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DISCUSSION PAPER SERIES

Adolescents' (Un)happiness in Transition

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DP# 60

December 2017

Adolescents' (Un)happiness in Transition¹

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Abstract

In this paper, we analyse the life satisfaction of adolescents in transition countries, comparing their life satisfaction to the life satisfaction of their peers in non-transition countries. We find that at the start of transition, *ceteris paribus*, the life satisfaction of adolescents in our sample of transition countries did not differ much from the life satisfaction of adolescents in our sample of non-transition countries. With the economic crisis of the early nineties, however, the difference increased dramatically but by the beginning of the 2000s this gap had again become fairly limited. From that point, respondents' health situation, their material wealth and their school experience mattered much more than where they lived. Unlike the literature on adults, we find that macro-variables cannot explain much of the happiness gap between transition and non-transition countries.

Keywords: adolescents, happiness, happiness gap, transition countries

JEL Classifications: I31, P20

1. Introduction

There is a sizeable literature that studies the life satisfaction of adult residents of transition countries, with some studies focusing on single countries (f.e. Becchetti and Salvano, 2016), others comparing different transition countries (f.e. Hayo, 2003 or Easterlin, 2009) and yet others comparing transition countries to non-transition countries (f.e. Guriev and Zhuravskaya, 2009). In contrast, there is much less literature on the life satisfaction of children and adolescents³ in transition countries – the literature review of 141 studies by Proctor et al. (2008) only includes two references to studies that use data from a transition country⁴.

The studies that compare adult life satisfaction in transition countries to non-transition countries typically document a 'happiness gap'. Even after controlling for various variables, transition countries are found to have lower happiness, that is, residents of transition countries are 'abnormally' unhappy. [Guriev and Zhuravskaya \(2009\)](#) provide several explanations for this happiness gap including mismatch in education, increased macroeconomic volatility, deterioration in the provision of public good, but also differences in survey quality. [Nikolova \(2016\)](#) finds that differences in political institutions, as proxied by the rule of law, provide an additional explanation. Similarly, Djankov et al (2016) argue that the happiness gap is linked to 'higher perceived corruption and weaker government performance.' What determines the happiness gap is important as whether transition countries' happiness will catch up with other countries depends on how these determinants are likely to evolve. Note that an analysis of data of 2015-2016 by the EBRD (de Haas, Qi and Young 2016) and an analysis of 2010-2016 data by Guriev and Melnikov (2017) suggests the happiness gap for adults closed recently. The

¹ We would like to thank Mariia Chebanova and Jianhua Duan for providing excellent research assistance.

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³ The World Health Organization ([nd](#)) defines adolescents as people between 10 and 19 years old. We have data for 11, 13 and 15 year olds and will refer to them as adolescents throughout this document.

⁴ More recently, some studies have used the HBSC data we will describe below.

analysis by Djankov et al. (2016) suggested the gap still existed in the 2010 LiTS data, though Nikolova (2016) found the gap disappeared in early to mid-2000s if one includes a measure of the rule of law in the regression analysis.

In this paper, we investigate the covariates of life satisfaction of adolescents in transition countries and check whether a ‘happiness gap’ in the life satisfaction of adolescents exists.

Studying the life satisfaction of adolescents in transition countries is important as life satisfaction has been shown to be a useful proxy of ‘utility’. Economists indeed have already been interested in the life satisfaction of adults for many years, arguing that subjective well-being is a satisfactory empirical approximation to adults’ individual utility (Frey and Stutzer 2002). Life satisfaction measures are not only satisfactory proxies for adults’ individual utility, however. Like for adults, adolescents’ life satisfaction has been found to correlate with suicide, depression and insomnia (see Proctor et al., 2008). More general, Huebner (2004) concludes his review of the social sciences literature on children and adolescent life satisfaction as follows: “In summary, the study of life satisfaction of adults has grown into a major area of research in the social sciences research... The studies reviewed herein support the notion that life satisfaction is a meaningful and important variable for children and adolescents (from about age of 8) as well”. In fact, while for adults, the adult’s wage or income is often used by economists as an alternative way to measure an individual’s utility, for adolescents, such monetary measures are typically absent and hence, the use of life satisfaction scores as proxies for what children maximize can be argued to be even more relevant for adolescents than for adults. Studying the covariates of life satisfaction of adolescents in transition countries thus allows to get a glimpse of what matters for adolescents in transition countries.

Moreover, knowing how the transition from a communist system to a market system has affected life satisfaction of adolescents can help in evaluating possible long term consequences of this transition. As human capital is formed to a large extent during adolescent years, life satisfaction during these years is likely to affect human capital formation as unhappy adolescents are unlikely to focus on long term investments in quality education. Crede et al. (2015) provide an overview of the bi-directional nature of the link between adolescents’ life satisfaction and their academic performance. Suldo et al. (2011)’s longitudinal analysis presents evidence that adolescents’ life satisfaction predicts subsequent academic achievement. If transition made adolescents unhappy and thus negatively affected the transformation and/or accumulation of human capital, then the transition shock can have long lasting consequences for economic growth in these countries and make the transition process slower and longer⁵.

A comparative study of life satisfaction of adolescents in transition countries and non-transition countries is further important as the prior literature has identified a ‘happiness gap’ when comparing individuals living in transition countries to individuals living elsewhere. Most of these studies (Guriev and Zhuravskaya (2009), Nikolova (2016)), however use the World Value Survey as their source of happiness statistics, even though these surveys only interview people who are 18 years or older. Since about a quarter of a typical country’s population is under the age of 18, studies based on the World Value Survey do not necessarily provide a complete picture of happiness in the countries surveyed⁶.

