

# Does joining the EU make you happy? Evidence from Bulgaria and Romania

## Abstract

We examine the effect of joining the European Union on individual life satisfaction in Bulgaria and Romania in the context of the 2007 EU enlargement. Although EU membership is among the most important events in Bulgaria and Romania's modern histories, there is no evidence on how it affected the subjective well-being of ordinary people in the two countries. Using a difference-in-differences strategy and Eurobarometer data, we provide some the first evidence that joining the EU increased average life satisfaction in Bulgaria and had a positive but statistically insignificant effect in Romania. One explanation is that after both countries joined in 2007, trust towards the EU only increased in Bulgaria but not in Romania. Furthermore, Romania's political war of 2007 may have mired the country's positive life satisfaction experiences related to EU membership. We also show that the younger, the employed and those with a high-school education were the winners from EU integration. Our results are robust to two placebo tests, in which we use two fake entry dates to the EU, as well as an estimation using bootstrapped standard errors. Our findings have implications for EU integration policy and future enlargements.

**Keywords:** subjective well-being, happiness, transition economies, difference-in-differences, European Union, EU enlargement.

**JEL Classification Codes:** I31, I39, P20

## 1. Introduction

On January 1, 2007, Bulgaria and Romania (EU-2) joined the European Union. Huge celebrations in both countries marked what the Romanian president at the time, Traian Basescu, called the “road of our future ... the road of our happiness.” Perhaps to reinforce his words, the European flag was raised outside of the government headquarters in Bucharest to the European anthem, Beethoven’s Ode to Joy. In Sofia, Bulgaria’s capital, tens of thousands of people celebrated beneath a shower of fireworks that filled the sky over the Battenberg Square, where the old Communist party was once headquartered. In an emotional speech to the nation, Georgi Parvanov, the Bulgarian president at the time, called the event “among the most important in [Bulgaria’s] national history.”

Since the mid-1990s, the prospect of joining the European Union (EU) has shaped the socio-economic and political transformations in the post-socialist countries in Central and Eastern Europe (CEE) and the former Soviet Union (FSU). Between 2004 and 2007, ten CEE and Baltic countries (EU-10) joined the EU, arguably marking the culmination of their transition processes.<sup>1</sup> EU membership symbolized the “return to Europe” and an “enormous chance for new generations,” as the then-Romanian president Basescu described the end of a long and painful 17-year transition process. It re-established “the standard of a normal society,” open markets, democratic institutions and a horizon of new opportunities (Åslund, 2007, p. 7).

Nonetheless, how did this “heavenly event”, as the Bulgarian president Parvanov called it on the day of joining, affect the subjective well-being (SWB) of ordinary Bulgarians and Romanians? Did EU membership improve people’s life satisfaction, given that they were now part of the largest economy in the world and were able to travel, study, work, invest and even retire in the EU? Alternatively did Bulgarians and Romanians become less satisfied with life amidst a long list of membership requirements and restrictions, leaving many feeling like “second-class” citizens compared to other European members? While EU membership has generally had a positive impact on the macroeconomic and institutional outlooks in transition countries and the EU-10 in particular, the effects on individual SWB remain largely unexplored.

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<sup>1</sup> The EU-8 countries are the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovenia and Slovakia. The EU-2 countries are Bulgaria and Romania, which joined in 2007. Croatia joined the EU in July 2013 but is excluded from this analysis due to limited post-membership data. As explained in Section 3, it is used instead as the counterfactual.

To our knowledge, ours is the first study to estimate the impact of European integration on the life satisfaction of Bulgarians and Romanians (EU-2). Our research questions are policy-relevant and build upon the extant literature in several ways. First, understanding the well-being effects of EU integration is especially important as the EU prepares for another round of memberships. With the exception of Turkey, the next countries waiting to join—Albania, former Yugoslav Republic of Macedonia, Montenegro, Serbia, Kosovo and Bosnia and Herzegovina—are CEE countries and have similar historical and politico-economic backgrounds to Bulgaria and Romania. The EU-2 experiences can thus guide the expectations of policy-makers in these countries about the well-being consequences of EU membership. Second, according to the Treaty of Lisbon, one of the EU's main goals is to promote the well-being of its citizens (EU, 2007), which implies well-being in both its material and non-material life domains. Nonetheless, the EU-2 countries face convergence challenges as they are generally poorer and unhappier compared to their EU-15 counterparts.<sup>2</sup> For example, in 2014, the purchasing-power-parity-adjusted GDP per capita of the EU-2 was about 42 percent and the life satisfaction was about 76 percent of that in the EU-15.<sup>3</sup> Third, assessing the SWB impact of EU membership is important because numerous cross-sectional, longitudinal and experimental studies demonstrate that happier people are more successful in multiple life domains (De Neve, Diener, Tay, & Xuereb, 2013). The evidence shows that higher SWB levels are positively associated with outcomes such as better work performance, income, health, innovation and social capital (Lyubomirsky, King, & Diener, 2005). Furthermore, many traits of happy people, such as optimism, social engagement, creativity and good health, could also improve the lives of others and the quality of the social fabric. Given the challenges that Bulgaria and Romania face compared with the rest of the EU, if joining the EU is indeed linked to SWB, it could at least partially facilitate a smoother completion of the transition process, representing a win-win situation for both post-socialist countries and the rest of the EU.

