. From Table 2 we can infer that life satisfaction in Austria is significantly above the typical values for Western countries at a 5% level (two standard deviations under a normal distribution). The Czech and Slovak Republics have reached values that are not statistically different from the percentage of scale maximum typically found in Western countries. However, all other East European countries in our sample show %SMs that are significantly below this reference value.

Hence, our broader sample of countries supports Blanchflower and Freeman's (1997) finding that life satisfaction is lower in Eastern Europe than in the West. Given the differences in social and economic conditions in East European compared to Western countries at the beginning of political and economic transformation, this result is not entirely surprising. At this stage, we cannot be sure whether these variations in national happiness are due to specific national conditions or just reflect the influence of individual-level variables. For instance, in the literature on life satisfaction we tend to find that better educated respondents appear to be happier. Now, if a particular country has a relatively higher share of better educated, we would expect that the average happiness level for this country will be higher. Hence, section 6

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[3] The %SM is computed as (Likert score − 1) / (Number of points on Likert scale −1)*100.

investigates whether the variations in average levels, interpreted as differences in national happiness, remain after controlling for individual-level effects.

3. Explaining happiness by socio-demographic and economic variables

From the pre-dominantly bivariate analysis of the previous section using data for only one country we now turn towards multivariate regression taking into account information on seven East European countries. The individual-level determinants of life satisfaction are analyzed in a pooled cross-section ordered logit regression and the results given in Table 3. Note that in the regression analysis, Austria is not included due to missing explanatory variables. The first column of results refers to the full model containing all available regressors in the surveys. Following the general-to-specific modeling strategy advocated by Hendry (1993), a consistent testing-down process has been applied to this model, leading to the reduced model in the right part of the table.

Leamer (1978) argues that in large statistical samples there is the danger that even slight and economically meaningless deviations from the null hypothesis lead to a rejection of the test. Thus, in view of our sample size of more than 5600 observations, a significance level of 1% has been used throughout the analysis. We employ normal standard errors (SE) in the analysis but it is apparent from Table 3 that heteroscedasticity-robust standard errors (HCSE) do not lead to noticeable differences, except for the category "Apprentice". However, even when using HCSE the testing-down restriction in the last line of Table 3 would not be rejected $(\text{Chi}^2(17) = 17.8)$.

In the interpretation of the variables, we generally concentrate on the statistically significant effects. The pseudo-R^2 value of our regression, below 9%, is not very high in absolute terms. This is an indication that we do not understand happiness at an individual level very well. However, the fit of the regression is at least as high as in comparable studies on Western

countries. Thus, the determinants of happiness considered in the literature are important for Eastern Europe even in the turbulent early period of transition.

So far, the analysis assumes that, apart from differences in the level of satisfaction, the effects of regressors are the same in all sampled countries. This is not a trivial assumption and it appears worthwhile to investigate whether the estimated relationships also hold at the national level. Methodological, we start by estimating for each country the general ordered logit model presented in the left part of Table 3 for the pooled data set. We then apply the exclusion restrictions that lead to the reduced model in the right part of Table 3 *and* impose the coefficients estimated for the pooled model for those variables that remain in the reduced model. If we have to reject the restrictions as a group, we remove those restrictions not supported by the data.

Note that this procedure does not involve a test of each individual coefficient for a country against the corresponding coefficients of all other individual countries. Thus, we do not answer the question of whether, say, the Polish are significantly different from the Romanians. Instead, we test whether the estimated average coefficient based on the pooled data set is consistent with the coefficients estimated at a national level.[4] Hence, we do *not* answer the question whether all countries are the same. Instead we test whether the relationships in all individual countries can be described adequately using the coefficients from the model based on pooled data. In other words, we answer the question of whether the estimated average Eastern European relationship is significantly different from the corresponding associations at a national level. The results of this analysis are summarized in Table 4.

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[4] In fact, this is a somewhat conservative test, as it does not take into account that the coefficients for the pooled model are also subject to statistical uncertainty. Thus, using this methodology we overestimate the extent to which national coefficients deviate from the average coefficient based on pooled data.