⁵ See for example, [Hanusek and Woessman \(2010\)](#) for the relationship between education and growth.

⁶ The Gallup world poll interviews people who are 15 years or older. According to [World Bank data](#), the share of people below 15 in Europe and Central Asia declined from about 23% in 1990 to about 18% in 2016.

The happiness situation of adolescents in a country indeed might be quite different from the happiness situation of adults. Research for example has shown that adolescents are disproportionately poor, with the poverty rate in a sample of 89 developing and transition countries being estimated at 19.5 percent which is more than double the estimated poverty rate for adults 18 and above in these countries ([Newhouse et al., 2016](#)). This reflects the fact that poorer families tend to be families with many adolescents. More generally, the determinants of adolescent happiness are likely to be different from the determinants of adult happiness. While adolescents spend a lot of time at school, adults spend a lot of time on the labour market. Both the schooling system and the labour market have changed a lot over the transition period. In many Central and Eastern European countries, not only the content of education changed but also language and available resources⁷. These changes in the school system might have affected adolescents' life satisfaction but are not likely to directly affect the life satisfaction of adults. Vice versa, the thoroughly changed labour market in Central and Eastern Europe is likely to have affected life satisfaction of adults, but is not likely to directly affect life satisfaction of adolescents. Given the abovementioned differences in determinants of life satisfaction, the evolution of the transition gap, and the timing of the possible closure of this gap can be different for adolescents and adults. That is, even if the transition gap might be closed for adults, it might not be closed yet for adolescents or vice versa. Obviously, the implications of finding that the gap has closed for the whole population, just for adults or just for adolescents are different.

In this paper, we use adolescent life satisfaction data from various waves of the Health Behaviour in School-Aged Children (HBSC) survey, a survey which has been implemented, about every four years, since 1983/84. While the initial sample of 5 countries, only included Western European countries, in 1985/86, Hungary joined as the first transition country (to be). Over time, many countries were added including Latvia and Poland in 1989/1990 and the Czech Republic, Estonia, Lithuania, Russia and Slovakia in 1993/1994. The last publicly available wave (2009/2010) includes 36 countries including 14 transition countries⁸. In addition, we use data from Programme for International Students Assessment (PISA) 2015 to provide more recent statistics for 15 year old teenagers for many of these countries.

The HBSC survey has been used to estimate the determinants of children's life satisfaction in individual countries (f.e. Buijs et al. (2016) for the Czech Republic, or Frasquilho et al. (2016) for Portugal) or groups of countries (Levin et al. (2011) and Bjarnason et al. (2012)) but as far as we are aware, there are no studies that investigate the possible existence of a "happiness gap", comparing transition countries (as a group) to non-transition countries. The paper closest to ours is [Cavallo et al \(2015\)](#) who use the HBSC data for the period 2001 - 2010 and describe the trends in life satisfaction for the various countries in the sample. They find a 'Northern European' cluster of countries characterized by decreasing life satisfaction between 2002 and 2010, and an 'East European' cluster with increasing life satisfaction. In their analysis, they only control for age and gender and neither analyse the impact of individual level economic

⁷ Federicova and Munich (2014) use PISA 2012 to compare the liking of school by children in the Czech Republic to the liking of school by children in selected European countries.

⁸ In 2010, the following countries were included Austria, Armenia, Belgium (Flemish and French), Bulgaria, Canada, Croatia, Czech Rep., Denmark, Estonia, Finland, France, Germany, Greece, Greenland, Hungary, Iceland, Ireland, Israel, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Russia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, Macedonia, United Kingdom (England, Scotland, Wales), USA.

variables (like family wealth) nor the impact of macro-economic variables⁹. Moreover, they do not use the data from earlier years of the HBSC nor later data from other sources.

We find that at the start of the transition the happiness gap in our sample of countries was negligible, but that the economic crisis of the early nineties was associated with a substantial increase in the happiness gap. This gap decreased quickly, however, and by the early 2000s this gap had again become small. We further find that variables reflecting the respondents' health and family wealth, and the respondents' school experience are strongly associated with their life satisfaction, with effect sizes that are bigger than the happiness gap. Unlike the literature on the happiness gap for adults, we find little evidence that macro-economic or democracy-related country characteristics can contribute to the explanation of the happiness gap.

In the following section, we provide more details on the data we use in this paper. Then we provide some background by describing the evolution of a number of objective indicators of child well-being. Next we estimate the determinants of individual adolescents' life satisfaction and the happiness gap. The final section concludes.

2. Data

HBSC data on adolescent life satisfaction are publicly available for the 3 surveys in the period 2001-2010, with the number of countries varying between 29 and 36¹⁰. We further obtained non-public HBSC data for the earlier waves (1985/86, 1989, 1993, and 1998), with the range of countries varying from 6 in the 1985/86 wave to 24 in the 1998 wave. We add to this, data from PISA 2015 which recently asked 15 year old adolescents in 72 countries about their life satisfaction.

HBSC changed the way it measures life satisfaction from the 2001/2 wave. The earlier surveys used the question: "In general, how do you feel about your life at present?" with possible responses: "I feel very happy", "I feel quite happy", "I don't feel very happy" and "I am not happy at all".

The 3 surveys in the period 2001-2010 used the question: "Here is a picture of a ladder. The top of the ladder '10' is the best possible life for you and the bottom '0' is the worst possible life for you. In general, where on the ladder do you feel you stand at the moment?"

PISA (2017), which provides data for 15 year olds in 2014, uses the same scale and a similar question to measures life satisfaction: "The following question asks how satisfied you feel about your life, on a scale from "0" to "10". Zero means you feel 'not at all satisfied' and "10" means 'completely satisfied'".