We focus on Bulgaria and Romania because these countries are the EU's poorest, as well as being among the unhappiest and most corrupt member states (Helliwell, Huang, &

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<sup>2</sup> The EU-15 countries are: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and United Kingdom.

<sup>3</sup> Authors' calculations based on data from the World Development Indicators and Gallup Analytics.

Wang, 2015; Transparency International, 2015).<sup>4</sup> Moreover, unlike any other EU members, Bulgaria and Romania have post-membership monitoring through the Mechanism for Cooperation and Verification (MCV), which signals institutional deficiencies related to the fight against corruption and organized crime.

By focusing on life satisfaction as our outcome variable, we study the broad psychological well-being consequences of EU membership. SWB metrics comprising positive and negative feelings related to daily experiences, life satisfaction and life purpose reflect the idea that people are the best judges of their own life circumstances (OECD, 2011) and provide “a natural way to aggregate various experiences in a way that reflects people’s own preferences” (Stiglitz, Sen, & Fitoussi, 2009, p. 145).<sup>5</sup> Thus, by capturing both material and non-material aspects of life, SWB metrics can provide a more comprehensive understanding of the well-being consequences of complex processes such as joining the EU.

We use Eurobarometer data with information on individual life satisfaction and socio-demographic characteristics of respondents in Bulgaria and Romania, as well as those in Croatia, immediately before and after joining the EU on January 1, 2007. Specifically, EB data were collected in September-October 2006 and then again in April-May 2007, thus minimizing the influence of intervening events.<sup>6</sup> Our identification strategy relies on a quasi-experiment, whose results could, at least theoretically, be interpreted as causal. Specifically, we use a difference-in-differences (DID) estimator, which takes into account general changes over time that are common to both treatment and counterfactual countries. Therefore, we can difference out time-invariant omitted variables and macroeconomic shocks such as the great recession, provided that they similarly affected the countries analyzed. In this setup, EU membership is the treatment, respondents in Bulgaria and Romania are the treated group and respondents in Croatia are the counterfactual group.

We find that joining the EU increased life satisfaction in Bulgaria, while the estimated effect in Romania was positive but statistically insignificant at conventional levels. One possible reason for these results could be that trust towards the EU only increased in

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<sup>4</sup> Along with Slovakia and Hungary, Bălăţescu (2007) considers Bulgaria and Romania among the least likely members to catch up with the EU-15 in terms of life satisfaction.

<sup>5</sup> In this paper, we use the terms subjective well-being (SWB) and life satisfaction synonymously. Happiness and life satisfaction are, however, two distinct dimensions of SWB with different determinants (Graham & Nikolova, 2015; Stone & Mackie, 2014).

<sup>6</sup> To the best of our knowledge, the Eurobarometer surveys are the only publicly available data allowing the reliable comparison of subjective well-being before and after the 2007 enlargement.

Bulgaria after joining. In addition, Romania experienced political turmoil only a few months after EU membership, which may have negatively affected life satisfaction and canceled out the positive experiences related to joining the EU. A more detailed time breakdown of the effects shows increased positive life satisfaction even in Romania in the first two quarters of 2008, after the political war subsided. In both countries, the positive life satisfaction effects of joining the EU were only felt after a lag, likely because Bulgarians and Romanians required time to start feeling European. Our evidence further suggests that the younger, employed and those who stopped their education between the ages of 16-19 benefited more from EU integration than their counterparts. The results are robust to placebo tests for two alternative “fake” EU entry years and an estimation in which the standard error structure adjusts for the fact that we study the consequences of macro-level events on individual well-being.<sup>7</sup>

## 2. Theoretical Considerations

Delhey (2001) proposes a general model of how EU membership influences three welfare dimensions: material living conditions, quality of society and SWB. Specifically, instruments related to regional policy, institutional adjustments and economic conditions directly improve material quality of life and social quality, which in turn indirectly affect SWB. We build upon Delhey’s (2001) work and propose four different channels through which EU integration can *directly* influence the SWB of Bulgarians and Romanians: (1) the adoption of shared economic and political institutions (modernization); (2) economic development; (3) freedom of choice and life control perception; and (4) social identity (Figure 1). Below we summarize the expected effect of each of these four channels on SWB. Because each channel can have both positive and negative influences on SWB, we argue that the relationship between joining the EU and SWB is a priori ambiguous.

### 2.1 Political and Economic Institutions (Modernization)

The adoption of EU rules and standards was among the most anticipated benefits of EU integration in Bulgaria and Romania. To join the EU, each country had to fulfill the economic, political and administrative criteria set during the Copenhagen European Council

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<sup>7</sup> As explained below, to correct for Moulton bias, we use wild bootstrapped standard errors following Cameron et al. (2008).

in 1993, namely democracy, rule of law and human rights, protection of minorities, a functioning market economy and the capacity to cope with competition and market forces, as well as the ability to adopt and implement the common body of law.

A growing body of literature in economics and political science demonstrates that people not only care about different socio-economic *outcomes*, but also about the *processes* that generate these outcomes (Frey, Benz, & Stutzer, 2004; Frey and Stutzer, 2010). While the development of political and economic institutions consistent with free markets, democracy and the rule of law started before 2007 and continues today, EU membership provided Bulgarians and Romanians with a sense that they finally belong to a system in which outcomes are determined by just processes. In this sense, the shared political, legal and economic institutions and the EU oversight provided people with a separate source of utility, i.e. *procedural utility*, which we expect to have positively influenced SWB as a result of the 2007 events.

