Money, Trust and Happiness in Transition Countries: Evidence from Time Series

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Abstract

Trends of subjective well-being (SWB) in transition countries are peculiar: they show substantial changes that are more strongly correlated with the trends of GDP than in other developed countries. This paper examines the role of the trends of GDP and of social trust in predicting the trends of well-being. We find that the strength of the relationship between social trust and SWB over the medium-term is comparable to that of GDP. We conclude that in the medium-term, even in countries where material concerns strongly affect well-being, social trust is a powerful predictor of the trends of SWB. However, in the short run the relationship between social trust and SWB does not hold and GDP stands out as the only significant correlate of SWB.

Keywords: Easterlin paradox; GDP; economic growth; subjective well-being; happiness; life satisfaction; social capital; time-series; short run; medium run; transition countries; ESS.

JEL classification codes: D03; D60; I31; O10; P27; P05

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1 Introduction

The trends of subjective well-being (SWB) have been a fundamental reason for raising interest in studies on well-being. The Easterlin paradox – the evidence showing that SWB and GDP are unrelated over time – largely contributed to the popularity of such studies. Easterlin's evidence has been recently disputed. Stevenson and Wolfers (2008), Sacks et al. (2010) and Veenhoven and Vergunst (2013) claim that GDP is a good predictor of the trends of SWB.[1] However, whether economic growth matters for increasing well-being or not, some studies documented that social capital, as measured by social trust, participation in groups and associations and social gatherings, matters more in the long run (Bartolini et al., 2013a,b, Bartolini and Sarracino, 2011).

The aim of this paper is to compare the capacity of the trends of GDP and of social trust – an important component of social capital (Bjørnskov, 2006) – considered at aggregated level, to predict the trends of societal level SWB in a sample of European transition countries. We focus on transition countries because they are a possible exception to this picture: economic conditions in these countries are known to strongly impact SWB; at the same time, years of communist regime deeply affected the creation and maintenance of social trust. Therefore, our question is whether the analysis of transition countries is able to alter the general findings described above. Does the relatively greater importance of money for well-being in transition countries weaken the robust relationship over time between aggregate measures of social capital, such as social trust, and well-being found by previous studies? In other words, does the strong relationship between social capital and well-being over time also hold in a context where economic factors are more important for SWB? And what is the relative importance of the changes over time of GDP and of social capital in predicting the trend of SWB at societal level? Moreover, we know that generally the relationship between GDP and SWB is stronger as the time span analyzed shortens. Does this general finding hold also for transition countries? We address these questions analysing the correlation among the trends of SWB, of social trust

[1] Easterlin and Angelescu (2009) and Easterlin et al. (2010) criticized these results arguing that they fail to distinguish between the long and the short run. In particular, Easterlin and colleagues showed that the positive and significant relation estimated by Stevenson and Wolfers (2008) and Sacks et al. (2010) is generated by the inclusion in the sample of countries with short time-series. Easterlin et al. (2010) documented that GDP matters for SWB in the short run, but that this correlation vanishes in the long-term. The tendency of SWB and GDP to vary together during contractions and expansions has been documented also by Di Tella et al. (2001) and Bartolini and Sarracino (2011).

and economic growth.

Our results provide evidence that in transition countries aggregated social trust predicts SWB in the medium-term (4 - 6 years) with a strength comparable to the one of GDP. Moreover, we show that over the short run (2 years) GDP stands out as the only significant correlate of SWB. This evidence suggests that even in the most extreme cases – such as transition countries – where material concerns are pivotal, the trends of social trust and SWB are, in the medium-term, strongly and significantly related.

The paper is organized as follows: the following section reviews the literature. Section 3 introduces the data and the main variables used in our analysis. Section 4 describes our empirical strategy and econometric tools. Section 5 presents the main results of our work. Discussion of the results and conclusions close the paper and are the subject of the last section.

2 Literature review

Transition countries exhibit peculiarities concerning both levels and trends of SWB. In many international rankings they stand out with strikingly low levels of happiness and life satisfaction (Abbott and Sapsford, 2006, Deaton, 2008, Sanfey and Teksoz, 2007). The gap between European post-communist and Western European countries is so pronounced that it has been called the "iron curtain" of unhappiness (Lelkes, 2006, Veenhoven, 2001).

Trends of SWB in transition countries are also peculiar: variations over time are greater than in other developed countries and more correlated with the trends of GDP (Easterlin, 2009). This evidence is further confirmed by Delhey (2010) who introduced the concept of "post-materialization of happiness" to indicate the gradual shift in the composition of what matters for well-being. According to this interpretation, materialistic concerns play a major role, among the ingredients of well-being, in transition countries compared to Western ones. After the fall of communism, the trends of SWB show a typical (although not universal) "V-shaped" curve (Sanfey and Teksoz, 2007, Easterlin, 2009, Inglehart et al., 2008, Guriev and Zhuravskaya, 2009): the transition process brought a spectacular drop of well-being, followed by a steady recovery after the mid-90s. However, whether the recovery is complete remains a disputed question (Sanfey and Teksoz, 2007, Grün and Klasen, 2001, Easterlin, 2009).

The widely acknowledged "big factor" behind the trends of SWB is GDP (Guriev and

Zhuravskaya, 2009, Easterlin, 2009). The revolutions that led to the collapse of communism in 1989 were the result of political and economic dissatisfaction. Although there were several reasons underlying these revolutions, as the lack of political freedom and civil rights, the desire for a greater access to consumer's goods played an important role. Evidence on SWB confirms the "special relationship" between consumer's goods and happiness in transition countries. In particular, Easterlin considers transition countries an exception to his paradox: only in these countries economic growth predicts changes of SWB also in the long run (about 10 years) (Easterlin, 2009). Similarly to the case of the trends of SWB, the trends of GDP in transition countries are also "V-shaped".

