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**Article**

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# WELL-BEING INEQUALITY AND THE ECONOMIC CRISIS: EVIDENCE FROM LIFE IN TRANSITION SURVEYS IN EASTERN EUROPE

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**Abstract:** This paper examines the relationship between well-being inequality and the economic crisis for countries from Central and Eastern Europe. Using data from Life in Transition Surveys waves 2006 and 2010, we assess the level of happiness gap by computing the instrument-effect-corrected standard deviation. Our results indicate that the dispersion in self-reported well-being levels increased after the economic crisis in all considered countries. We also show that the life satisfaction variation is not necessarily higher for those who report being poor compared to those from the upper part of the income hierarchy. Results also suggest that in general the gaps are higher in the case of those who report being not affected at all by the economic crisis compared to those who report being affected to a large extent by the crisis.

**Keywords:** well-being inequality; economic crisis; income inequality; happiness.

**JEL Classification:** D63; I31.

## INTRODUCTION

In the last decade, there has been a big upsurge in new research by economists on well-being (for an overview, see MacKeron, 2011). Significant developments were made not only on the theoretical, but also on the empirical side of the topic. However, the most of the literature on well-being focuses on investigating the determinants of life satisfaction and how to increase its average level, allowing thus to understand how to improve the overall happiness of citizens. But only few studies and, predominantly in the last years, analyze the *distribution* of happiness across individuals and over time. This contrasts with the vast literature on the effects and causes of *income* inequality, which still dominates the economic and sociological literature.

Understanding the determinants of well-being is of huge importance, since it allows improving the overall life satisfaction of citizens by implementing adequate socio-economic policies and/or by changing certain institutional features. Researches in psychology, as well as in economics, have shown that a high level of well-being (life satisfaction) is a good predictor for health, work performance and general mental ability (Deaton, 2008; Argyle, 1989; Judge et al., 2010). Few studies have been conducted to analyze inequalities in wellbeing and how they might be reduced.

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The interest in the analysis of happiness variation is motivated by different arguments. From the perspective of economic and social policies, inequality in happiness is a relevant indicator for assessing the general welfare of citizens as well as the social inequalities (Veenhoven, 2005). Besides economic growth, inequalities in life satisfaction can provide valuable information about the quality of people's lives and the communities in which they live. Moreover, measures of the spread in happiness represent also a barometer for social tensions, and which, through policies targeted to influence happiness gaps, can help to improve social cohesion (Becchetti et al., 2014).

A special feature of the happiness gap, which differentiates it from the income gap, is the characteristic of reproduction. While income can be redistributed from rich to poor, for example, the satisfaction with the own life, as well as determinants of well-being, cannot be transferred from one individual to another (Van Praag, 2011).

The starting point of assessment of inequalities in happiness is the Easterlin paradox, according to which, in the long run, the level of reported life satisfaction has not evolved in a similar manner as the income (Easterlin, 2009). But little empirical evidence exists regarding the evolution of the happiness *variation* and its determinants, especially at the individual level. The existing studies and researches that use macroeconomic data for modern societies show that income inequality and happiness inequality evolve differently (Stevenson and Wolfers, 2008; Dutta and Foster, 2011; Becchetti et al., 2014). There is instead a higher correlation between income levels and the spread of happiness. An increase in the level of average income contributes to the reduction of the gap between those who report high levels of happiness and those who report being rather unhappy (Clark et al., 2012; Becchetti et al., 2014).

This paper aims at analyzing how the spread of happiness evolved after the financial and economic crisis compared to the period before. Using data from *Life in Transition Surveys*, our focus is on countries from Central and Eastern Europe, given the fact that evidence for these countries is rather limited.

The paper is organized as follows: the next section describes the methodology and presents the hypotheses that will be empirically tested, Section 3 describes the data and in section 4 we present and discuss the results. The last section presents the authors' conclusion.

## 1. METHODOLOGY

The dependency between the level of happiness and its degree of dispersion is also an issue in measuring inequality in life satisfaction. This *structural dependency* (Kalmijn and Veenhoven, 2005) is more problematic than in the case of income inequality, since the measurement of happiness is achieved using a scale that has an upper and a lower bound. From this perspective, using the standard deviation as a measure for happiness inequality might be questionable. To overcome the drawbacks of using the “raw” standard deviation, Delhey and Kohler (2012) developed a new measure, aimed at adjusting the structural dependency of the standard deviation to the mean. Their derived measure is the *instrument-effect-corrected standard deviation* and is obtained by multiplying the “raw” standard deviation by an instrument-effect that accounts for structural dependency.