While significant improvements in these areas were achieved with the EU's guidance prior to membership, these benefits came at the cost of implementing difficult reforms and adopting the numerous pages of the *aquis communautaire* (i.e. the EU common body of law). Joining the EU also invariably "cost" new members the adoption of norms and regulations, especially related to environmental protection, safety standards and competition policy (whereby national governments could not aid national industries), which required difficult adjustments (O. Doyle & Fidrmuc, 2006). For example, to comply with EU membership conditions, Bulgaria had to close two of its nuclear reactors, which generated around one-third of its electricity. Although both countries were recognized as having functioning democratic political systems by 2007, there were increasing concerns about corruption, lack of political leadership and weak democratic institutions, which foreign media often exposed and might have negatively affected the SWB of Bulgarians and Romanians.

## 2.2 *Economic Outcomes*

The adoption of a common legal and economic framework was expected to stabilize the economic environment, making it more attractive for local businesses and foreign investors. Thus, EU membership was largely anticipated to increase the share of foreign direct investment (FDI), creating more growth opportunities for Bulgarian and Romanian companies and ultimately leading to their faster integration into the global economy. In

addition, the access to a huge new market, potential EU economic partners, development funds and fresh capital was expected to boost economic development, reduce unemployment and raise the material standards of living of ordinary citizens, which numerous polls prior to membership revealed to be the greatest perceived benefit of EU membership. At the same time, there were fears that EU integration may lead to increased costs of living, competitive pressures from foreign companies potentially leading to local business bankruptcies, as well as a brain drain with educated people emigrating abroad.

While no data exist on the causal effect of joining the EU on the economic well-being in the EU-2, recent research suggests that the GDP per capita gains of joining the EU are relatively large and that EU-8 countries experienced similar gains to those in previous enlargements, namely about 13 percent (53 percent in Latvia) (Campos, Coricelli, & Moretti, 2014). Furthermore, the convergence literature shows that EU membership has led to an economic catch-up in Ireland, Greece, Portugal and Spain as well as the CEE countries that joined in 2004 (Kaitila, 2004). Cavenaile and Dubois (2011) also find evidence of  $\beta$ -convergence (i.e. poorer EU members growing faster than the richer EU members) between the CEE members and the rest of the EU. Trade and FDI have been important drivers of convergence, whereby the trade agreements between the EU-15 and the EU-10 (i.e. the Interim Agreements and the Europe Agreements) led to substantive contributions to GDP and welfare (Egger & Larch, 2011).<sup>8</sup> Welsch and Bonn (2008) show that macroeconomic convergence (and the convergence in inflation rates in particular) played a substantial role in the life satisfaction convergence in the EU in the 1990s. Given that *short*-run income increases are linked to SWB (Easterlin, 2013), we expect that joining the EU positively influenced SWB in Bulgaria and Romania through economic development.

### *2.3 Freedom of Choice and Life Control Perceptions*

Analyzing the SWB effect of the first two channels—modernization and economic development—is rather difficult because these processes started before EU membership and continue today. However, for many Bulgarians and Romanians, the long-anticipated EU

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<sup>8</sup> Other papers examine convergence in living standards between old and new EU members (Cornelisse & Goudswaard, 2002; Giannias, Liargovas, & Manolas, 1999; Neumayer, 2003).

membership meant that they could now travel, work<sup>9</sup>, study, invest or retire abroad. These unprecedented freedoms opened doors to new opportunities for career development, self-expression and ultimately the pursuit of happiness. Indeed, a mid-2006 poll in Bulgaria indicated that over one-third of respondents considered the free movement of people and better job opportunities as the greatest benefit of joining the EU.<sup>10</sup>

A large body of literature in psychology shows that *perceptions* of freedom of choice and life control are a powerful motivator with implications for health, wealth and happiness. For example, people who believe that they have control over their lives are more likely to take action and persevere through hardship. Moreover, they are more likely to save (Cobb-Clark, Kassenboehmer, & Sinning, 2014), develop healthy habits (Cobb-Clark, Kassenboehmer, & Schurer, 2014), escape drug addiction (Armitage, Armitage, Conner, Loach, & Willetts, 1999) or invest more time searching for a job (Caliendo, Cobb-Clark, & Uhlendorff, 2015). A number of recent studies have further suggested that the sense of control and freedom is one of the most robust SWB determinants (K. O. Doyle & Youn, 2000; Inglehart, Foa, Peterson, & Welzel, 2008; Verme, 2009).

In addition to being instrumentally important, freedom is also intrinsically valuable because it allows individuals to act in a deliberate and purposeful manner, exert power over their environment and develop their talents by exercising autonomy and self-expression, as two of the most basic human needs. For example, Welzel's (2013) theory of emancipation based on the human desire for a domination-free existence suggests that free agency leads to the emergence of emancipative values, which in turn lead to a higher level of psychological well-being as people gain control over their society's agenda. Furthermore, research has linked a higher level of economic freedom to stronger perceptions of control over one's life (Nikolaev & Bennett, 2016). In this respect, by expanding their opportunities, joining the EU may have provided EU-2 citizens with a greater sense of freedom of choice and life control, likely leading to higher SWB levels.

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<sup>9</sup> Some EU15 countries such as Germany, France and the UK had provisional restrictions on immigration from the new member states for up to 7 years, which expired in 2014. However, Bulgarians were able to work in 10 out of the 27 EU members including Sweden, Finland and the Czech Republic, which significantly expanded their opportunity set.