However, despite economic success, well-being drops in Hungary (Guriev and Zhuravskaya, 2009, Inglehart et al., 2008) and China (Brockmann et al., 2009, Sarracino and Bartolini, 2013); neither can GDP explain the downward trend of well-being in the former Soviet Union (Helliwell, 2003, Inglehart et al., 2008, Guriev and Zhuravskaya, 2009). After the period of worst economic crisis other determinants of well-being seem to gain importance: empirical results show that levels and trends of well-being can be attributed to GDP only in a small part (Frijters et al., 2006, Abbott and Sapsford, 2006). This is consistent with the literature showing that the importance of economic factors for well-being is lower in stronger and more stable economies (Zagórski, 2011, Frijters et al., 2006, Guriev and Zhuravskaya, 2009, Abbott and Sapsford, 2006, Delhey, 2010).

Beyond GDP, what else did affect the trends of well-being in transition countries? There are several plausible candidates. The economic, cultural, social and institutional transformation initiated with the fall of communism was so dramatic that, arguably, affected well-being deeply, far beyond the trends of GDP. Transition lowered well-being through the trauma of rapid political change (Inglehart et al., 2008), loss of employment security and social provisions (Easterlin, 2009, Guriev and Zhuravskaya, 2009), and growing income inequalities (Sanfey and Teksoz, 2007 reports higher life satisfaction in more egalitarian transition countries). On the other hand, well-being increased due to greater social and political (Inglehart et al., 2008, Frijters et al., 2004), as well as economic freedom (Sanfey and Teksoz, 2007).

Another plausible candidate to explain the trends of SWB in transition countries is social capital. The OECD (2001, p. 41) gives a definition of social capital (SC), consistent with that of Putnam (2000), as "networks together with shared norms, values and understandings that

facilitate co-operation within or among groups". It is now established that aggregate social capital is positively related to SWB (Helliwell, 2003). Social trust – one of the most widely adopted proxies of social capital – is conducive to well-being for a number of reasons. For example, higher social trust mirrors belonging to more trustworthy communities which are usually associated with desirable amenities such as cleaner and safer environment, more opportunities for social contacts, and higher social cohesion (Knack, 2001, Sztompka, 1998). Furthermore, social trust seems to be at the root of good governance and, thus, of well-being (Bjørnskov, 2006). Trust as a psychological trait is related to caring family climate during socialization and rewarding personal relationships which both are conducive to well-being (Sztompka, 1998). Generally, individuals with higher levels of social capital tend to be happier[2], which has been confirmed also for transition countries (Andrèn and Martinsson, 2006, Abbott et al., 2011). Moreover, social capital proved to be a powerful predictor of the trends of SWB in the long- and medium-run both within [see Bartolini et al. (2013a) for the US, Bartolini et al. (2013b) for Germany] and across countries Bartolini and Sarracino (2011).

The East-West SWB gap is accompanied by a "social capital gap" (Kaasa and Parts, 2008, Abbott and Sapsford, 2006, Sissenich, 2010). The "culture of distrust" is the result of communism, a dramatic consequence of the transformation to capitalism (Sztompka, 1996, 1999), and – at least in part – of the underdevelopment of Eastern European societies prior the rise of communism (Sztompka, 1993). The collapse of communist states left behind weak civil societies, bad governance and ineffective states (Sissenich, 2010). There are also signs of social anomie: low consensus on norms, high values-uncertainty, strong feeling of injustice (Arts et al., 1995), which allowed eruptions of ethnic intolerance and political conflicts right after the transition (Zhao and Cao, 2010). The transformation was also the period of outburst of the "negative social capital" (Fidrmuc and Gërxhani, 2008).[3]

Although the relationship between social capital and well-being is established, and although low social capital of transition countries is consistent with their low well-being, still

[2]See the pioneering studies by Helliwell (2001, 2006) and Helliwell and Putnam (2004); Bruni and Stanca (see also 2008); Becchetti et al. (2008)

[3]Opinions about social capital under communism differ. The "dictatorship theory of social capital" states that dictatorship destroys trust and cooperation among citizens (Fidrmuc and Gërxhani, 2008, Paldam and Svendsen, 2001). On the other hand, Paldam and Svendsen (2001) claims that inefficient planned economy forced creation of "negative social capital", i.e. informal networks (gray zone, corruption) that "fixed" the economic system and allowed its functioning despite inefficiencies.

very little is known about social capital trends in the region. Speculations express optimism: economic freedom, smooth functioning of state institutions, and anti-corruption actions imposed on the new members by the European Union may support building social capital (Fidrmuc and Gërxhani, 2008). Indeed, it has been shown that trust grows in favorable institutional environment, such as fair judicial system (Raiser et al., 2003), efficient legal structures and secure property rights (Berggren and Jordahl, 2005).

However, preliminary empirical evidence from the early 1990s to 2008 (Sarracino, 2011, Mikucka and Sarracino, 2014) suggests a less optimistic picture: since the fall of communism, Eastern Europe experienced a decline in membership in voluntary associations, social trust and trust in judicial system. The only growing indicator is trust in democratic institutions. Moreover, very little is known about the relationship over time between social capital and well-being in the region. To the best of our knowledge, there is no study testing the relationship between the trends of SWB and internationally comparable trends of social trust in transition countries.