In our paper we follow their argument and employ the *instrument-effect-corrected standard deviation* ( $SE_{IEFF}$ ). Formally, this may be computed as follows:

$$SE_{IEFF} = SD_{RAW} * IEFF \quad (1)$$

where  $SD_{RAW}$  is the standard deviation defined as:

$$SD_{RAW} = \sqrt{\frac{\sum_{i=1}^N (ls_i - \bar{ls})^2}{N-1}} \quad (2)$$

where  $ls_i$  refers to the self-reported life satisfaction of an individual  $i$ ,  $\bar{ls}$  represents the mean value of life satisfaction and  $N$  is the number of observations.

$IEFS$  from equation (1) is an instrument effect defined as a function of maximum standard deviation:

$$IEFF = \frac{1}{\max(\sigma)} \quad (3)$$

where  $\max(\sigma)$  depends on the upper and lower limits of life satisfaction and also on the mean value of well-being ( $\mu$ ).

$$\max(\sigma) = \sqrt{\frac{(u-\mu)(\mu-l)*N}{N-1}} \quad (4)$$

Based on previous research and using the *instrument-effect-corrected standard deviation* as our tool to measure well-being inequality\*, we formulate the following hypotheses in order to test them in the next section.

1. There is an inverse relationship between an increase in GDP per capita and happiness variation.

\* We use the Stata command *SDLIM*, developed by Ulrich Kohler (2010).

2. Measured after the economic crisis, the well-being inequality increased compared to its level before the crisis.
3. After the economic crisis, life satisfaction variation is higher for those who report being poor compared to those from the upper part of the income hierarchy.
4. Happiness inequality is smaller in the case of those who report being not affected at all by the economic crisis compared to those who report being affected to a large extent by the economic crisis.
5. Very low correlation (if any) between mean life satisfaction measured by the self-reported impact of the economic crisis and the inequality in well-being.

## 2. DATA

In the present paper we use data from two rounds of the *Life in Transition Survey* carried out in 2006 and 2010 by the European Bank for Reconstruction and Development (EBRD) in collaboration with the World Bank. The data contain information on individuals and households from 34 countries: 29 countries of Central and Eastern Europe and Central Asia and 5 countries from Western Europe, the latter taking part only in the second round. The sample for each country is national representative and consists of at least 1000 individuals. Besides socio-economic background information, the surveys contain rich data on public attitudes and values, on economic and life satisfaction as well as on the impacts of the economic crisis. Given that the two rounds of surveys were carried out before and after the outbreak of the economic crisis, the *Life in Transition Survey* is a unique data set that provides the opportunity to assess changes in transition countries during the economic crisis.

In our study we restrict our analysis to the following countries from Central and Eastern Europe: Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Moldova, Poland, Romania, Slovakia and Ukraine.

Our main variable of interest is *life satisfaction* and is measured with two different Likert scales in the *Life in Transition Survey*. In the survey from 2006, the *life satisfaction* is assessed using the following measure:

*All things considered, I am satisfied with my life now (strongly disagree, disagree, neither disagree nor agree, agree, and strongly agree)*

In the second round from 2010, the *life satisfaction* variable is the response to the following question, which contains instead a 10-step scale:

*All things considered, how satisfied or dissatisfied are you with your life these days? Please answer on a scale from 1 to 10, where 1 means completely dissatisfied and 10 means completely satisfied.*

To assess the level of income of the respondents, we use the answers on a 10-step ladder from the following two questions.

*“Please imagine a ten-step ladder where on the bottom, the first step, stand the poorest 10% people, and on the highest step, the tenth, stand the richest 10% of people in our country. On which step of the ten is your household today?”*