<sup>10</sup> Survey of May 16-21, 2006, conducted by ALPHA Research Agency, "Public Opinion for the Bulgarian membership to the EU, and the readiness of the country for a membership," published on 31.05.2006, available at: <http://www.aresearch.org>.



#### *2.4 Social Identity*

The final channel through which joining the EU may have affected SWB is what we refer to as “social identity.” There are three possible mechanisms here. First, “the return to Europe” was not only symbolic for Bulgarians and Romanians, but also—and more importantly—made these countries a part of the largest economy in the world, namely the EU. As a result, people in the EU-2 might have experienced a sense of pride, accomplishment and belonging through now formally belonging to an “elite” club of prosperous countries.

Second, even though Bulgarians and Romanians celebrated their return to Europe in 2007, they soon felt the bane of marginalization by being the poorest and among the unhappiest and most corrupt EU members. Unprecedentedly, both countries became subject to ex-post-membership monitoring by the European Commission, which negatively affected their European identity. Corruption scandals froze many of the EU development funds in 2008 (Andreev, 2009; Spendzharova & Vachudova, 2011). Major EU economic powers such as the UK, Germany and France kept tight labor mobility restrictions for seven years, which prevented Bulgarians and Romanian from freely work abroad. Furthermore, both countries suffered from an “image problem” as the Western media often portrayed them as sources of crime and prostitution.

Third, a growing body of literature suggests that the extent to which people feel satisfied with their lives at least partly depends on how they compare to those around them (Duesenberry, 1949; Frank, 1999; Scitovsky, 1976; Veblen, 1899). Accordingly, joining the EU may have increased the material aspirations of people as they likely applied a higher benchmark for social comparisons. In this respect, even if European integration was marginally successful in economic and political terms, the negative image of “second-class” citizenry, the higher benchmark for social comparison and the lower socio-economic status might have negatively affected SWB in the EU-2.

To summarize, joining the EU is a gradual process that involves multiple domains of political, economic and social life. Separating the effect of economic development (such as pre- and post-accession funds, GDP growth and investment) from the effect of modernization (changes in the structure of governance, adaptation to new rules and standards) in a before-after comparison based on a specific date is particularly difficult. However, the symbolic “return to Europe” on January 1, 2007 was highly anticipated in both countries, representing the beginning of a new era of opportunity, especially for the younger

generations, opening doors to Europe and significantly expanding the capabilities of ordinary citizens. Thus, we expect that EU membership had a positive effect on SWB—at least in the short run—through the channel of perception of freedom of choice and control. However, the lukewarm welcome of both countries to the EU, the mismanagement of EU funds that led to additional restrictions and the image of “second-class” Europeans might have completely offset the positive SWB effect from the EU integration in Bulgaria and Romania.

### *2.5 Previous Empirical Studies*

The literature on the well-being consequences of European integration remains in its infancy, with only a few studies attempting to tackle issues of causality.<sup>11</sup> In one exception, using DID, Popova (2012) finds that the Euro adoption led to declining life satisfaction for females, the elderly, the unemployed and the poorest among the EU countries that joined the Eurozone in 2002. Nonetheless, in new member states—Cyprus, Estonia, Malta, Slovenia and Slovakia, but not in Slovenia—the Euro adoption was positive or neutral for life satisfaction. A similar paper using DID and Eurobarometer data for Slovakia (with the Czech Republic as a control group) finds psychological costs of currency transition that are especially relevant for the old, the unemployed, the low-educated and those with children in the household (Otrachshenko, Popova, & Tavares, 2016). Furthermore, Wunder et al. (2008) find that the Euro adoption had a negative impact on satisfaction with income in Germany and the UK. Levitz and Pop-Eleches (2010) use a 2SLS strategy to examine the impact of the EU on the governance and democracy in the EU 2004 enlargement countries, finding a modest post-membership reform slowdown but no backsliding. Finally, using a regression discontinuity design, Becker et al. (2010) find that the EU’s structural funds have had a positive effect on GDP growth in the EU-25.

## **3. Empirical Strategy**

### *3.1. Difference-in-Differences Overview and Choice of the Counterfactual*

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<sup>11</sup> Other papers such as Delhey (2001) and Bălăţescu (2007) study the life satisfaction convergence between old and new EU members using different EU enlargement waves. Delhey (2004) is an early attempt to describe how previous accession countries fared in terms of life satisfaction. This publication also compared pre-accession life evaluations of countries that joined the EU in the 1980s with the pre-accession life evaluations of the 2004/2007 enlargement countries.

Like Popova (2012) and Wunder et al. (2008), this paper uses DID to study effect of EU integration on life satisfaction in Bulgaria and Romania. The DID method is commonly used to evaluate the consequences of various policies or treatments on certain outcomes. Our analysis compares the before-and-after SWB scores of individuals in Bulgaria and Romania (i.e. the treated group) to those of respondents in Croatia (i.e. the counterfactual or control group). During the study period of 2006-2008, Croatia was on a membership path but did not join the EU in 2007. Accordingly, the counterfactual demonstrates what would have happened to individual life satisfaction in the EU-2 if the two countries had not joined the EU.<sup>12</sup>