3 Data

We use data from the European Social Survey (ESS) (ESS, 2008), one of the few data-sets providing comparative time series information about social trust and SWB in European transition countries.[4]

The ESS is a high quality survey started in 2002 and, since then, regularly run every two years. At the moment of writing this paper four waves have been released: 2002, 2004, 2006 and 2008. The ESS is a rich source of data for observing the interaction between institutions and people's attitudes, beliefs and behaviors across Europe. The main limitation of the ESS is that it does not provide long time series. Therefore, the longest time span available for our analysis is 4-6 years.

Nine transition countries are surveyed in the ESS: Estonia, Hungary, Poland, Slovenia, Czech Republic, Slovakia, Bulgaria, Ukraine and Russian Federation. Data for these countries sum up to a total sample of more than 50,000 individuals. Table 1 provides an overview of the data availability for each country across years.

[4] http://www.europeansocialsurvey.org

TABLE 1 APPROXIMATELY HERE

In principle we could also use data from the World Values Survey/European Values Study (WVS/EVS) integrated data-set. However, despite the large number of countries available and the long time-series provided, this data-set is not suitable for our analysis because it does not allow to attribute precise time horizons to the intervals among subsequent waves.[5]

3.1 Measurement

Subjective well-being Two proxies of SWB are available in the ESS. The first one, happiness, is captured by answers to the question *"Taking all things together, how happy would you say you are?"*, measured on an 11-point scale (from 0 - "extremely unhappy" to 10 – "extremely happy"). The second proxy, life satisfaction, rests on the question: *"All things considered, how satisfied are you with your life as a whole these days?"*, also coded on an 11-point scale (from 0 – "extremely dissatisfied" to 10 – "extremely satisfied").

Social trust We focus on social trust, the only proxy of SC available across all waves of the ESS. Social trust is observed through answers to the following three questions:

i. *"Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?"*

ii. *"Do you think that most people would try to take advantage of you if they got the chance, or would they try to be fair?"*

iii. *"Would you say that most of the time people try to be helpful or that they are mostly looking out for themselves?"*

Answers are coded on an 11-point scale, where higher values correspond to higher levels of trust.

Factor analysis performed on these three variables shows that, consistently with the literature, they can be considered three indicators of a single latent concept, namely social trust

[5] In the WVS/EVS the distances between two consecutive waves are not regular, ranging from 1 to 8 years. It is therefore impossible to attribute the variations between contiguous surveys to the long, the medium and the short-term. Having data that are regularly surveyed in time is fundamental to define which time horizon is measured by such intervals.

(factor loadings for the pooled sample are shown in tab.7 and, for separate waves, in tab.8, Appendix B, page 22). Accordingly, we use the index built by means of factor analysis as a measure of social trust.

Gross domestic product We merge ESS data-set with data on GDP per capita (constant 2000 US$) from the World Development Indicators database.[6] Consistently with previous studies, we use the logarithmic form to take into account the non-linear relationship between subjective well-being and GDP (Easterlin et al., 2010, Sacks et al., 2010).

Tables 5 and 6 in Appendix A on page 21 report descriptive statistics and percentages of missing data for the considered variables. The percentages of missing data are small enough to rule out the risk of biased estimates.

[6]World Development Indicators and Global Development Finance, http://databank.worldbank.org/ddp/home.do?Step=12&id=4&CNO=2.

4 Empirical strategy

Previous empirical works concerning the relationship between economic growth and trends of SWB adopt bivariate regressions of changes over time of aggregate measures of SWB and GDP (Stevenson and Wolfers, 2008, Sacks et al., 2010, Easterlin and Angelescu, 2009, Easterlin et al., 2010). Since our primary scope is to investigate the relationship between social trust and SWB over time, we adopt the same bivariate approach substituting social trust for GDP in our baseline regression model (see eq. 2). However, we also test the relationship between economic growth and trends of SWB, thus replicating the previous work on our sample (see eq. 3). This approach allows also to compare the sizes of the correlations of the trends of social capital and of GDP with the trends of SWB.

More specifically our empirical strategy consists of three steps:

1. we first estimate the trends of social trust, GDP and SWB;

2. subsequently, we run bivariate regressions of trends of SWB on trends of social trust or GDP, separately. Regressing SWB trends on economic growth is meant to check whether previous results provided by the literature (Stevenson and Wolfers, 2008, Sacks et al., 2010, Easterlin and Angelescu, 2009, Easterlin et al., 2010) are replicated on our sample of European transition countries;

3. finally, we estimate the trivariate regressions of trends of SWB on both trends social trust and economic growth to account for eventual spurious correlations.

The risk of spurious correlations in present analysis should not be underestimated. The literature points out that economic growth and social trust may be related in many ways (Knack and Keefer, 1997, Roth, 2009, Zak and Knack, 2001). For instance, Putnam et al. (1993) showed that there are paths through which social trust fosters economic growth. On the other hand, there is also a long standing tradition emphasizing that economic growth can erode the stock of social trust (Polanyi, 1968, Hirsch, 1976; see also: Bartolini and Bonatti, 2008). Therefore, given the possible correlation between economic growth and the trends of social trust, focusing on bivariate correlations may lead to omitted variable bias. However, our findings seem to rule out this possibility, because the trivariate analysis gives results consistent with those of the bivariate models.

4.1 Estimating trends

We analyze the relationship between the trends of social trust, economic growth and trends of SWB using two distinct time horizons: medium- and short-run.