In the second column, those variables are listed that cannot be included in the respective national data sets due to multicollinearity, typically caused by missing values. The statistics for the restriction test of the remaining variables are given in the third column. Only one country shows significant deviations from the average Eastern European estimates. In the case of Romania, respondents who live in Bucharest are significantly less happy than other Eastern Europeans living in big cities. Estimating these variables unrestrictedly does not lead to any further rejections of the set of restrictions coming from the pooled model ($Chi^2(27) = 39.9$). To summarize, in general the results from the pooled model are remarkably consistent with national estimates. The only exception is a significantly lower life satisfaction of those respondents who live in Bucharest. Hence, it is meaningful to speak of the "East Europeans" in the present context.

4. Interpretation of regression results

The actual coefficients of ordered logit models do not give a very good idea about the effects of changes in the explanatory variables on the predicted probabilities of falling under one of the categories of the dependent variable (Greene 1991, p. 703ff). In particular, the coefficients in Table 3 do not imply sign restrictions on the effects of changes in the explanatory variables on the middle category, i.e. "not very satisfied". It is therefore useful to compute marginal effects of explanatory variables, here evaluated at the sample mean of the other variables. For dummy variables, this is not truly a marginal effect but rather the change from zero to one. Table 5 reports marginal effects for the variables within the reduced model of Table 3 for all categories of life satisfaction. Actual and predicted frequencies of the dependent variable are given in the last line of the table. It is apparent that the model somewhat over-predicts the number of cases falling into the middle category, a typical outcome of this class of models. Applying the results on marginal effects to country dummies, we find that although all

countries show lower happiness levels than the Czech Republic, being non-Czech has varying implications with respect to the probability of answering "not very satisfied", the middle category of happiness. In addition, the probabilities of falling into the top or bottom categories of the dependent variable are not symmetric. For instance, transforming a Czech into a Slovak (Bulgarian) citizen raises the probability of answering "not at all satisfied" by 5 percentage points (36 percentage points) and "not very satisfied" by 2 percentage points (reduces by 8 percentage points), and lowers the probability of falling into the "very satisfied" category by 7 percentage points (28 percentage points). Apart from the country dummies, the marginal effects have the same sign on the two lower categories, with the highest category taking on the opposite sign. National differences are generally more important than variations in individual economic and socio-demographic variables. For example, to keep the probability of answering "very satisfied" approximately constant after transforming a Czech into a Bulgarian citizen, he needs to get a university degree and must enter the highest income quartile.

Interpreting the results for the individual-level variables, we find that *age* has a non-linear, u-shaped, relationship with happiness. Taken on its own, the linear age term implies that being one year older lowers the probability of being in the highest happiness category by 1 percentage points, and increases the probability to be in one of the lower categories by 0.3 percentage points and 0.4 percentage points, respectively. However, the significance of the squared age term implies that we need to take account of this non-linear effect as well. Here the marginal probabilities are misleading, as age squared cannot change by one unit if age changes by one unit. Computing the resulting difference in age squared for adding another year to the mean age (46.49), and multiplying this with the marginal effects for age squared, we get a "pseudo-marginal" effect of 0.94 percentage points increase in the probability of being in the highest happiness category. The net marginal effect of the two age variables on the "very satisfied" category is positive (0.24 percentage points). This is in accordance with the finding

that minimum happiness, conditional on the other explanatory variables, is observed at an age of 44 (based on the coefficients in Table 3). The right hand side of the u-shape becomes higher than the left hand side when people reach 88 years of life.

How does this finding relate to the results previously reported in the literature? Table 6 compares the influences of core socio-demographic and economic variables across studies on East European and Western countries. The first line of this table reports estimates for the happiness-age relationship.

A non-linear association between age and happiness is a typical finding in the literature. Moreover, the shape of the non-linearity is strikingly similar across Eastern Europe and Western countries. This is all the more noteworthy as the number and coding of other control variables varies across the listed studies. However, the estimates for Russia by Ravallion and Lokshin (2002) diverge substantially in this respect. This outlier may be the result of using a qualitatively different dependent variable, namely the subjective rank of the respondent within the national income distribution. Most studies do not report marginal effects, and thus a detailed comparison along this dimension is not possible.

With regard to *gender*, no significant differences can be found in Eastern Europe. Table 6 reveals that in the West females tend to be happier, while for Russia, one study even reports a negative sign.[5] One explanation for this deviation from attitudes in Western countries may be the relatively less enthusiastic support of women towards the creation of a market economy in East European countries (Hayo 2004). This critical attitude might reflect relatively more pessimistic expectations women have for their lives under the new regime, canceling out the "extra" happiness recorded in Western surveys compared to men.