We argue that Croatia is an opportune counterfactual. First, historically, like Bulgaria and Romania, Croatia was a socialist republic, as part of the former Socialist Republic of Yugoslavia until the early-1990s. Unlike Bulgaria and Romania, Croatia experienced civil unrest between 1991-1995, although the 1990s and 2000s were marked by an economic, political and social transition similar to that in the EU-2. During the 2004-2013 period, Croatia experienced similar macroeconomic and institutional developments as the EU-2 (Figure 2). Second, the three countries are not only geographically close but also culturally alike. Importantly, the determinants of life satisfaction in the three countries are remarkably similar. According to the latest World Happiness Report, about three-quarters of the variation in national average life evaluation scores is explained by six key variables: GDP per capita, social support, healthy life expectancy, freedom to make life choices, generosity and control of corruption (Helliwell et al., 2015). Every country's national average score can be broken into parts explaining the relative contribution of each variable to the overall score. While the average scores in Bulgaria (4.2 on a scale of 0-10), Croatia (5.8) and Romania (5.1) are different, the patterns of their explanatory factors are astonishingly similar.<sup>13</sup> Finally, while Croatia joined the EU in 2013, it did not sign a Membership Treaty until December 9, 2011 and thus it can be used as a counterfactual country for the 2006-2008 period.

Figure 3 demonstrates that Bulgaria and Romania have lower average (unadjusted) life satisfaction scores than Croatia. Nonetheless, all three countries experienced similar life satisfactions trends prior to 2007, with a slight increase in SWB between the first and third quarters of 2006 and subsequently a relatively stable trend until 2007.

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<sup>12</sup> The EB survey does not cover the transition countries in Central Asia and Albania, while polls for Serbia, Montenegro and Macedonia are available only post-2007. EB first surveyed Croatia in 2004.

<sup>13</sup> See Figure 2.2 in the World Happiness Report (Helliwell et al., 2015).

### 3.2. The DID Estimator

In this context, the DID estimator is:

$$Lifesat_{it} = \alpha + \beta EU2_c + \gamma D_t + \lambda EU2_c \times D_t + X'_{ict} \kappa + \varepsilon_{ict} \quad (1)$$

where  $i$  indexes individuals,  $c$  countries and  $t$  years,  $LifSat$  is the outcome variable (on a scale from 1 to 4),  $EU2$  is a dummy equal to 1 if the observation comes from Bulgaria or Romania and 0 if from Croatia and  $D$  is a binary indicator for the period after EU membership (observations coming from 2007Q2 and after are coded as 1). The coefficient  $\beta$  reflects the difference in life satisfaction levels between respondents in the treatment and control countries and  $\gamma$  demonstrates the time trends that would lead to a change in life satisfaction even in the absence of the treatment. The coefficient of interest is  $\lambda$ , which shows the average treatment effect on the treated (ATT), i.e. the effect of joining the EU on life satisfaction, while  $X$  is a vector of individual and household-level characteristics (age, age squared, gender, education, employment, community size, household size, children in the household, etc.),  $\kappa$  is a coefficient vector and  $\varepsilon_{it}$  is the stochastic error term. To account for anticipation and adaptation effects as well as taking advantage of the time-series data, we also use a model adapted from Acemoglu & Angrist (2001):

$$Lifesat_{it} = \alpha + \beta EU2_c + \pi Q_t + \lambda EU2_c \times Q_t + X'_{ict} \kappa + \varepsilon_{ict} \quad (2)$$

where the variables are defined as above, with  $Q$  representing quarter of interview dummies (the reference category is the last quarter of 2005) and  $\lambda EU2_c \times Q_t$  is the full set of quarter-EU country interactions. Anticipation effects are captured by the  $Q_t \times EU2$  variables prior to 2007, while adaptation effects are shown in the post-2007 interactions. All analyses are for 2006-2008, whereby we focus on a time span of three years for two reasons. First, by being broad well-being indicators, our SWB metrics help to capture the complexities of the process of joining the EU and individuals' responses to EU membership events, as well as other country-wide events. Our aim is to minimize the influence of the intervening events and isolate the effect of joining the EU as precisely as possible. Therefore, while using a longer time span may allow us to examine anticipation and adaptation effects, it will not allow us to

control for intervening political and economic events. Second, the happiness literature finds that adaptation to various events usually happens within a few years. Therefore, our time span of three years is appropriate for our research purposes.<sup>14</sup>

Individual-level variables in the covariate vector increase precision (Angrist and Pischke 2009). The conditioning variables in  $X$  must be independent of the treatment, i.e. respondents should not change their behavior and social characteristics in anticipation of EU membership (Lechner, 2011). The DID estimator also assumes that the treatment had no impact on the treated in the pre-treatment period (Lechner, 2011).

The DID estimator mitigates endogeneity related to time-invariant unobserved heterogeneity (Bertrand, Duflo, & Mullainathan, 2004). Therefore, to the extent that unobservable differences between individuals that affect their well-being perceptions are constant over time, they cancel out in a DID model. The estimator's main assumption is that changes that occurred for reasons other than joining the EU affected the treatment and the control groups in the same way (i.e. the common trends assumption) (Abadie, 2005). This assumption implies that had Bulgaria and Romania not joined the EU, they would have experienced the same SWB trends as Croatia, conditional upon the covariates (Lechner 2011). This assumption is difficult to verify, although we show in Figure 3 that the EU-2 and Croatia followed similar life satisfaction trends in the period prior to 2007.