Medium-term trends To estimate the medium-term trends of social trust and SWB, we regress the individual trust and SWB variables on a time variable containing the years when the dependent variable has been observed (Easterlin and Angelescu, 2009, Easterlin et al., 2010). We estimate the trends for each country separately, using OLS regression with robust standard errors. The trends are expressed as the (country-specific) coefficient of the time variable and can be interpreted as the average yearly change of the specific dependent variable. Although SWB and social trust variables are measured on an ordinal scale, thus requiring ordered probit or logit estimation models, available evidence shows that in such cases the OLS regression gives results that are consistent with those provided by ordered probit or logit models (Ferrer-i Carbonell and Frijters, 2004, Blanchflower, 2008). For this reason, and to allow a direct comparison between the results from various models, we adopt an OLS model also for ordinal variables. Our model can be formalized as follows:

$$Proxy_i^j = \alpha^j + \beta^j \cdot YEAR_i^j + \mu_i^j \tag{1}$$

where the index j refers to various proxies of SC and SWB (i.e. social trust, happiness and life satisfaction), whereas index i stands for individuals. In this way, the estimation of trends (corresponding to β in eq. 1) allows us to produce country-level data on the basis of individual-level information.

The same method (resting on country level rather than individual data) is used to compute economic growth. We stress that this estimation method differs from those used previously in the literature. Stevenson and Wolfers (2008) and Sacks et al. (2010) used the difference between the logarithm of GDP at the beginning and at the end of the analyzed period, while Easterlin and Angelescu (2009) and Easterlin et al. (2010) – the growth rate, i.e. the same difference expressed as a percentage of the initial value. Both specifications overlook what happened to GDP between the initial and the final year of observation, thus increasing the risk that the estimated economic growth is affected by year-specific biases due to shocks and measurement errors. Instead, our method reduces this risk by considering the information from

several points in time.

Medium-term trends are computed over the whole period of observation for all those countries with at least 4 years long time series (i.e. minimum three waves of the ESS); this limits the sample to seven countries. Bulgaria and the Russian Federation have been observed only in 2006 and 2008 and, as such, have been excluded.

Short-term variations To compute the short-term variations we split our period of observation into the shortest possible ones, i.e. two-year sub-periods, corresponding to the distance between two subsequent waves of the ESS. Short-term variations of variables of interest are calculated as the difference of the averages between two consecutive waves.

Short-term analysis rests on 18 observations for nine countries. The number of available observations less than triple the medium-term ones because not all the countries have been surveyed in all waves (see tab. 1). In contrast to the medium-term, the short-term analysis includes also Bulgaria and the Russian Federation where only two subsequent waves are available.

Notice that our method is different from the one applied by Easterlin and colleagues, who measure short-term variations of SWB and GDP as the "deviation at each date of the actual value from the trend value" (Easterlin et al., 2010, p. 3), thus defining the short-term variation as a departure from the medium-term trend. Conversely, our method offers the possibility to directly compare coefficients (from equations 2, 3 and 4) for the medium- and short-term trends.

Both the medium and the short-term trends have been computed applying the original weights provided in the ESS.

4.2 Bivariate and trivariate analysis

To check the correlation between trends of SWB and of social trust or of GDP we run bivariate linear regressions with robust standard errors. Formally, we estimate the two following models:

$$\Delta SWB_j = \alpha + \beta \cdot \Delta SC_j + \mu_j \tag{2}$$

$$\Delta SWB_j = \alpha + \beta \cdot \Delta lnGDP_j + \mu_j \tag{3}$$

where ΔSWB, ΔSC and ΔlnGDP represent the standardized estimated trends of SWB, social trust and GDP (they correspond to β^j in equation 1); μ is the error term and the index j refers to countries. Each estimation is performed for medium-term and short-term trends separately.

Furthermore, we run a set of trivariate regressions correlating the trends of SWB with both the trends of social trust and of GDP to exclude the risk of spurious correlations. Formally, we estimate the following OLS model with robust standard errors:

$$\Delta SWB_j = \alpha + \beta_1 \cdot \Delta SC_j + \beta_2 \cdot \Delta lnGDP_j + \mu_j \tag{4}$$

where the only difference compared to eq. 2 is that it is augmented with a third term - the trend of GDP.

5 Results

Table 2 reports the trends of happiness, life satisfaction, social trust and GDP per capita for the countries included in our sample. Between 2002 and 2008 Slovakia, Poland and Estonia experienced the strongest increases in life satisfaction and happiness, whereas only in Hungary and Ukraine well-being declined. Slovenia and Czech Republic ranked in between with moderate growth rates of well-being.

The positive trends of well-being are mirrored by positive trends of GDP per capita. Economy grew the most in Slovakia, Poland and Estonia confirming the positive relationship between economic growth and well-being. However, this does not apply to Ukraine where the decline of well-being is associated to an economic growth of 11%, i.e. a rate comparable to the ones of Poland and Estonia. To a less extent, the same applies to Hungary where the negative trends of well-being are accompanied by a modest economic growth. Czech Republic and Slovenia report moderately positive trends of economic growth which are consistent with the moderate increase in the well-being of their citizens.

TABLE 2 APPROXIMATELY HERE

Between 2002 and 2008, social trust increased significantly in Poland, Estonia, Slovenia

and, to a smaller extent, in Czech Republic. Hungary and Slovakia reported moderate increases of social trust, whereas the only country experiencing a reduction of social trust was Ukraine.

Summarizing, the descriptive results shown in table 2 confirm previous evidence of a positive correlation between economic growth and trends of well-being. We also find evidence supporting the hypothesis that the trends of well-being correlate with the trends of social trust. To explore this relationship in more detail, we turn to the analysis of these correlations in the medium and in the short term.