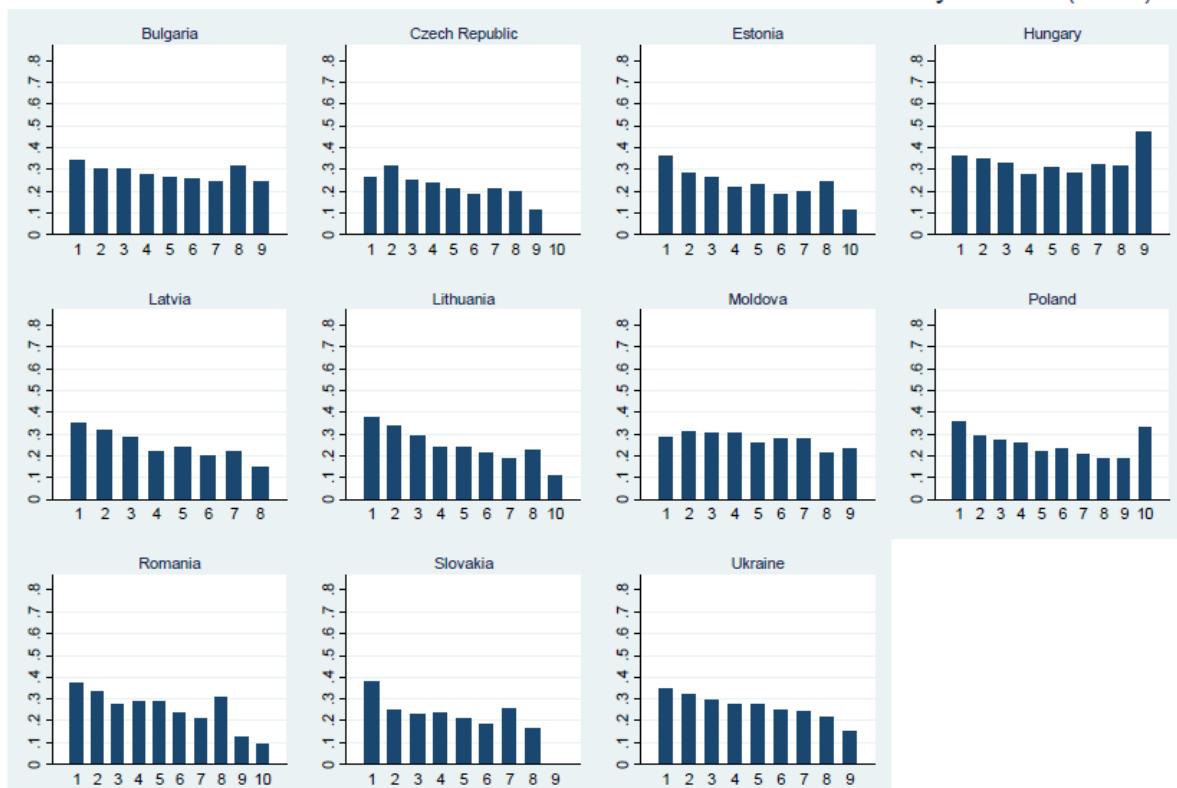
*Now imagine the same ten-step ladder 4 year ago. On which step was your household at that time?*

### **3. RESULTS AND DISCUSSION**

Figures 1 and 2 describe the happiness inequality plotted on a self-reported income ranking before and after the crisis. Comparing the graphs computed for 2006 and 2010 we can observe that in general the variation in self-reported life satisfaction, regardless of the income level, is higher in 2010 than 4 years before. Given the fact that the GDP per capita decreased during the economic crisis in all considered countries (not shown here), we can assert that there is an inverse relationship between GDP per capita and happiness inequality. This implies that the hypothesis 1 is true. Also, the second hypothesis is confirmed.

**Figure 1 - Life satisfaction inequality by income (2006)**

Instrument-effect-corrected standard deviation of life satisfaction by income (2006)



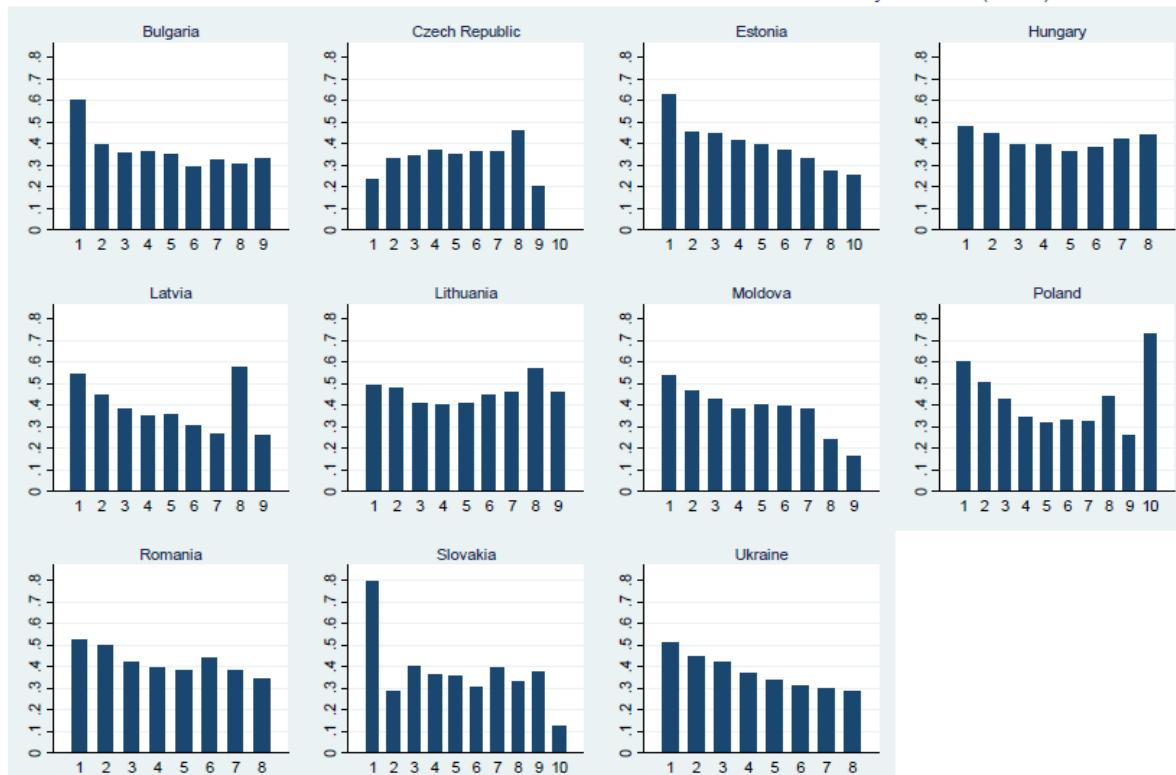
Source: own computation. Data from Life in Transition Survey, 2010.