The DID methodology also assumes that no other major events significantly affected SWB during the membership period. While other events happened in the EU-2 countries in 2007, joining the EU was arguably the most significant national event for Bulgaria during that year (Eurofound, 2008). However, Romania experienced a political war between the Presidency and the Government starting in early 2007, which may have negatively affected life satisfaction. In addition, the European Commission scolded Bulgaria in June and Romania in October 2007, which may have also lowered SWB in that quarter. Meanwhile, the economic crisis hit Bulgaria, Romania and Croatia with the same severity and roughly at the same time, which suggests that we can net out its influence on SWB with our DID strategy (Bartlett & Monastiriotis, 2010). Moreover, while in Western countries the economic crisis began in 2007, it was not felt in South Eastern Europe until the last quarter of 2008 (Sanfrey, 2010), providing a further justification for our time span.

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<sup>14</sup> In a similar setup studying the SWB effects of the Euro currency adoption, Popova (2012) uses three years of data, while Wunder et al. (2008) uses two years before and after the euro adoption.

All models are estimated using OLS with robust standard errors. The choice of OLS is due to the problematic interpretation of the interaction term (i.e. the average treatment effect) in non-linear models with non-monotonic transformation functions (e.g. logits, probits, tobits) (Ai & Norton, 2003). In addition, ignoring the ordinality of SWB data has little effect on the results (Ferrer-i-Carbonell & Frijters, 2004; Frijters & Beatton, 2012). Popova (2012) and Otrachshenko et al. (2016) also use DID with Eurobarometer data estimated via OLS.

### *3.3. Limitations*

Our empirical strategy has several limitations. First, EU integration is a gradual process involving multiple domains of social, economic and political life. In this paper, we suggest several different channels through which EU integration may have affected how individuals perceive their quality of their life, namely (1) modernization, (2) economic development, (3) perceptions of life control and (4) social identity. While SWB metrics offer the advantage of studying multifaceted processes that have both material and perceived dimensions, it is important to understand how EU integration affected SWB through each one of these channels. Nonetheless, our strategy is designed to study the *net* effect rather the relative strength of each mechanism.

Furthermore, while the DID results can in theory be interpreted as causal, readers should use caution. The DID strategy relies on the use of counterfactual countries, i.e. countries that are similar to Bulgaria and Romania yet did not become members in 2007. While Croatia—the counterfactual country in this study—has a similar economic, political and social history to both Bulgaria and Romania, it has also undergone unique historical developments.

## **4. Data and Summary Statistics**

### *4.1. Subjective Well-being Metrics*

Our key outcome variable is life satisfaction, which is a reflective assessment of one's own life and complements objective well-being indicators by providing an overall assessment of individual preferences rather than an externally-chosen well-being criterion (OECD, 2011). While scholars agree that SWB metrics are valid and reliable, psychometrically sound and important complements of objective indicators such as gross domestic product (Diener, Inglehart, & Tay, 2013; Krueger & Schkade, 2008; OECD, 2013; Stiglitz, Sen, & Fitoussi,

2009), two main challenges exist when using well-being scores for economic and policy analysis (OECD, 2011).

First, people may adapt to negative circumstances and learn to be happy amidst adversity or take pleasure in immoral behavior. As a result, SWB metrics should complement rather than substitute objective metrics. Second, SWB indicators may be non-comparable across individuals and may be affected by transient external factors (OECD 2011). However, the literature shows that the latter concern is largely unjustified, whereby SWB metrics are comparable across individuals, countries and time and predict behavior reasonably well (Diener, Inglehart, & Tay, 2013; Diener, Suh, Lucas, & Smith, 1999; Helliwell, Barrington-Leigh, Harris, & Huang, 2010; Krueger & Schkade, 2008). Scholars have used the life satisfaction approach to study the well-being effects of various macroeconomic policies and phenomena such as inflation and unemployment (DiTella, MacCulloch, & Oswald, 2001), the welfare effects of EU integration (Wunder et al., 2008) and the impact of the recent financial crisis (Graham, Chattopadhyay, & Picon, 2010).

#### *4.2. Eurobarometer Data*

Our data are from the Eurobarometer (EB) surveys, which—to our knowledge—is the only publicly available dataset allowing a reliable comparison of SWB immediately before and after the 2007 enlargement. EB surveys are collected at least twice a year, thus providing observations immediately before and after joining the EU.<sup>15</sup> In the case of Bulgaria and Romania, which joined on January 1, 2007, EB data were collected in September-October 2006 (Q3 of 2006) and subsequently again in April-May 2007 (Q2 of 2007), thus minimizing the influence on life satisfaction of intervening events other than joining the EU.

Starting with EB 62 (October-November 2004) Bulgaria, Romania and Croatia are polled as part of the Standard Eurobarometer. The dataset has consistent information about gender, age, years at which education was stopped, employment status, household size, marital status and household location. However, there are no consistent income or expenditure variables, although instead we construct a wealth index, which sums the

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<sup>15</sup> The following EB surveys are included in the main analysis and the robustness checks: 63.1, 63.4, 64.2, 65.2, 66.1, 67.2, 68.1, 69.2, 70.1, 71.1, 71.2, 71.3. In the main analyses (2006-2008), we include only 65.2, 66.1, 67.2, 68.1, 69.2, 70.1. While there are two other EB surveys in 2009—72.1 and 72.4—we did not include them as EB 72.1 does not poll Croatia and 72.4 did not have the exact date of the interview.

ownership of household durables. The EB life satisfaction question asks respondents how satisfied they are on the whole with their life on a scale from 1 “not at all satisfied” to 4 “very satisfied”, with no “neutral” category.