5.1 The medium-term trends (4-6 years)

Figure 1 shows the relationships between the medium-term trends of social trust and the trends of the two proxies of SWB. The equations on the graphs inform about the results of bivariate OLS regressions (see equation 2) performed on standardized variables. In both cases, the coefficients are positive, large, and statistically significant: an increase in the trend of social trust by one standard deviation results in the trend of happiness increasing by 0.62 standard deviation; for life satisfaction the respective value is 0.65.

FIGURE 1 APPROXIMATELY HERE

Results on the relationship between economic growth and the trends of SWB are presented in figure 2 (see equation 3). Also this relationship is positive, strong and statistically significant. An increase in economic growth by one standard deviation results in an increase of happiness (as well as of life satisfaction) trend by 0.60 standard deviation.

FIGURE 2 APPROXIMATELY HERE

Trivariate regressions (tab. 3, equation 4) confirm the results of bivariate analysis. In the medium-term the trend of SWB is strongly and positively correlated to both economic growth and the trends of social trust. All coefficients are statistically significant at the 95% level. The magnitude of all coefficients slightly increases and takes values around 0.7. The magnitude of the coefficients is very similar in both happiness and life satisfaction regressions.[7]

TABLE 3 APPROXIMATELY HERE

[7]This result is confirmed also for models with non standardized variables, see Appendix C.

The small number of countries in our sample raises the question of the robustness of our results. To examine this issue we performed an analysis of dfbetas statistics.[8]. The results confirm the robustness of our findings. After excluding influential countries the results of the trivariate regressions are confirmed: although the size of coefficients changes, the positive and statistically significant relationship remains (see tab. 12 in Appendix E on page 25).

5.2 The short-term trends (2 years)

The picture provided by the medium-term analysis changes in the analysis of short-term trends. As fig. 3 shows, in the short run both changes of happiness and life satisfaction over two years are positively, but not significantly correlated with the changes of social trust. Moreover, regression coefficients are much smaller (0.21 and 0.29 respectively) compared to the medium-term.

FIGURE 3 APPROXIMATELY HERE

FIGURE 4 APPROXIMATELY HERE

In contrast to this, the short-term correlation between SWB and GDP is positive and significant at 95% for both happiness and life satisfaction (fig. 4). The standardized coefficients of bivariate regressions have values of 0.61 and 0.4, respectively.

TABLE 4 APPROXIMATELY HERE

These results are confirmed also by short-term trivariate regressions (tab. 4): in case of happiness and life satisfaction, the positive and small coefficient of social trust remains non-significant, whereas GDP strongly and significantly correlates with SWB.

Summarizing, while in the medium run both trust and GDP are positively, significantly and comparably related to SWB, in the short run only GDP is significantly correlated with SWB. In other words, we find evidence that the medium-term trends of social trust are strong correlates

[8]Dfbetas measure how much a given coefficient changes after excluding a specific country from the sample (Coxe et al., 2013, p.49). In the medium run the influential countries are: Hungary, Slovakia and Ukraine (model for happiness) and Estonia and Poland (model for life satisfaction). In the short run the influential countries are: Estonia, Hungary and Ukraine (model for happiness) and Hungary and Bulgaria (model for life satisfaction

of the trends of SWB and the size of the effect is comparable to the one of economic growth. However, this relationship is not confirmed in the short run. When considering time spans of two years, the correlation between trust and SWB – though positive – is not statistically significant.

The size of the coefficients and their significance show a remarkable pattern: moving from the medium to the short-term relationships, the coefficients of social trust become about 2.5 times smaller and lose their significance. By the same token, the coefficients of GDP remain constant for happiness and become substantially smaller in the case of life satisfaction. Our results suggest that in the short run GDP fluctuations are closely related with the variation of well-being. However, in the medium run GDP is no longer the main correlate of SWB: social trust appears as important as GDP (see Appendix C).

6 Conclusions

We know that the trends of social capital are a powerful predictor of the trend of SWB across countries. As for the role of economic growth in predicting such trend, an intense research effort reached disputed conclusions. Transition countries are an exception because there is a general agreement that economic growth strongly impacts the trends of SWB. This peculiarity raises the question whether these countries are an exception also as far as social capital is concerned. This amounts to asking whether the relatively greater importance of money for well-being in transition countries weakens the robust relationship between trends of social capital and of well-being identified in previous studies.

We used internationally comparable data from the European Social Survey for the years 2002-2008 to analyze the correlation of trends of SWB with those of social trust and of GDP over the medium (4-6 years) and the short run (2 years).

Our answer suggests that conventional wisdom is correct, but only in the short run (2 years). In this time-frame changes of GDP are the only significant correlate of the changes of SWB, whereas the relationship between changes of social trust and of SWB does not hold.

In the medium run, however, our findings debunk the belief that economic growth is the only important predictor of the trends of SWB. Even in European transition countries, the strength of the relationship between trends of social trust and of SWB over the medium run

(4-6 years) is comparable to that of economic growth. Thus, also in countries considered as an extreme case of relevance of material concerns for well-being, the trends of social trust predict a large share of the trends of well-being. Furthermore, we notice that the strength of the correlation between changes of GDP and of SWB in the short run is comparable to the one observed in the medium run. This seems to be a specific feature of European transition countries as opposed to other developed countries, where short-term correlations are about two times larger than the medium-term ones (Bartolini and Sarracino, 2011).