To be able to analyse the evolution of life satisfaction of adolescents over the whole transition period, we create a 0/1 (unhappy/happy) dummy variable. For the waves before 2000, a person is considered happy if (s)he chose "I feel very happy" or "I feel quite happy". For the waves before 2000, a person is considered happy if (s)he chose a life satisfaction score of 6 or higher.

⁹ Levin et al. (2011) and Bjarnason et al. (2012) do estimate a multi-country model and include both individual level and country level variables but use data from only one wave, the 2005/6 wave, and do not contrast transition countries to non-transition countries.

¹⁰ The most recent survey is still under embargo.

According to this definition 86.6% are happy in the earlier waves of HBSC and 83.7% are happy in later waves of HBSC and PISA¹¹.

Besides having questions related to life satisfaction, the HBSC also includes data on gender, age, health and wealth related variables, as well as questions about the school environment. We will discuss these variables further below.

Finally, we also will use a number of country-wide characteristics as in Guriev and Zhuravskaya (2009). Macroeconomic variables like GDP per capita, ILO unemployment, inflation are taken from the World Development Indicators provided by the World Bank¹². A rating of media freedom is taken from Freedom House while a rating of democracy is taken from Polity IV database¹³.

3. Analysis

3.1. Background: the evolution of objective indicators of adolescent well-being over the transition period

While this paper focuses on subjective measures of the well-being of adolescents, we provide here a short overview of a number of studies that surveyed the state and evolution of various ‘objective’ indicators of child well-being to provide a wider context for our analysis. Note that time series data on any aspect of child well-being are scarce, especially series that are comparable across countries. An important source of comparable child well-being indicators data for transition countries is UNICEF’s Transmonee database, but this database only starts in 2005, and for many countries and series even later. As a consequence, studies typically provide snapshots rather than medium or long-term trends.

As for material well-being, UNICEF (2001) notes that, while many children lived in poverty even before the fall of the Soviet-Union, ‘child poverty worsened across the region during the 1990s’ (p. 44). In the early 2000s, the situation improved for the better, Menchini et al. (2009) for example, note that child poverty declined in the period 2000-2005 but also that ‘the general pattern of decline during the period of economic recovery was neither uniform in all [transition] countries, nor continuous over time, despite the fact that economic growth has been continuous’ (p. 8). Similarly, UNICEF (2013) shows that, compared with the developed countries, the percentage of children that report “low family affluence” is high in Central and Eastern Europe (fig 1.2b), but also that some of these Eastern European countries show substantial declines in the share of children reporting low family affluence (fig 7.1a) between early and late 2000s, illustrating the reduction in the gap between transition countries and developed countries.

Even though material well-being took a hit in the nineties, one of the few positive well-being stories in that period was that infant mortality decreased substantially, possibly due to the contemporaneous declines in the fertility rate (UNICEF, 2001).¹⁴ Menchini et al. (2009) show that while by 2000 transition countries on average still did worse than the EU average in terms of under 5 mortality, several Central European transition countries did fairly well approaching the EU average. During the second decade of transition, many transition countries continued

¹¹ Given the changed definition, the conclusions about the evolution between the 1997/8 and 2001/2 is less certain than the evolution before and after that period.

¹² <http://data.worldbank.org/data-catalog/world-development-indicators>

¹³ <https://freedomhouse.org/report-types/freedom-world> and <http://www.systemicpeace.org/polity/polity4.htm>

¹⁴ Adult mortality, however, increased substantially in the early nineties.

to lower the under 5 mortality rate but for many the gap with the EU average remained wide (UNICEF, 2013). Menchini et al. (2009) find similar patterns for mortality rates of 15-19 year olds.

Despite the decline in the absolute number of children, several transition countries experienced an increase in the share of children living in single parent families and the share of children living out-of-home (UNICEF, 2001, Menchini et al., 2009). Even during the second decade of transition the rate of children in formal care continued to increase (Resperger, 2013), even though more children were being placed in foster families rather than in residential care.

As far as education is concerned, the transition seems to have been relatively benign in Central and Eastern Europe: there, countries maintained their high levels of primary and secondary enrolment, continued to do well on international tests of student performance and increased their tertiary education level enrolments (UNICEF, 2001). Transition countries in the Caucasus and Central Asia, however saw initial declines in primary and secondary enrolment, which recovered only slowly (Menchini et al., 2009). Note that many transition countries tried to protect their educational sector during the period of economic collapse, leading to relatively high levels of educational spending, relative to GDP (UNICEF, 2001).

One problem common to most transition countries is housing deprivation with a high number of people living in a single poor-quality house. Menchini et al. (2009) note that even in the early 2000s Commonwealth of Independent States (CIS) countries and some South-Eastern European countries had high rates of extreme overcrowding (many people living in one or few rooms). And even now even the relatively richer Central and Eastern European countries score bad on this metric, UNICEF (2013) ranking them at the top of a ‘multiple housing problems’ ranking, among relatively ‘rich’ countries.

Summarizing, several objective indicators of child well-being show a U curve, suggesting that initially, after the fall of the Soviet Union and the start of the major economic crisis, the objective situation of children in transition countries deteriorated but that, as the economic situation in these countries recovered the objective situation of children improved again. According to a child well-being ranking made by UNICEF (2013) for example, around 2010, most Central and Eastern Europe countries were still doing worse than other developed economies in terms of overall child well-being¹⁵. But they also note that “There are signs that the countries of Central and Eastern Europe are beginning to close the gap with the more established industrial economies” (p. 3). Note further that among transition countries there is great variation in both the level and the evolution of objective indicators of child well-being, with CIS countries doing considerably worse than Central and Eastern European Countries. In the next section, we focus on the evolution of adolescents’ subjective well-being, as measured by their answers on questions related to their life satisfaction.