### 4.3. Summary Statistics

Table 1 collapses the data into two periods, namely before and after 2007. Life satisfaction in Bulgaria rose by 0.127 points post-membership (on a scale from 1 to 4), while in Romania it rose by 0.092 points and it remained virtually unchanged in Croatia (a change of 0.007). The change in life satisfaction in Bulgaria and Romania is statistically significant, unlike the change in Croatia is not. Table 1 also summarizes the main socio-demographic variables included in the regressions.

## 5. Empirical Findings

### 5.1 Main Results

Table 2 shows our baseline estimates regarding the effects of joining the EU on the life satisfaction of Bulgarians and Romanians.<sup>16</sup> We estimated three different models each for Bulgaria (left panel) and Romania (right panel). Models (1) and (4) present our most basic specification without any controls, while Models (2) and (5) add individual-level socio-demographic variables.<sup>17</sup> Finally, in addition to individual controls and quarter of interview dummies, Models (3) and (6) include a wealth index, which we compute by adding the total number of household durables such as cars, TVs, computers and others. Models (3) and (6) are thus the most conservative.

The SWB effects associated with joining the EU are reflected in the coefficient estimate of the interaction term  $EU-2 \times 2007Q2$ .<sup>18</sup> Models (1)-(3) suggest that joining the EU

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<sup>16</sup> The treatment variable ( $EU-2 \times 2007Q2$ ) is the interaction term between the EU-2 variable (i.e. a dummy for either Bulgaria or Romania) with a dummy for the post-membership period (2007Q2 and after).

<sup>17</sup> We include age and its squared term, gender, an indicator for whether the respondent is married or in a civil partnership, a  $married \times gender$  interaction, employment status, household size and its squared term, an indicator for whether there are any children in the household, an indicator for a large or small town and age-education categories.

<sup>18</sup> In all models, the EU dummy is negative and statistically significant, reiterating that individuals in Bulgaria and Romania have lower baseline life satisfaction than their Croatian counterparts. In particular, depending on the model, life satisfaction in Bulgaria is between 0.58 to 0.75 points lower compared to Croatia, while the (conditional) life satisfaction difference between Romanians and Croatians is between 0.32 and 0.47 points lower in the former (on a scale of 1 to 4).



was associated with increased life satisfaction in Bulgaria in the range of 0.076 (Model 3) to 0.120 (Model 1). In other words, Bulgarians' life satisfaction increased by about 0.1 points due to joining the EU. Given that life satisfaction is measured on a scale of 1-4, an increase of 0.1 represents a small but economically meaningful effect. Results from EB 79.3 (May, 2013) show that life satisfaction was 2.05 in Bulgaria and 2.31 in Romania compared with 3.66 in Denmark (the happiest EU member), with an EU-15 average of 3.00. In this context, the life satisfaction change that we report in Bulgaria constitutes about 11 percent of the life satisfaction gap between Bulgaria and the EU-15 in 2013.

In Romania, the evidence regarding the life satisfaction consequences of joining the EU is less conclusive. Model (4) suggests that there was a 0.09 increase in life satisfaction, although the result does not hold once we add socio-demographic characteristics and quarter of interview dummies in Models (5)-(6). Therefore, we conclude that there was no statistically significant change in life satisfaction in Romania due to joining in the EU. One possible explanation explored below is that Bulgarians and Romanians had different attitudes towards the EU. Another possibility is that the positive well-being effects of joining the EU were offset by the political war that took place in Romania shortly after EU accession (Andreev, 2009). Starting with the withdrawal of the President Basescu's Democratic Party from the coalition government of Prime Minister Tariceanu, a back-and-forth between the President and the Tariceanu paralyzed the country's political life and spreading anxiety in Romanian society during this period.

### *5.2 Anticipation and Adaptation Effects*

Table 3 delves deeper into the exact timing of the life satisfaction effects of joining the EU in Romania and Bulgaria. The coefficient estimates of interest are the *quarter* $\times$ *EU2* interactions (2005Q4 is the base period.) These interactions describe the EU-related change in life satisfaction in Bulgaria and Romania (relative to 2005Q4). The pre-2007 interactions capture anticipation effects, which in theory should be zero since we only expect increase in life satisfaction after the membership. The post-2008 interactions reflect adaptation effects.

As expected, the results imply limited anticipation effects in 2006 in both

countries.<sup>19,20</sup> Joining the EU had no immediate well-being effects on life satisfaction in the first three quarters of 2007 in both countries, whereas a positive and statistically significant effect of joining the EU in Bulgaria was observed starting with the fourth quarter of 2007 and thereafter. Our estimates for Bulgaria suggest that life satisfaction increased by about 0.2 on a scale of 1 to 4 in the last quarter of 2007. In Romania, there was an EU membership-related increase in life satisfaction in the first two quarters of 2008, after the end of the political strife of 2007, although the effect disappears afterwards. The fact that EU membership only increased life satisfaction in the EU-2 after a lag could be due to the negative effects coming from the social identity channel described in section 2.4, as well as the lukewarm welcome of both countries to the EU in particular. Even though Bulgaria and Romania became EU members in 2007, the foreign media and the EU Commission scolded them for not making progress in terms of reducing corruption and organized crime. Accordingly, building an EU identity was likely a gradual process requiring citizens in both countries to learn “*the rules of the game*” and take advantage of the freedoms and opportunities related to their EU membership. As explained above, the lack of positive effects in Romania prior to 2008 could also be due to the concurrent political war in 2007, which likely mired the positive well-being effects of EU membership. In addition, due to corruption and mismanagement, EU funds for Bulgaria were cut in 2008.