These findings suggest that policies for social capital are as important as policies for economic growth to increase well-being also in countries where the relationship between well-being and GDP over time is particularly strong. Prioritizing economic growth brings the risk of hampering SWB, as exemplified by the cases of the US and China, whose powerful economic growth did not bring about higher well-being. The literature on these two countries documented that the positive effects of economic growth on well-being have been more than offset by the impoverishment of social capital (Bartolini et al., 2013a, Bartolini and Sarracino, 2014). Policies which could be implemented to prevent a decline in social quality include labor market regulations, education, policies for infancy and adolescence, care of elderly people, health care, urban policies, environmental policies (Helliwell, 2011, Rogers et al., 2010, Bartolini, 2014).

Current study has limitations. Similarly to other studies on European transition countries (Easterlin, 2009), present results rest on a small sample. In principle we could have focused on a larger sample of transition countries using the World Values Survey. However, this data-set does not allow to consistently compare the medium and the short-term trends. Hence, we limited our study to the set of European transition countries available in the ESS. Thus our results can not be generalized to the whole universe of transition countries, but they provide a reliable picture of what happened in European transition countries. Another limitation concerns the fact that the only proxy of social capital available for our study is social trust. This hinders the extension of our conclusions to social capital in general. However, previous studies showed the predominant role of social trust, among social capital variables, in predicting the trend of SWB (Bartolini et al., 2013a, Bartolini and Sarracino, 2011). Finally, we can not provide a causal interpretation of our results, but only evidence of correlations. Hopefully, the availability of new waves of data in the future will allow to test the robustness of present results using

longer time spans and various proxies of social capital.

Tables

Table 1: Availability of SWB and social trust variables across countries and waves.

Countries	Years				Total
	2002	2004	2006	2008	
BG	.	.	1400	2230	3632
CZ	1360	3026	.	2018	6405
EE	.	1989	1517	1661	5168
HU	1685	1498	1518	1544	6245
PL	2110	1716	1721	1619	7166
RU	.	.	2437	2512	4951
SI	1519	1442	1476	1286	5723
SK	.	1512	1766	1810	5089
UA	.	2031	2002	1845	5879
Total	6679	13216	13838	16525	50258
Observations	50258				

Table 2: Trends of happiness, life satisfaction, social trust and of the logarithm of GDP per capita by country. Yearly changes of each variable are expressed as percentages of their ranges.

Country	happiness	life satisfaction	social trust	ln GDP p.c.
Czech Republic	0.275	0.883	1.040	0.091
Estonia	1.969	1.427	1.351	0.115
Hungary	−1.184	−1.112	0.421	0.066
Poland	2.185	3.213	1.595	0.100
Slovenia	0.867	1.044	1.280	0.086
Slovakia	1.744	3.601	0.593	0.151
Ukraine	−0.472	−1.424	−1.615	0.110

Table 3: Trivariate regressions of trends of subjective well-being over changes of the index of social trust and trends of GDP (standardized values).

	(1) happiness	(2) life satisfaction
index of social trust	0.696^{**}	0.727^{**}
	(3.64)	(5.24)
trend of log GDP	0.678^{**}	0.683^{**}
	(3.08)	(7.98)
Constant	$-6.83e-09$	$1.22e-08$
	(-0.00)	(0.00)
Observations	7	7
Adjusted R^2	0.763	0.830

t statistics in parentheses

$^{*}\ p < 0.10, ^{**}\ p < 0.05, ^{***}\ p < 0.001$

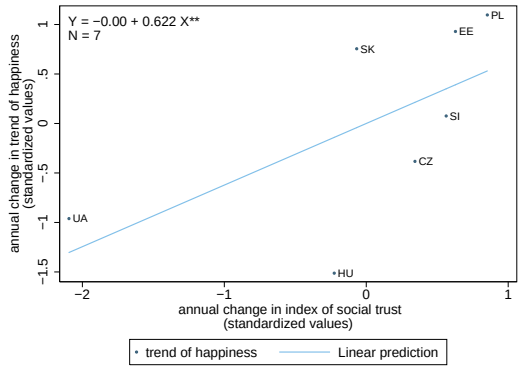
Table 4: Trivariate regressions of trends of subjective well-being over changes of the index of social trust and trends of GDP (standardized values).

	(1) happiness	(2) life satisfaction
index of social trust	0.235	0.305
	(1.34)	(1.36)
changes in log GDP (2yrs)	0.624^{***}	0.410^{**}
	(4.53)	(2.42)
Constant	$6.48e-09$	$-1.39e-08$
	(0.00)	(-0.00)
Observations	18	18
Adjusted R^2	0.358	0.153