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[5] In his survey of the psychological literature, Cummins (2000, p. 134) is rather sceptical with regard to the existence of gender differences in happiness.

In Eastern Europe, *married* persons report a higher life satisfaction than those who were never married, divorced or widowed. Being single lowers the probability of answering "very satisfied" by 6 percentage points, while the probability of being in one of the lower happiness categories increases by 2 percentage points and 4 percentage points, respectively. The positive association between happiness and marriage is reported in most of the studies listed in Table 6. In other studies, divorced and widowed persons are also reported to be relatively less happy. Based on the coefficients in Table 3, we cannot reject the hypothesis that the negative effect of being single is equal to being widowed. Divorce has a more negative effect on happiness but the difference is only significant at a 5% level. Graham and Pettinato (2002) do not record marriage to be significant for Russia, while Ravallion and Lokshin (2002) report the opposite result.

With regard to *education* we find for both Eastern Europe and Western countries that more educated persons tend to be more satisfied.[6] However, in the present sample of East European countries, this result is only robust for respondents with a university degree when applying the statistical reduction process. In addition, Namazie and Sanfey (1999) do not find significant results of education for happiness in Kyrgyzstan. In the present study, the marginal probability effects of holding a university degree are slightly lower, in absolute values, than the ones estimated for being married.

Differences in the *income* position, on the other hand, affect happiness through all quartiles. This is a consistent finding across all studies contained in Table 6. Note that the income variable used here, and in most other comparative studies, captures a mixture between an *absolute* and a *relative* income effect. The absolute income effect derives from the fact that the people who are in the upper income quartiles are by construction the high income people and

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[6] As in the case of gender, Cummins (2000) argues that education does not play an important role in explaining differences in life satisfaction.

vice versa. However, there is also a relative effect, as we sort people according to their relative income position within their society. By pooling across countries, we include people in the same income quartile whose absolute income may be quite different. Unfortunately, the data has not been recorded in a way to properly distinguish between absolute and relative income effects in the present sample. The marginal effects of being in the highest income quartile are the largest in the model, except for the ones of the country dummies as noted earlier. A person entering the highest income category, from being in the lowest, achieves an increase in the probability of answering "very satisfied" by 20 percentage points. Interestingly, for the second highest income category, this increase is 11 percentage points and for the second-lowest category 5 percentage points, which suggests a pattern of doubling this probability with every consecutive jump in the income categories.

Finally, the *unemployed* are less happy than people in all other employment categories, even after controlling for a number of other influences, including income position. Moreover, the impact of unemployment on happiness, at least compared to the other variables in the regression, is not trivial. For instance, the decrease in probability of being "very satisfied" as a result of being out of work is greater than that of a fall from the upper-middle income category to the lowest one. Generally, becoming unemployed will imply a loss of happiness due to lower income as well as due to being in the state of unemployment involving a loss of social standing, self-respect, and gloomy future perspectives.

The present data set contains additional socio-demographic variables that generate results that are not available in the existing multi-country happiness studies. Studying the effects of *settlement size* reveals that those who dwell in relatively rural areas tend to be happier than those living in larger cities. This relationship has already been noted in a case study by Dale (1980) for Scandinavian countries. One explanation of this finding is that it simply reflects different costs of living between city and rural area. Holding nominal income constant, I derive

more satisfaction by being able to buy more goods in the lower-cost rural area. However, it is unlikely that purchasing power differences are sufficient to explain the disutility of big city life. First, living in a bigger city also brings benefits in terms of the extended provision of goods and services. Second, if it were the case that we measure only differences in the price level then the relative size of the effects of being in one of the respective income quartiles and settlement sizes should never be negative. Using the estimates from Table 3, one can show that the net contribution of settlement size and income quartile on happiness, keeping everything else equal, is positive for the upper two quartiles only.[7]

An additional explanation is that the aspiration level of people in the rural areas does not change as quickly as that of city dwellers. This explanation is indirectly supported by the finding that income quartiles and settlement size are positively correlated.[8] For example, the Pearson correlation coefficients for the highest income quartile with the respective categories of community size are: -0.11 for < 5000 inhabitants, -0.02 for 5001-20000 inhabitants, 0.04 for 20001-100000 inhabitants, and 0.09 for > 100000 inhabitants. Similar relationships exist for the other income quartiles. Thus, relatively rich people tend to live in big cities. Moreover, Winter et al. (1999) show for Poland that persons living in urban areas were relatively less satisfied despite better "objective" living conditions. Applying Easterlin's (2001) theory of adjusting aspirations to these findings, those who have relatively less income are confronted

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[7] It is noteworthy that interaction terms of settlement size and income quartile are not significant.