A reason of an increase in happiness gap could be that both the share of individuals who declare low and high life satisfaction scores has increased. Since the measurement scale of life satisfaction in both surveys (2006 vs. 2010) differs, looking at the proportion of individuals who report a life satisfaction score of one in both waves could not be relevant (the same argument for the proportion of those who report a maximum well-being score).

Figure 1 illustrates also that those individuals who report small levels of income do not necessarily report also different levels of well-being scores compared to those who have higher income. With some exceptions (Romania, Slovakia, Lithuania), the variation is quite stable. In contrast, using data for 2010 (Figure 2), the spread in life satisfaction is much higher. Reporting having medium levels of income is associated with similar dispersion in self-reported life satisfaction, but looking at the extremes values, the variation is much higher than in the middle of the income ladder.

**Figure 2 - Life satisfaction inequality by income (2010)**

Instrument-effect-corrected standard deviation of life satisfaction by income (2010)



Source: own computation. Data from Life in Transition Survey, 2010.

Thus, the third hypothesis formulated above, that asserts that after the economic crisis, life satisfaction variation is higher for those who report being poor compared to those from the upper part of the income hierarchy, is only partially true. It is not true for the following countries: Czech Republic, Latvia, Lithuania, and Poland. In their cases, the gap is higher for those who are at the upper part of the income hierarchy. We have also notice that compared to 2006, in 2010 there are countries (Hungary, Lithuania, Romania, Ukraine) where no one declared that his/her household is among the richest 10% or 20% of people in that country.

In both cases (Figures 1 and 2), the results also suggest that there is no positive relation between higher level of income and a smaller variation in happiness. This indicates that there are also other factors than income that determine a specific level of well-being.

Figure 3 illustrates the mean and variation in life satisfaction computed according to the self-perceived impact of the economic crisis. In this regard, the respondents were asked the following question:

*As you know, an economic crisis is affecting the whole world and our country. How much, if at all, has this crisis affected your household in the past two years?*