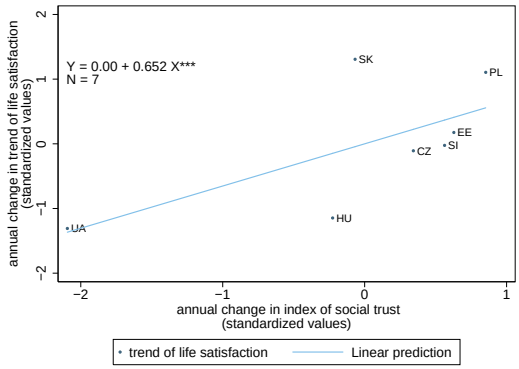
t statistics in parentheses

$^{*}\ p < 0.10, ^{**}\ p < 0.05, ^{***}\ p < 0.001$

Figures

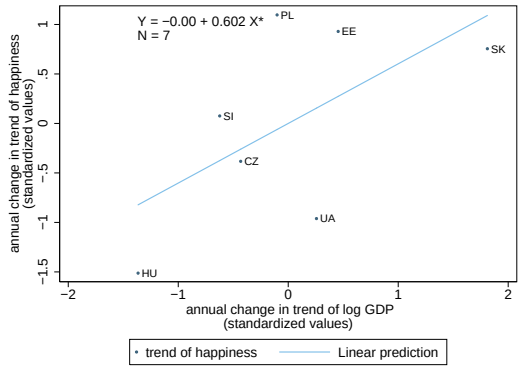


(a) *Happiness and the index of social trust.*

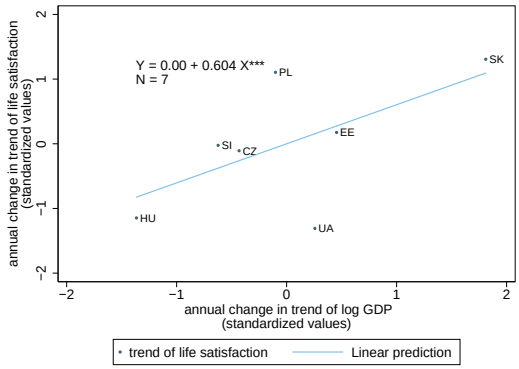


(b) *Life satisfaction and the index of social trust.*

Figure 1: Correlations among medium-term trends of subjective well-being and the changes in the index of social capital in transition countries. Each dot on the scatterplots associates the medium-term trend of SWB - on the y axis - with the medium-term trends of the logarithm of GDP per capita. The regression line simply depicts the correlation between the two variables.

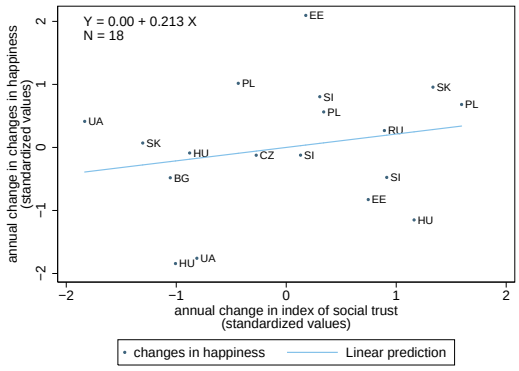


(a) *Happiness and the logarithm of GDP per capita.*

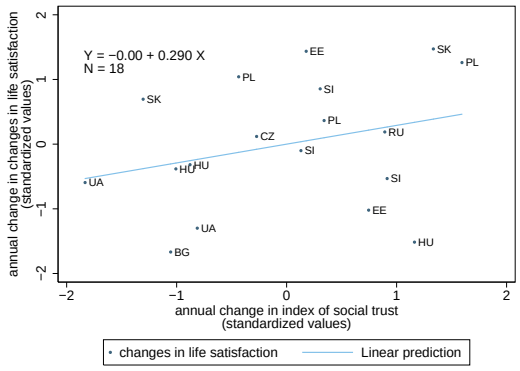


(b) *Life satisfaction and the logarithm of GDP per capita.*

Figure 2: Correlations among medium-term trends of subjective well-being and of the logarithm of GDP per capita in transition countries. Each dot on the scatterplots associates the medium-term trend of SWB - on the y axis - with the medium-term trends of the logarithm of GDP per capita. The regression line simply depicts the correlation between the two variables.

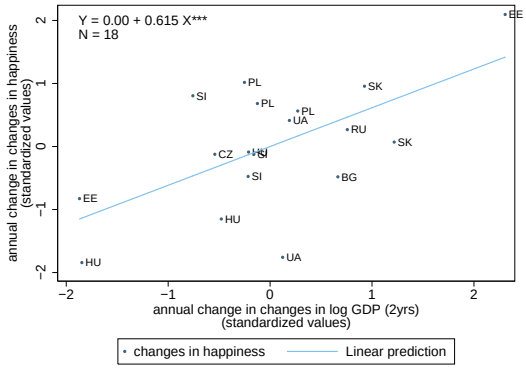


(a) *Happiness and the index of social trust.*

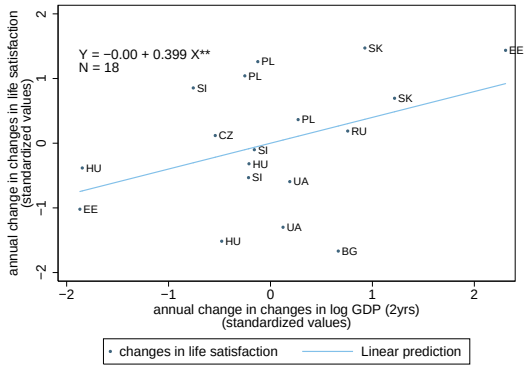


(b) *Life satisfaction and the index of social trust.*

Figure 3: Correlations among short-term trends of subjective well-being and of the index of social capital in transition economies. Each dot on the scatterplots associates the short-term trend of SWB - on the y axis - with the short-term trend of the index of social trust for each country. The regression line simply depicts the correlation between the two variables.



(a) *Happiness and the logarithm of GDP per capita.*



(b) *Life satisfaction and the logarithm of GDP per capita.*

Figure 4: Correlations among short-term trends of subjective well-being and of the the logarithm of GDP per capita in transition economies. Each dot on the scatterplots associates the short-term trend of SWB - on the y axis - with the short-term trends of the logarithm of GDP per capita for each country. The regression line simply depicts the correlation between the two variables.