[8] Note that this simple bivariate correlation does not take into account that living costs between smaller and larger settlements differ. If all we did was proxy real income differences, however, then both variables should not be significant. Table 4 shows that this is not the case, and, thus, the effect of community size does not simply reflect a purchasing power correction.

with a style of living in the big cities they cannot achieve and this creates frustration with one's own income situation.

Another insufficiently studied relationship in multi-country comparative studies is the one between *religion*, frequency of church visits and happiness. Some psychological studies find that religious experiences are highly correlated with happiness (see Beit-Hallahmi and Argyle 1997) for a general introduction). The indicator "religion" differentiates between persons of different beliefs. "Frequency of church visits" can be interpreted as a proxy variable for the seriousness of exercising this belief. Swinyard, Kau and Phua (2000) find that religious people are happier in both the US and Singapore. For Eastern Europe we cannot detect differences across religions conditional on the other variables in the model. So belonging to a particular religion does not yield happiness per se after controlling for country specific effects. This result is in accordance with a study by Argyle and Hills (2000), who show that Church membership has no particular effect on happiness, as most religious experiences can be considered as "mild". However, in our data set this result crucially depends on controlling for country fixed effects. Excluding country dummies leads to a highly significant negative effect of being Orthodox. Controlling for Bulgaria and Romania alone is sufficient to render the variable insignificant. Based on our analysis, we therefore cannot exclude that the cross-country variation in happiness is partly driven by differences in religion.

While the actual type of religion does not seem to influence happiness after controlling for country fixed effects, those people who go to church very often are relatively more satisfied with their lives. One interpretation of this result is that religiosity may establish a divine relationship, which acts as a guidance through the crises of life (Pollner 1989). A second interpretation is that participation in church activities creates social ties, which themselves are responsible for higher subjective well-being (Ellison 1991). Another explanation is that a higher frequency of church visits may raise the ratio of "mild" to "intense" religious

experiences (Argyle and Hills 2000). A fourth interpretation, however, relates to the fact that many social groups working to bring down the communist regime in Eastern Europe had operated within the church. Interestingly, the support for the creation of a market economy also does not differ across religions after controlling for country fixed effects (Hayo 2004). But those respondents who report regular visits to a church show significantly more support for the market regime. Thus, the extra happiness of churchgoers measured here may just be a reflection of regime change in these countries.

5. Explaining differences in cross-country happiness

In section 2 we found substantive differences in average happiness across countries. The country dummies given in Table 3 can be interpreted as average differences after controlling for individual characteristics. Using these dummies with the Czech Republic as a reference category, we confirm the ranking in Table 2. Thus, differences in the average happiness values of countries cannot be explained by the individual-level explanatory variables in our data set. There are not enough observations in our data set to study the determinants of these cross-country differences in average life satisfaction extensively.

However, from the point of view of economics it is particularly interesting to see whether these variations in average national happiness are related to per capita income differentials within this group of countries. The Pearson's correlation coefficient between estimated country dummies and national GDP per capita values in US Dollars is 0.53.[9] Therefore, in a bivariate context, inter-country income variation accounts for less than 28% of the variation in national happiness. This suggests that per capita income can only play a moderate role in explaining inter-country happiness differences in Eastern Europe.

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[9] The values for GDP per capita in 1995 US dollar were taken from the World Bank's "World Development Indicators".

A broader indicator for measuring aggregate well-being is the HDI, which is constructed by the United Nation Development Programme. It is based on three categories, namely a long and healthy life, knowledge, and a decent standard of living.[10] The correlation coefficient between HDI values and country dummies is 0.75. Thus, the purely subjective welfare indicator happiness and the more objective indicator HDI appear to give much more similar results with respect to aggregate living conditions in a country than the more often used objective indicator GDP per capita.