3.2. Subjective well-being over the period 1989-2014, basic model.

¹⁵ The UNICEF (2013) report does not cover the more Eastern transition countries which are typically scoring worse than the CEE countries.

We begin our analysis by considering the data from 1989 until 2014 which includes the three earlier waves of HBSC (1989, 1993/4 and 1997/8), three later waves of HBSC (2001/2, 2005/6 and 2009/10) as well as PISA 2015 (providing data for 2014).¹⁶

Figure 1 shows the evolution of adolescent life satisfaction in a balanced sample of 9 countries that appeared in three earlier and three later HBSC waves. It is clear from this figure that in 1989, the year when transition started, a large majority of adolescents were happy, with countries having 85 to 95% of adolescents indicating they were quite happy or very happy. The only exception was Latvia with only about 65% of adolescents indicating they were happy. During the nineties, life satisfaction of adolescents decreases in most countries but it is the 2 happy transition countries (Hungary and Poland) that see the most outspoken drop. In the 2000s, life satisfaction remains fairly stable, though Latvia catches up with the other countries in this sample.

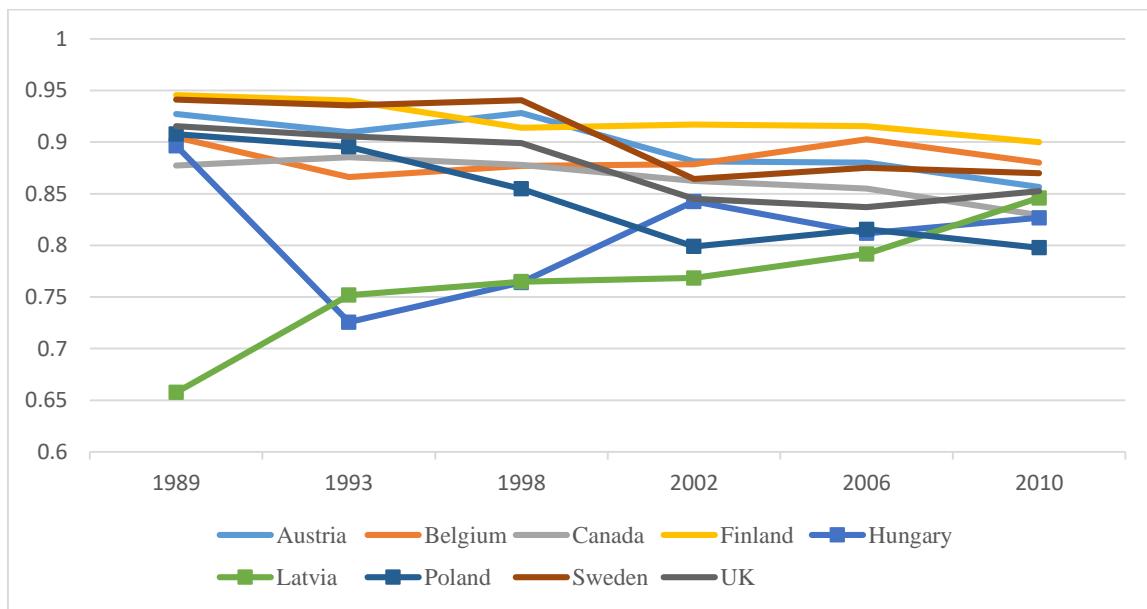


Figure 1. The evolution of average adolescent life satisfaction over survey waves in a balanced panel of countries.

Table 1 reports the results of the linear probability model for all countries for which we have data available in a given wave of the HBSC survey (top part) and the panel of 9 countries (bottom part) including 6 non-transition countries (Austria, Belgium, Canada, Finland, Sweden and UK) and three transition countries (Hungary, Latvia, Poland). All models have robust standard errors and clustering at the country level. As explanatory variables we include variables that potentially correlate with life satisfaction and that are available in each wave. This includes gender, age and age squared, and various health indicators that take the value of one whenever a respondent mentions the presence of a specific health issue (head ache, stomach ache or back ache). We find that girls are less happy than boys, that age doesn't matter for happiness and that health problems reduce life satisfaction.

Consistent with figure 1, the results of Table 1 suggest little or no difference between transition countries and non-transition countries at the start of the transition, a wide gap in the mid-nineties of about 18 percentage points, which then gradually decreases to become insignificant by 2014. This evolution can be seen both in the regressions that include all countries available

¹⁶ The 1986 wave is excluded because only 5 countries were included in that survey and the variable age was not included. The 2014 PISA data are for 15 years old only.

in a given wave, as well in the regressions that follow the same 9 countries over time. In terms of size this gap is large relative to the effect of gender and health problems in the mid and late nineties waves and the 2001/2 wave, but small in the more recent periods.

In Table 1 we include only a limited set of individual level variables and no macroeconomic variables given we only have 9 countries in the balanced panel set. We therefore next focus on for the three latter waves of HBSC (2001/2, 2005/6 and 2009/10) for which we both have a wider set of covariates and countries available.