A Appendix: Data missingness in the ESS data-set

The sixth column of tab.5 informs that the percentage of missing data is on average less than 1%. Only in the case of the index of social trust the percentage of missingness raises to 1.4%. However, such a small percentage does not raise any particular worry for the reliability of our estimates (Allison, 2001). Data missingness is further analysed across waves in tab.6. Figures inform that also in this case percentages of missingness are negligible and, according to the literature on data missingness, they are not likely to affect estimates (Schafer, 1997, 1999, Allison, 2001).

Table 5: Descriptive statistics for variables in the ESS data-set

variable	mean	sd	min	max	obs	missing
How happy are you	6.361	2.286	0	10	49608	0.0129
How satisfied with life as a whole	5.764	2.560	0	10	49749	0.0101
Most people try to take advantage of you	4.822	2.471	0	10	49081	0.0234
Most people can be trusted	4.158	2.533	0	10	49858	0.00796
Most of the time people helpful	3.986	2.450	0	10	49728	0.0105
Index of social trust	-2.47e-10	1	-2.138	2.794	48586	0.0333
GDP per capita	5697	3099	745.0	13789	50258	0

Table 6: Percentage of data missingness across waves in the ESS data-set.

variable	wave 1	wave 2	wave 3	wave 4	total
How happy are you	0.00629	0.0106	0.0180	0.0133	49608
How satisfied with life as a whole	0.0109	0.00923	0.00976	0.0108	49749
Most people try to take advantage of you	0.0211	0.0204	0.0298	0.0214	49081
Most people can be trusted	0.00764	0.00810	0.0100	0.00623	49858
Most of the time people helpful	0.00838	0.0109	0.0119	0.0100	49728
Index of social trust	0.0283	0.0305	0.0408	0.0312	48586
GDP per capita	0	0	0	0	50258

B Appendix: Factor analysis for trust questions in the ESS

Tab. 7 informs that in the pooled sample, factor loadings range from .80 to .85 thus suggesting that the three variables contribute equally to the definition of a latent concept that we call "social trust". When observing results across waves (see tab.8), we notice that discrepancies arise mainly in the first and third wave where factor loadings range from about .79 for the helpfulness variable to .84 for the fairness variable. The slight variability among factor loadings both in the pooled sample and within waves convinced us of the opportunity to build an aggregated index of social trust resulting from the standardized weighted average of the three items.

Table 7: Factor loading and unique variances for the pooled sample

	$Factor1$	Psi
Most people try to take advantage of you	.8347672	.3031637
Most people can be trusted	.8280339	.3143599
Most of the time people helpful	.7901849	.3756078

Table 8: Factor loading and unique variances across waves

wave 1	$Factor1$	Psi
Most people try to take advantage of you	.8213006	.3254654
Most people can be trusted	.81711	.3323312
Most of the time people helpful	.7721537	.4037787
wave 2		
Most people try to take advantage of you	.8258181	.3180244
Most people can be trusted	.8232669	.3222316
Most of the time people helpful	.7721755	.4037451
wave 3		
Most people try to take advantage of you	.8293471	.3121834
Most people can be trusted	.8217379	.3247468
Most of the time people helpful	.7938916	.3697362
wave 4		
Most people try to take advantage of you	.8507626	.2762029
Most people can be trusted	.8404668	.2936155
Most of the time people helpful	.806222	.350006

C Appendix: Non standardized trivariate regressions

Table 9: Medium-term trivariate regressions of subjective well-being over the index of social trust and GDP.

	(1) happiness	(2) life satisfaction
index of social trust	1.840^{**}	2.858^{**}
	(3.64)	(5.24)
trend of log GDP	3.611^{**}	5.412^{**}
	(3.08)	(7.98)
Constant	-0.347^{*}	-0.531^{***}
	(-2.76)	(-8.93)
Observations	7	7
Adjusted R^2	0.763	0.830

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.001$

Table 10: Short-term trivariate regressions of subjective well-being over the index of social trust and GDP.

	(1) happiness	(2) life satisfaction
index of social trust	0.594	1.017
	(1.34)	(1.36)
changes in log GDP (2yrs)	2.854^{***}	2.479^{**}
	(4.53)	(2.42)
Constant	-0.224^{**}	-0.183
	(-2.77)	(-1.50)
Observations	18	18
Adjusted R^2	0.358	0.153

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.001$

D Appendix: long-term relationships, controlling for outliers

Table 11: Trivariate regressions of trends of subjective well-being over changes of the index of social trust and trends of GDP after excluding outliers (standardized values).

	(1) happiness	(2) life satisfaction
index of social trust	2.474^{**}	0.152^{***}
	(25.98)	(61.55)
trend of log GDP	0.653^{**}	0.156^{***}
	(16.21)	(89.13)
Constant	-0.932^{**}	0.122^{**}
	(-15.47)	(29.62)
Observations	4	5
Adjusted R^2	0.998	0.999

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.001$

E Appendix: short-term relationships, controlling for outliers

Table 12: Trivariate regressions of trends of subjective well-being over changes of the index of social trust and trends of GDP after excluding outliers (standardized values).

	(1) happiness	(2) life satisfaction
index of social trust	0.216	0.101*
	(1.28)	(2.02)
changes in log GDP (2yrs)	−0.00880	0.140**
	(−0.04)	(3.55)
Constant	0.240	0.145**
	(1.17)	(2.47)
Observations	11	14
Adjusted R^2	−0.081	0.311

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.001$

F Appendix: country acronyms in the ESS

BG: Bulgaria

CZ: Czech Republic

EE: Estonia

HU: Hungary

PL: Poland

RU: Russian Federation

SI: Slovenia

SK: Slovakia

UA: Ukraina

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