Given the importance of unemployment in the individual-level regressions, one could conjecture that differences in national unemployment rates are able to explain the cross-country happiness differences in our sample. On the other hand, unemployment rates were still relatively low in Eastern Europe during this early phase of economic transition. By referring to Table 1 we can see that, in the aggregate, only six percent of respondents were unemployed. Although in later transition years the national differences in unemployment rates will be much more pronounced, there is some variation across countries. In our sample, the unemployment rate ranges from 2.9% in the Czech Republic to 9.8% in Bulgaria. However, low unemployment rates in a process of transition may not signal good economic conditions for a country but rather a delay in implementing market reforms, for example, Romania as a late starter of market reforms has an unemployment rate of only 3.4% in our sample. Thus, this

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[10] A description of the methodology underlying the HDI and the most recent data set of this indicator can be found at www.undp.org. This indicator has not been published in the 1991 and we therefore use values from 1990. The data point for Slovakia has been estimated assuming that the relative HDI distance between the Czech and the Slovak Republic has not changed from 1990 to 2001. However, leaving Slovakia out of the analysis would not change the results in a noteworthy way.

association between low unemployment and delayed market reforms could affect national life satisfaction negatively.

As it turns out, this adverse effect is not dominant in the present data set. Calculating the correlation coefficient between average happiness values and unemployment rates yields a value of –0.64. Thus, countries with a higher unemployment rate display lower average life satisfaction. Moreover, the estimates for the country dummies in Table 3 already control for the influence of unemployment on an individual level but the correlation between these dummies and national unemployment rates is still –0.64. Thus, the cross-country variation can only be explained by referring to aggregate effects of unemployment that go beyond the loss in individual happiness suffered as a result of being unemployed. An analysis of how exactly the aggregate effect of unemployment might work on happiness is beyond the scope of the present paper.[11] In addition, these results suggest that differences in unemployment rates may also be more important than differences in GDP per capita with respect to explaining variations in national happiness.

Interestingly, the correlation coefficient between unemployment rate and HDI is only -0.13. Thus, the relatively high correlation of the two indicators with the national dummies must be due to variance that is idiosyncratic to each of these variables. With collinearity not being a big problem, it might even be possible to estimate an OLS regression that explains the variation in average national happiness levels by unemployment rates and HDI values (see equation (1), standard errors in parentheses). In line with the bivariate results, we find a negative effect of the unemployment rate and a positive effect of the HDI on national average happiness. Moreover, in spite of the very small number of observations, the estimated parameters are

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[11] The literature on sociotropic versus egotropic voting may provide some leads for further research (see Nannestad and Paldam 1994).

significant at a 5% level of significance. The R^2 is high in absolute terms and also statistically

significant at the 5% level, and tests for normality and specification (RESET) do not reject.

National life satisfaction dummies $= -17.4 - 0.19$ Unemployment Rate $+ 21.4$ HDI   (1)

                                                    (4.48) (0.06)   (5.49)

No. of obs: 7
$R^2 = 0.88$ $F(2,4) = 14.2^*$
Normality test: $Chi^2(2) = 1.09$ Specification test: $F(1,3) = 0.03$

If GDP per capita in US dollar is included as an additional regressor in equation (1), then it is

not significant with a negative coefficient, while the other two variables remain significant.

However, these results should be viewed as only suggestive as statistically robust conclusions

have to be derived within a context of a much larger data base.

6. Conclusion

This paper analyzes happiness based on representative survey data from seven East European

countries at the beginning of the transformation process in 1991. The average level of life

satisfaction in these transition countries appears to be lower than in Western societies.

Although one might have expected to find that during the turbulent and sometimes chaotic

times of transformation the determinants of life satisfaction known from studies on Western

countries lose their explanatory power, this is not the case. We find that those core socio-

demographic and economic variables known to be relevant from studies on the US and West

European countries (u-shaped age effect, positive income effect, negative effect of

unemployment, positive education effect, and positive marriage effect) have a similar impact

on happiness in the countries of Eastern Europe. We test statistically whether the estimated

average coefficients for East European countries are consistent with coefficients based on

national data. It is found that the restrictions coming from the pooled model hold up remarkably well. These findings suggest that happiness data on Eastern Europe can be used for an analysis of the effects of other influences on subjective well-being, such as different macroeconomic conditions or institutional settings.