Table 1. Linear probability model for Life satisfaction ("Happy" is 1) in adolescents

	All countries						
	1989	1993/4	1997/8	2001/2	2005/6	2009/10	2014
Transition country	-0.016*	-0.179***	-0.101***	-0.076***	-0.045***	-0.029**	0.001
	(0.007)	(0.028)	(0.024)	(0.016)	(0.014)	(0.013)	(0.020)
Age	0.078	-0.016	-0.008	0.016	0.011	-0.018	-0.395
	(0.042)	(0.036)	(0.019)	(0.025)	(0.017)	(0.014)	(0.417)
Age Squared	-0.003*	0.000	-0.000	-0.001	-0.001	0.000	0.012
	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.013)
Girl	-0.022***	-0.031***	-0.033***	-0.027***	-0.023***	-0.024***	-0.089***
	(0.005)	(0.005)	(0.004)	(0.004)	(0.004)	(0.003)	(0.006)
Headache sometimes	-0.016***	-0.043***	-0.045***	-0.044***	-0.041***	-0.041***	
	(0.004)	(0.007)	(0.005)	(0.005)	(0.003)	(0.003)	
Stomachache sometimes	-0.012	-0.038***	-0.042***	-0.035***	-0.039***	-0.035***	
	(0.007)	(0.006)	(0.005)	(0.004)	(0.004)	(0.003)	
Back ache sometimes	-0.040***	-0.050***	-0.046***	-0.047***	-0.046***	-0.050***	
	(0.004)	(0.005)	(0.006)	(0.003)	(0.003)	(0.003)	
Constant	0.508	1.173***	1.133***	0.914***	0.924***	1.110***	4.034
	(0.276)	(0.248)	(0.130)	(0.161)	(0.118)	(0.093)	(3.284)
Observations	40471	101333	123376	147235	183685	204754	165378
Adjusted R-squared	0.017	0.071	0.045	0.031	0.025	0.023	0.013
	Panel of countries						
	1989	1993/4	1997/8	2001/2	2005/6	2009/10	
Transition country	-0.013	-0.129**	-0.108***	-0.073**	-0.058***	-0.033*	
	(0.007)	(0.045)	(0.027)	(0.023)	(0.017)	(0.016)	
Age	0.074	0.032	0.018	0.005	-0.044	-0.031**	
	(0.045)	(0.027)	(0.033)	(0.035)	(0.029)	(0.011)	
Age Squared	-0.003	-0.002	-0.001	-0.001	0.001	0.001*	
	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	
Girl	-0.023***	-0.026***	-0.028***	-0.035***	-0.028**	-0.030***	
	(0.005)	(0.006)	(0.005)	(0.008)	(0.009)	(0.004)	
Headache sometimes	-0.014***	-0.037***	-0.038***	-0.040***	-0.034***	-0.040***	
	(0.003)	(0.008)	(0.006)	(0.006)	(0.006)	(0.006)	
Stomachache sometimes	-0.013	-0.040***	-0.038***	-0.036***	-0.044***	-0.032***	
	(0.008)	(0.007)	(0.006)	(0.006)	(0.006)	(0.005)	
Back ache sometimes	-0.042***	-0.050***	-0.055***	-0.044***	-0.050***	-0.047***	
	(0.005)	(0.006)	(0.005)	(0.004)	(0.003)	(0.005)	
Constant	0.542	0.840***	0.945***	0.984***	1.287***	1.194***	
	(0.295)	(0.178)	(0.213)	(0.230)	(0.191)	(0.076)	
Observations	35550	55502	58369	51123	52217	69179	
Adjusted R-squared	0.018	0.046	0.045	0.030	0.028	0.023	

*Note: Top part of the Table includes all available countries while the bottom part includes only a balanced panel of 9 countries. All models have robust standard errors and clustering at the country level. *** means significant at the 1% significance level.*

3.3. Subjective well-being over the period 2001-2010, comprehensive model

For this shorter period, we have a balanced panel of 25 countries (including 11 transition countries) that participated in each of the 3 waves with several hundred thousands of individual observations for adolescents aged 11, 13 and 15 years old. The group of transition countries consists of Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Macedonia, Poland, Russia, Slovenia and Ukraine. Hence, it's important to note the transition countries of Central Asia and the Caucasus are not in our sample. The group of non-transition countries includes Austria, Belgium, Denmark, Finland, France, Ireland, Italy, Netherlands, Portugal, Spain, Sweden, Switzerland, UK and USA. Hence, this group consist of developed European countries (and the USA) and does not include developing countries. Hence when we compare transition countries to non-transition countries, we compare the more advanced transition countries to (mainly) Western-European countries.

Table 2. Average share of 'Happy' adolescents in transition vs non-transition countries

Country	2002	Change 2002 to 2006	2006	Change 2006 to 2010	2010
<i>Transition countries</i>					
Croatia	81.1%	-0.6%	80.6%	4.4%	85.0%
Czech Republic	83.3%	-2.1%	81.2%	3.7%	84.9%
Estonia	76.8%	9.1%	85.9%	1.5%	87.4%
Hungary	84.2%	-3.1%	81.2%	1.5%	82.7%
Latvia	76.8%	2.3%	79.2%	5.4%	84.6%
Lithuania	75.1%	3.6%	78.8%	2.5%	81.3%
Poland	79.9%	1.7%	81.6%	-1.8%	79.8%
Russia	76.0%	3.4%	79.4%	3.1%	82.5%
Slovenia	86.0%	-0.1%	85.9%	1.0%	86.9%
Ukraine	74.2%	6.7%	80.8%	-1.6%	79.3%
Macedonia	90.3%	-2.1%	88.2%	-2.0%	86.2%
<i>Non-Transition countries</i>					
Austria	88.1%	-0.1%	88.0%	-2.4%	85.7%
Belgium	87.9%	2.4%	90.3%	-2.3%	88.0%
Denmark	87.6%	2.7%	90.3%	-4.6%	85.7%
Finland	91.7%	-0.1%	91.6%	-1.6%	90.0%
France	85.1%	-0.9%	84.2%	1.3%	85.6%
Ireland	86.5%	0.8%	87.3%	-0.8%	86.6%
Italy	85.4%	-1.0%	84.4%	1.4%	85.8%
Netherlands	94.3%	-1.4%	93.0%	1.1%	94.1%
Portugal	81.0%	1.1%	82.0%	2.3%	84.3%
Spain	87.9%	3.7%	91.6%	-2.5%	89.1%
Sweden	86.4%	1.1%	87.5%	-0.5%	87.0%
Switzerland	88.8%	-0.6%	88.2%	-1.1%	87.1%
UK	84.5%	-0.8%	83.7%	1.6%	85.3%
USA	82.9%	1.0%	84.0%	0.3%	84.2%