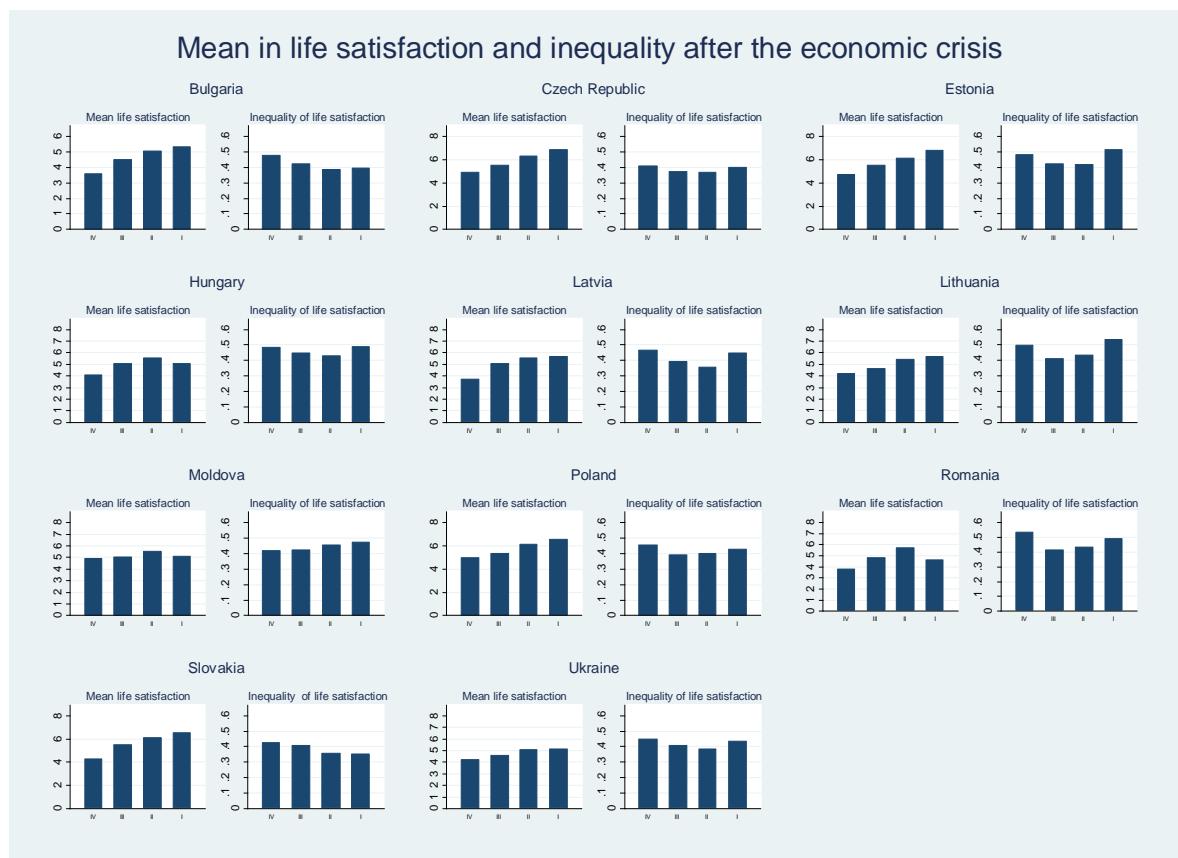
For this question, the respondents had to tick one answer out of four possibilities: *a great deal* (marked in the Figure with IV), *a fair amount* (III), *just a little* (II), *not at all* (I).

According to hypothesis 4, we expect that happiness inequality is smaller in the case of those who report being not affected at all by the economic crisis (I) compared to those who report being affected to a large extent by the economic crisis (IV). As reflected in the Figure 3, this is true only for Bulgaria and Slovakia. In other cases, such as Moldova, the situation is completely reverse: the higher the self-perceived impact of the economic crisis, the smaller the gap in self-reported life satisfaction.

We also notice, that in general, those who report not being affected at all by the economic crisis also report high levels of life satisfaction compared to those who report being affected in a great deal by the economic crisis.

The last hypothesis formulated above (H5) asserts that there is a very low correlation (if any) between mean life satisfaction measured by the self-reported impact of the economic crisis and the inequality in well-being. We find that only in the cases of Bulgaria and Slovakia the correlations are high and statistically significant (-0.96 and -0.95, respectively). In the other cases, the correlations are small and not statistically significant (not shown here, but the values are available upon request).

**Figure 3: Mean and spread of well-being and the self-perceived impact of the economic crisis**



Source: own computation. Data from *Life in Transition Survey*, 2010.

## CONCLUSIONS

This paper examines the relationship between well-being inequality and the economic crisis for countries from Central and Eastern Europe. Using data from *Life in Transition Survey* and the *instrument-effect-corrected standard deviation* to compute the inequality in life satisfaction we show that the economic crisis did not affect in a similar way the individuals from different countries regarding their self-reported level of happiness. We find evidence that the happiness gaps increased after the economic crisis in all considered countries. Taking into account also the self-reported income of the respondents, those who report being poor do not necessarily report very different levels of life satisfaction, so that the variation in their well-being scores is not necessarily higher compared to those from the upper part of the income hierarchy.

In general, as expected, those unaffected by the economic crisis report higher levels of life satisfaction, but the happiness inequality does not evolve in a similar manner. Almost in all cases (except Bulgaria and Slovakia), the gaps are higher in the case of those who report being not affected at all by the economic crisis compared to those who report being affected to a large extent by the crisis.

Our analysis, rather descriptive, shows that looking also at the dispersion of self-reported life satisfaction and not only at its mean value provides a deeper insight into inequalities between individuals and help us to understand in a better way how they differ in their self-perceived and reported happiness.

## ACKNOWLEDGEMENTS

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