We also study variables that have received little attention in other multi-country studies. A new result is that rural respondents report higher life satisfaction than city dwellers. This finding can be explained by differences in purchasing power and a slower adjustment of aspiration levels of rural dwellers. Moreover, the data indicate that the religious belief of the respondent does not seem to play a role in determining happiness. On the other hand, the frequency of church visits has a significantly positive impact on life satisfaction. Consequently, it appears that exercising religious beliefs generates happiness. However, resistance against the communist regime was often organized within the church. Thus, it might be the case that the estimated positive effect on happiness is rather caused by the joy about the regime change than by religious experiences.

The individual level analysis controls for national differences in average happiness by including country dummies, which turn out to be highly significant. Preliminary evidence concerning the explanation of these cross-country differences in average happiness suggests that variations in national unemployment rates and in the Human Development Index may be more important than variations in GDP per capita. However, to answer this question convincingly we need a data set with a sufficiently high number of observations over time.

To conclude, life satisfaction emerges as a useful indicator to measure well-being at both, the national and the individual level. We were also able to show that it correlates positively with established welfare indicators based on objective information, such as GDP per capita or the HDI at the macro level and household income or changes in the wealth position at the micro level. At the same time, life satisfaction contains additional relevant information that may not

be captured by objective indicators, e.g. related to economic activities outside the market or expectations of future economic developments. It therefore seems prudent from the point of view of preparing economic policy decisions to utilize both, conventional objective indicators of well-being as well as subjective ones. If these conceptually very different indicators point in the same direction then one can have faith in the resulting conclusions. However, if there are noteworthy deviations between the two types of indicators, it is advisable to carefully investigate why this is the case, as otherwise the basis for policy advice on may not be reliable.

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Tables

Table 1: Summary statistics for data used in ordered logit model (5592 cases)

Variables	Mean	St. Dev.	Min. value	Max. value	Correlation
Life satisfaction (happiness)	2.14	0.63	1	3	1.00
Age effect:					
Age	46.49	15.87	18	89	0.01
Age squared	2413.63	1527.97	324	7921	0.01
Gender effect:					
Female	0.53	0.50	0	1	-0.01
Marital status:					
Single	0.13	0.33	0	1	-0.03
Married	0.75	0.43	0	1	0.09
Divorced	0.04	0.20	0	1	-0.08
Widowed	0.09	0.28	0	1	-0.05
Education:					
Primary school	0.39	0.49	0	1	-0.09
Vocational training	0.24	0.43	0	1	0.04
Secondary school	0.28	0.45	0	1	0.02
University	0.09	0.28	0	1	0.06

Continued Table 1

Type of employment:					
Household, student	0.04	0.19	0	1	0.03
Full-time employee	0.59	0.49	0	1	0.05
Part-time employee	0.01	0.12	0	1	-0.02
Family helper	0.004	0.06	0	1	0.01
Apprentice	0.001	0.03	0	1	-0.01
Unemployed	0.06	0.24	0	1	-0.12
Pensioner	0.26	0.44	0	1	-0.01
Allowance	0.02	0.16	0	1	0.03
Widow pension	0.01	0.09	0	1	-0.03
Income quartiles					
Lowest quartile	0.25	0.43	0	1	-0.10
Lower-middle quartile	0.25	0.43	0	1	-0.04
Upper-middle quartile	0.27	0.44	0	1	0.03
Highest quartile	0.23	0.42	0	1	0.12
Community size:					
< 5000 inhabitants	0.36	0.48	0	1	0.05
5001-20000	0.17	0.37	0	1	-0.02
20001-100000	0.18	0.38	0	1	0.01
> 100000 inhabitants	0.29	0.46	0	1	-0.04

Continued Table 1

Church attendance:					
Never	0.16	0.36	0	1	0.10
Seldom	0.25	0.44	0	1	-0.03
Several times a year	0.25	0.43	0	1	-0.05
Once a month	0.14	0.35	0	1	-0.02
Every week	0.20	0.40	0	1	0.01
Religion:					
Catholic	0.47	0.50	0	1	0.10
Protestant	0.04	0.20	0	1	0.02
Orthodox	0.25	0.44	0	1	-0.15
Other	0.03	0.18	0	1	-0.04
Non believer	0.18	0.38	0	1	0.05
No answer	0.02	0.13	0	1	0.01

Note: Summary statistics do not include values for Austria.