Note: Each number is unweighted average of country average life satisfaction of adolescents. Data bars are based on the entire sample for each survey.

Table 2 reports average life satisfaction of children in the 3 later HBSC surveys used in the balanced sample. Since we are interested in whether a transition gap exists we divide the sample based on the transition status. In all survey waves, transition countries have a lower share of ‘Happy’ adolescents: 80.0% vs 86.8% in 2001/2, 81.9% vs 87.3% in 2005/6 and 83.6% vs 86.9% in 2009/10¹⁷. Although this difference is rather small there are some interesting differences in dynamics of adolescents’ happiness as implied by Table 2. The change in happiness levels between 2001/2 and 2005/6 surveys is mixed: some transition and non-transition countries experienced decline in average happiness while others demonstrate an increase. What is interesting is that between 2005/6 and 2009/10, all but 3 transition countries increased their share of ‘Happy’ adolescents while evidence for non-transition countries is mixed. It is possible that some underlying determinants of happiness also changed between waves so next we turn to an econometric analysis.

In the regression analysis reported in Table 3, we use the same individual level variables as in Table 1 but add indicators of income and wealth (whether the family owns a car or not, whether the family owns a computer or not, whether the respondent has her/his own bedroom, and whether or not the family went on a vacation, whether the respondent sometimes goes hungry to bed, and indicators for father and mother’s occupation¹⁸) and an indicator of the respondent’s experience at school (how much pressure the respondent experiences at school).

Table 3 shows that the variables reflecting wealth and school pressure are significant and sizeable. For example, respondents who experience a lot of pressure at school are between 12.5-14.1 percentage points less likely to say they are happy. Similarly, going sometimes hungry to bed decreases the probability to be happy by about 10 percentage points. Table 3 also confirms the importance of gender and health which we found in Table 1, and the insignificance of age.

Table 3 further indicates that while the transition gap remains statistically significant, its economic significance becomes much smaller after we include the additional individual level variables capturing family wealth and school experience. For 2001/2, the happiness gap decreases from about 7 to about 5 percentage points and for 2005/2006 from about 5 to about 3 percentage points. For 2010, the gap was already very small so adding variables changes little to the gap. Interestingly, even in 2001/2, the happiness gap separating transition countries from non-transition countries was smaller than the effect of school pressure and several wealth indicators, again reflecting the relative moderate size of this happiness gap.

Note that in Table 3, we used a dummy variable as dependent variable, which distinguished happy respondents who chose a life satisfaction score of 6 and above, from those who were unhappy, choosing a life satisfaction score of 5 or lower. We also checked how big the happiness gap would be if we used the score itself as dependent variable, rather than a dummy variable. We experimented both with an OLS specification, and with an ordered probit specification. Both of these regressions showed no statistically significant effect of the transition dummy.¹⁹

Table 3. Linear probability model for life satisfaction with extended list of covariates

¹⁷ We get similar conclusions when comparing averages of the scores (0-10).

¹⁸ The latter represented by dummies for various job categories.

¹⁹ These tables are available upon request.

	Life satisfaction, all countries			Life satisfaction, panel of countries		
	2001/2	2005/6	2009/10	2001/2	2005/6	2009/10
Transition country	-0.043*** (0.014)	-0.025* (0.012)	-0.025** (0.010)	-0.046*** (0.014)	-0.037*** (0.011)	-0.027*** (0.009)
Age	-0.006 (0.023)	-0.001 (0.020)	-0.017 (0.017)	-0.002 (0.027)	-0.011 (0.020)	-0.037*** (0.013)
Age Squared	-0.000 (0.001)	-0.000 (0.001)	0.000 (0.001)	-0.000 (0.001)	0.000 (0.001)	0.001** (0.000)
Girl	-0.026*** (0.005)	-0.025*** (0.004)	-0.024*** (0.003)	-0.027*** (0.005)	-0.025*** (0.005)	-0.023*** (0.003)
School pressure: a little	-0.016*** (0.004)	-0.016*** (0.003)	-0.014*** (0.004)	-0.013*** (0.004)	-0.015*** (0.003)	-0.016*** (0.004)
School pressure: some	-0.063*** (0.008)	-0.063*** (0.005)	-0.056*** (0.007)	-0.061*** (0.008)	-0.066*** (0.007)	-0.060*** (0.007)
School pressure: a lot	-0.125*** (0.008)	-0.138*** (0.007)	-0.138*** (0.008)	-0.126*** (0.009)	-0.135*** (0.009)	-0.141*** (0.010)
Headache sometimes	-0.036*** (0.004)	-0.032*** (0.003)	-0.033*** (0.003)	-0.039*** (0.004)	-0.032*** (0.004)	-0.034*** (0.004)
Stomachache sometimes	-0.028*** (0.004)	-0.029*** (0.003)	-0.027*** (0.003)	-0.031*** (0.003)	-0.030*** (0.004)	-0.027*** (0.003)
Back ache sometimes	-0.036*** (0.003)	-0.035*** (0.003)	-0.036*** (0.002)	-0.036*** (0.003)	-0.037*** (0.003)	-0.035*** (0.002)
Hungry to bed sometimes	-0.098*** (0.010)	-0.093*** (0.006)	-0.095*** (0.006)	-0.099*** (0.010)	-0.090*** (0.008)	-0.090*** (0.005)
No family car	-0.044*** (0.005)	-0.033*** (0.008)	-0.040*** (0.006)	-0.046*** (0.005)	-0.021*** (0.007)	-0.033*** (0.004)
No own bedroom	-0.028*** (0.006)	-0.028*** (0.006)	-0.031*** (0.007)	-0.033*** (0.006)	-0.029*** (0.004)	-0.021*** (0.003)
No vacation	-0.075*** (0.006)	-0.091*** (0.006)	-0.085*** (0.005)	-0.079*** (0.005)	-0.087*** (0.007)	-0.081*** (0.005)
No computer	-0.036*** (0.005)	-0.042*** (0.012)	-0.058*** (0.016)	-0.036*** (0.005)	-0.028*** (0.009)	-0.046*** (0.007)
Constant	1.079*** (0.153)	1.037*** (0.131)	1.148*** (0.106)	1.067*** (0.177)	1.093*** (0.137)	1.273*** (0.084)
Number of countries	29	34	33	25	25	25
Transition countries	11	13	14	11	11	11
Panel of countries	No	No	No	Yes	Yes	Yes
Observations	145574	181208	178613	125986	133827	136911
Adjusted R-squared	0.076	0.080	0.081	0.082	0.075	0.072