Table 2: Life satisfaction across countries

	Austria	Czech	Slovak	Slovenia	Hungary	Poland	Romania	Bulgaria
Cases	1841	656	291	1043	917	1117	985	1000
Mean	2.72	2.54	2.44	2.32	2.12	2.06	2.02	1.91
Very satisfied (%)	73.38	56.55	47.08	39.50	24.75	24.53	18.38	12.90
Not very satisfied (%)	25.20	41.31	49.48	52.73	62.27	57.12	64.77	65.30
Not at all satisfied (%)	1.41	2.13	3.44	7.77	12.98	18.35	16.85	21.80
%SM	86	77	72	66	56	53	51	46

Notes: Mean is the arithmetic mean of answers. SM % is the percentage of scale maximum.

Table 3: Explaining life satisfaction (ordered logit model)

Explanatory variables	General model			Reduced model		
	Coeff.	SE	HCSE	Coeff.	SE	HCSE
Country dummies:						
Czech Republic	Reference					
Slovak Republic	-0.48 **	0.15	0.15	-0.42 **	0.14	0.14
Slovenia	-0.91 **	0.11	0.11	-0.92 **	0.11	0.11
Hungary	-1.47 **	0.11	0.11	-1.46 **	0.11	0.11
Poland	-1.82 **	0.12	0.12	-1.74 **	0.11	0.12
Romania	-1.90 **	0.17	0.17	-1.85 **	0.11	0.11
Bulgaria	-2.21 **	0.16	0.16	-2.18 **	0.14	0.10
Age effect:						
Age	-0.034 **	0.01	0.01	-0.035 **	0.01	0.01
Age squared	0.0004 **	0.0001	0.0001	0.0004 **	0.0001	0.0001
Gender effect:						
Female	-0.04	0.06	0.06			
Marital status:						
Married	Reference					
Single	-0.35 **	0.09	0.09	-0.36 **	0.07	0.09
Divorced	-0.74 **	0.14	0.14	-0.24 **	0.14	0.14
Widowed	-0.34 **	0.12	0.12	-0.39 **	0.11	0.11

Continued Table 3

Education:						
Primary school	Reference					
Vocational training	0.13	*	0.07	0.08		
Secondary school	0.21	**	0.08	0.07		
University	0.50	**	0.11	0.11	0.34 **	0.10	0.10
Type of employment:						
Full-time employee	Reference					
Part-time employee	-0.09		0.23	0.23		
Family helper	0.30		0.44	0.45		
Apprentice	-0.08		0.84	0.14		
Unemployed	-0.68	**	0.12	0.12	-0.70 **	0.12	0.12
Pensioner	0.07		0.08	0.08		
Allowance	0.05		0.18	0.19		
Widow pension	-0.31		0.31	0.32		
Household, student	0.49	**	0.15	0.16	0.43 **	0.15	0.15
Income quartiles						
Lowest quartile	Reference					
Lower-middle quartile	0.25	**	0.08	0.08	0.26 **	0.08	0.08
Upper-middle quartile	0.51	**	0.08	0.08	0.52 **	0.08	0.08
Highest quartile	0.91	**	0.09	0.09	0.93 **	0.09	0.09

Continued Table 3

Community size:							
< 5000 inhabitants	Reference						
5001-20000	-0.22	**	0.08	0.08	-0.20 **	0.08	0.08
20001-100000	-0.26	**	0.08	0.08	-0.24 **	0.08	0.08
> 100000 inhabitants	-0.30	**	0.07	0.08	-0.28 **	0.07	0.07
Church attendance:							
Never	Reference						
Seldom	0.17		0.15	0.16			
Several times a year	0.24		0.17	0.17			
Once a month	0.34		0.17	0.17			
Every week	0.56	**	0.18	0.18	0.31 **	0.08	0.09
Religion:							
Catholic	Reference						
Protestant	0.04		0.14	0.14			
Orthodox	-0.02		0.14	0.15			
Other	-0.10		0.18	0.19			
Non believer	0.08		0.16	0.16			
No answer	0.15		0.25	0.26			
Cut values							
Cut 1	-3.55				-3.84		
Cut 2	-0.42				-0.71		