Note: All models include in addition a set of dummy variables for father and mother SES. *** means significant at the 1% significance level, ** at the 5% significance level and * at the 10% level.

In Table 4 we add various country characteristics to the regressions of Table 3: we add macroeconomic variables like GDP per capita, unemployment as measured by the ILO and inflation. We also add democracy related variables like a measure of democracy and of media freedom. Adding these variables changes the results little. For the 2001/2 data, adding them increases rather than decreases the happiness gap but the sign of the only significant variable is rather unexpected: unemployment increases rather than decreases happiness. While one possible interpretation could be that adolescents like it when their parents at home, many adolescents are likely to oppose to such view. For the other years, adding macro variables mostly decreases

the already small happiness gap and often makes the gaps insignificant. But also here signs are not always as expected. A possible explanation for this could be multicollinearity: we have a limited number of countries and variation across countries is limited as our sample does not include developing countries or the more Eastern (and poorer) transition countries. Still, when including the above country characteristics one by one, we do not find much of an effect either. Hence we find that macro variables, unlike in the literature on the happiness gap for adults, matter little for the analysis of the life satisfaction of adolescents.

Table 4. Linear probability model for life satisfaction with extended list of covariates and macro variables

	Life satisfaction, all countries			Life satisfaction, panel of countries		
	2001/2	2005/6	2009/10	2001/2	2005/6	2009/10
Transition country	-0.069** (0.028)	-0.018 (0.018)	-0.023 (0.015)	-0.036 (0.022)	-0.041** (0.020)	-0.020 (0.014)
Age	-0.004 (0.023)	-0.005 (0.020)	-0.026* (0.015)	-0.001 (0.027)	-0.013 (0.020)	-0.038*** (0.013)
Age Squared	-0.000 (0.001)	-0.000 (0.001)	0.001 (0.001)	-0.000 (0.001)	0.000 (0.001)	0.001** (0.000)
Girl	-0.026*** (0.005)	-0.026*** (0.004)	-0.024*** (0.003)	-0.027*** (0.005)	-0.025*** (0.005)	-0.023*** (0.003)
School pressure: a little	-0.017*** (0.004)	-0.016*** (0.003)	-0.015*** (0.003)	-0.015*** (0.005)	-0.015*** (0.003)	-0.017*** (0.004)
School pressure: some	-0.067*** (0.008)	-0.064*** (0.006)	-0.060*** (0.006)	-0.065*** (0.008)	-0.066*** (0.007)	-0.061*** (0.007)
School pressure: a lot	-0.132*** (0.009)	-0.136*** (0.007)	-0.140*** (0.008)	-0.133*** (0.009)	-0.137*** (0.009)	-0.144*** (0.010)
Headache sometimes	-0.034*** (0.004)	-0.031*** (0.003)	-0.033*** (0.003)	-0.037*** (0.004)	-0.031*** (0.003)	-0.033*** (0.004)
Stomachache sometimes	-0.027*** (0.003)	-0.029*** (0.003)	-0.028*** (0.003)	-0.031*** (0.003)	-0.030*** (0.004)	-0.026*** (0.003)
Back ache sometimes	-0.034*** (0.003)	-0.035*** (0.002)	-0.036*** (0.002)	-0.035*** (0.002)	-0.035*** (0.003)	-0.034*** (0.002)
Hungry to bed sometimes	-0.099*** (0.008)	-0.095*** (0.005)	-0.096*** (0.006)	-0.101*** (0.008)	-0.091*** (0.006)	-0.091*** (0.005)
No family car	-0.040*** (0.005)	-0.025*** (0.007)	-0.032*** (0.004)	-0.040*** (0.005)	-0.019*** (0.007)	-0.031*** (0.004)
No own bedroom	-0.027*** (0.004)	-0.029*** (0.005)	-0.032*** (0.006)	-0.031*** (0.004)	-0.029*** (0.004)	-0.023*** (0.004)
No vacation	-0.074*** (0.006)	-0.089*** (0.006)	-0.084*** (0.005)	-0.077*** (0.005)	-0.086*** (0.007)	-0.081*** (0.005)
No computer	-0.038*** (0.004)	-0.036*** (0.007)	-0.050*** (0.009)	-0.034*** (0.004)	-0.029*** (0.007)	-0.039*** (0.007)

Log GDP pc (PPP \$)	-0.020 (0.035)	0.008 (0.021)	0.012 (0.016)	0.019 (0.027)	0.010 (0.028)	0.031* (0.017)
Unemployment, ILO	0.003* (0.001)	0.002** (0.001)	0.002** (0.001)	0.003* (0.001)	0.003*** (0.001)	0.002** (0.001)
CPI	0.001 (0.002)	-0.002 (0.005)	-0.005 (0.003)	-0.002 (0.002)	0.006 (0.004)	0.001 (0.002)
Media freedom	-0.003 (0.020)	0.026 (0.016)	-0.001 (0.009)	-0.059*** (0.016)	0.018 (0.018)	-0.009 (0.007)
Democracy rating	0.012 (0.011)	-0.007 (0.006)	-0.007 (0.004)	0.034*** (0.009)	0.005 (0.010)	-0.000 (0.004)
Constant	1.158*** (0.335)	0.989*** (0.266)	1.148*** (0.192)	0.638** (0.270)	0.893** (0.337)	0.943*** (0.178)
Number of countries	29	34	33	25	25	25
Transition countries	11	13	14	11	11	11
Panel of countries	No	No	No	Yes	Yes	Yes
Observations	145574	172148	167869	125986	133827	136911
Adjusted R-squared	0.078	0.080	0.082	0.086	0.077	0.073

Note: All models include in addition a set of dummy variables for father and mother SES.

3.4. Checking for heterogeneity

So far, we ran regressions pooling adolescents from different age groups and gender. Table 5 shows the estimate of the happiness gap based on a disaggregated analysis, where we run the regression specification of Table 3 on samples of specific age/gender groups. Overall, the findings of Table 3 are confirmed. Even if we do an analysis for a specific age/gender group we find that the happiness gap is small and decreasing over time. We find that the gap is bigger for boys than for girls, but find little evidence that there is relationship between the size of the happiness gap and the age group.

Wealth and school experience variables remain important in the above regressions, with coefficients in the regressions for girls typically exceeding the coefficients for boys. For example, going to bed hungry and experiencing a lot of school pressure reduces the probability of being happy more for girls than boys in each age class. And the coefficients of these variables are again much bigger than the coefficients of the transition dummy which reflect the happiness gap.

Table 5. Linear probability model in subgroups by age and gender.

	11 y.o. Boys			11 y.o. Girls		
	2001/2	2005/6	2009/10	2001/2	2005/6	2009/10
Transition country	-0.049*** (0.016)	-0.037*** (0.010)	-0.031*** (0.010)	-0.028** (0.013)	-0.025 (0.015)	-0.022** (0.010)
Observations	24341	28634	27866	24973	29930	29459
Adjusted R-squared	0.052	0.065	0.064	0.064	0.083	0.077
	13 y.o. Boys			13 y.o. Girls		
	2001/2	2005/6	2009/10	2001/2	2005/6	2009/10
Transition country	-0.035*** (0.012)	-0.021 (0.014)	-0.035*** (0.010)	-0.031 (0.019)	-0.015 (0.016)	-0.018 (0.014)
Observations	24297	30099	29458	26009	31866	30945
Adjusted R-squared	0.059	0.065	0.073	0.075	0.082	0.084
	15 y.o. Boys			15 y.o. Girls		
	2001/2	2005/6	2009/10	2001/2	2005/6	2009/10
Transition country	-0.055*** (0.018)	-0.028** (0.013)	-0.019* (0.011)	-0.053** (0.019)	-0.022 (0.016)	-0.021 (0.015)
Observations	21657	29248	30007	24297	31435	30878
Adjusted R-squared	0.076	0.067	0.070	0.081	0.080	0.081

Note: All models include the same covariates as in main model except for age and gender.

Conclusions

In this paper, we contribute to the analysis of the happiness gap, by analysing the difference in life satisfaction between adolescents in transition countries and their peers in non-transition countries. Earlier studies suggest that adults in transition countries are ‘abnormally unhappy’, that is, after controlling for a number of individual and country characteristics, adults in transition countries are on average less happy than similar individuals in non-transition countries. We find that, at the start of the transition, adolescents in our sample of transition countries, *ceteris paribus*, were about as happy as adolescents in our sample of non-transition countries, but that a substantial gap appeared in the mid-nineties²⁰.

We further find, however, that this gap decreased quickly and that by the 2000s this gap became fairly small, especially when compared to the effect of some individual level characteristics. Variables reflecting adolescents’ health situation, their material situation and the pressure they experience at school all have coefficients that are bigger than the coefficient of the transition dummy, which reflects the happiness gap. In contrast, macro-level variables do not appear to matter much, unlike what was found in the analysis of the happiness gap for adults.

These findings are robust to disaggregating our analysis by gender and age groups. For all groups, the happiness gap is decreasing over the period 2001-2010 and fairly small throughout this period. We find some evidence the happiness gap is bigger for boys than for girls, while the coefficients of variables reflecting the respondent’s material situation and their school environment is bigger for girls than for boys. This paper thus also contributes to the analyses of what are the important correlates of life satisfaction for adolescents in transition countries.

²⁰ Our sample of transition countries does not include the more Eastern CIS states, which tend to score worse on child well-being indicators and that our sample of non-transition countries mainly includes developed Western-European countries.