Continued Table 3

No of cases	5592	5592
Log likelihood	-4834.1	-4842.5
Chi^2-test	Chi^2(38) = 904**	Chi^2(18) = 887**
Pseudo R^2	0.086	0.084
Test for excluding variables		Chi^2(17) = 16.8

Notes: **(*) indicates statistical significance at a 1 (5) percent level. SE denotes normal standard errors, HCSE denotes White's (1980) heteroscedasticity consistent standard errors.

Table 4: Testing restrictions based on pooled model with national data

Country	Excluded variables	Reduction test	Rejection due to
Czech Republic	Orthodox, apprentice, widow pension, household	$Chi^2(29) = 23.7$	n.a.
Slovak Republic	Apprentice	$Chi^2(31) = 30.6$	n.a.
Slovenia	Once a month, apprentice, widow pension	$Chi^2(29) = 40.8$	n.a.
Hungary	n.a.	$Chi^2(32) = 38.5$	n.a.
Poland	Non believer	$Chi^2(31) = 32.3$	n.a.
Romania	No answer, part-time, family helper, allowance,	$Chi^2(28) = 55.6**$	> 100000 inhabitants (-**)
Bulgaria	n.a.	$Chi^2(32) = 35.6$	n.a.

Table 5: Marginal effects of ordered logit model for explaining life-satisfaction

Happiness categories:	Not at all satisfied		Not very satisfied		Very satisfied	
Country dummies:						
Slovak Republic	0.05	*	0.02	**	-0.07	**
Slovenia	0.12	**	0.03	**	-0.15	**
Hungary	0.21	**	-0.0004		-0.21	**
Poland	0.26	**	-0.01		-0.25	**
Romania	0.29	**	-0.04	*	-0.25	**
Bulgaria	0.36	**	-0.08	**	-0.28	**
Age effect:						
Age	0.004	**	0.003	**	-0.007	**
Age squared	-0.0001	**	-0.00004	**	0.0001	**
Marital status:						
Single	0.04	**	0.02	**	-0.63	**
Divorced	0.10	**	0.02	**	-0.16	**
Widowed	0.04	**	0.02	**	-0.07	**
Education:						
University	-0.03	**	-0.04	**	0.07	**
Type of employment:						
Unemployed	0.09	**	0.02	**	-0.11	**
Household	-0.04	**	-0.05	*	0.09	**
Income quartiles						
Lower-middle quartile	-0.03	**	-0.03	**	0.05	**
Upper-middle quartile	-0.05	**	-0.06	**	0.11	**
Highest quartile	-0.08	**	-0.12	**	0.20	**

Continued Table 5

Community size:						
5001-20000	0.02	*	0.02	**	-0.04	**
20001-100000	0.03	**	0.02	**	-0.04	**
> 100000 inhabitants	0.03	**	0.02	**	-0.05	**
Church attendance:						
Every week	-0.03	**	-0.03	**	0.06	**
Frequency in %	13.8 / 11.3		58.1 / 63.1		29.1 / 25.6	
(actual / predicted)						

Table 6: Comparing determinants of life satisfaction in Eastern Europe and Western countries

	Eastern Europe	Russia1	Russia2	Kyrgyzstan	EU	US
Age	Min: 44, + for ≥ 88	Min: 35, + for ≥ 70	Min: 51, + for ≥ 103	Min: 42, + for ≥ 85	Min: 43, + for ≥ 86	Min: 37, + for ≥ 74
Female	?	-	?	?	+	+
Married	+	?	+	+	+	+
Education	+	+	+	?	+	+
Income	+	+	+	+	+	+
Unemployed	-	n.a.	-	-	-	-

Notes: + (-) indicates a significantly positive (negative) effect and ? indicates no significant effect.

Sources: Eastern Europe: own calculations, Russia1: Graham and Pettinato (2002), Russia2: Ravallion and Lokshin (2002) without attitudinal variables, Kyrgyzstan: Namazie and Sanfey (1999), EU: Di Tella et al. (2001), US: Blanchflower and Oswald (2004).