### *5.3 Results by Socio-Demographic Groups*

While the EU symbolizes political and economic stability for both elites and ordinary citizens, the process invariably featured winners and losers (Tucker, Pacek, & Berinsky, 2002). Specifically, those who gained the most from the transition process—the educated, the upwardly mobile and the young—likely also benefited the most from EU membership and the enhanced opportunities associated with it. The literature suggests that the elderly, the less educated and women were among the losers of transition (Easterlin, 2009). How these groups experienced transition likely also affected their perceptions of EU membership and life satisfaction (Tucker et al., 2002). To explore the possibility that the effects differ by socio-demographic status, Tables 4-6 examine the SWB effects of joining the EU by age

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<sup>19</sup> As in Table 2, the coefficient for the EU-2 indicator in Table 3 shows that life satisfaction in both Romania and Bulgaria was about 0.47 and 0.79 points lower than in Croatia, respectively.

<sup>20</sup> In Bulgaria, we find a positive but marginally statistically significant change in life satisfaction in the last quarter of 2006, just prior to membership.

group, employment status and education, respectively.

Overall, our results indicate that younger cohorts benefited more from EU membership than older ones, albeit only in the case of Bulgaria (Table 4). Despite being positive, the ATT is statistically insignificant for all age groups in Romania. Specifically, our results imply that the life satisfaction for Bulgarians under 35 years of age increased by 0.152 points as a result of joining the EU. For those aged 36-60 at the time of the interview, life satisfaction rose by 0.122 points on average, although there were no statistically significant effects for people above the age of 60. These results are unsurprising since many of the benefits of joining the EU such as opportunities to travel, work and study abroad primarily increased the choice set of the young.

Table 5 summarizes the results by employment and retirement status at the time of the interview. The results are consistent with previous findings in the literature, suggesting that the employed were the main winners from EU integration. Interestingly, Panel A, suggests that even in Romania, employed respondents experienced SWB gains relative to those who were not working at the time of the interview (comparing Models (3) and (4)). Meanwhile, the unemployed in Bulgaria and Romania experienced no change in life satisfaction due to joining the EU.

Finally, in Table 6 we explore the results according to the age at which the respondents stopped their full-time education. The results show that even the most educated Bulgarians and Romanians have a much lower baseline life satisfaction compared to their counterparts in Croatia (as shown by the coefficient estimate for the *EU-2 Country* indicator in the top row). Our findings indicate that only respondents who stopped their education when they were 16-19 years old experienced positive SWB gains in both countries, while the estimated coefficients for the least and most educated groups are statistically insignificant in both countries.

We find no gender differences in either Bulgaria or Romania (Appendix Table A1). Although Easterlin (2009) suggests that women may have been the losers of transition, our results are in line with the Life in Transition Survey II, which finds no significant differences between men and women in transitional economies in terms of life satisfaction, job satisfaction and how they have done relative to others (EBRD, 2010).

#### *5.4 The Effects of Joining the EU on Bulgarians' and Romanians' EU Trust*

Our results thus far suggest that joining the EU increased life satisfaction in Bulgaria while the outcomes for Romania—despite being positive in most regressions—are statistically insignificant. There are many possible reasons for these results, as we discuss in section 2. To aggregate the variety of unobserved experiences that may have led to different perceptions of the EU integration process in Bulgaria and Romania, we examine how people’s trust towards the EU changed after the membership in 2007. Table 7 summarizes our findings, which replicate our baseline models from Table 2, albeit using trust towards the EU as the dependent variable. The results suggest that while EU trust increased post-accession in Bulgaria, it remained virtually unchanged in Romania. This could be one possible reason why life satisfaction increased in Bulgaria but remained flat in Romania, especially given the literature linking EU trust to increased life satisfaction in the EU countries (Hudson, 2006).

### *5.5 Robustness Checks*

First, we replicate our main results using two alternative fake entry dates to the EU, namely the last quarter of 2005 and the first quarter of 2009. The interaction term between the fake entry date and the EU dummy should be statistically insignificant as no EU-related events happened in these two quarters. The results are summarized in Table 8. As expected, we find no significant effects for Bulgaria when we use a fake treatment year. In the case of Romania, we find some negative effects when we use 2005 as the fake entry year, although these effects disappear in our most conservative model (Model (6)). This suggests that our results are robust, namely that we only observe positive SWB changes in Bulgaria in 2007, the true year of membership.

Second, we replicate our results using wild bootstrapped standard errors, clustered at the country×quarter level (Cameron et al., 2008). Measuring the effects of policy variables individual outcomes leads to interdependent residuals with a group structure (Moulton, 1990). Nonetheless, a simple correction using clustered standard errors may bias the results when there are too few clusters, which is why we use the bootstrapped errors proposed by Cameron et al. (2008). The results (Table 9) are consistent with our main findings. Furthermore, even the effects for Romania are now positive and statistically significant. However, it is important to note that since we have only two countries and nine quarters, these results should be treated with caution.

## 6. Conclusion

The fall of the socialist regimes in Central and Eastern Europe marked the beginning of a long transition process that promised a European future and socio-economic, political and institutional change. While the EU has been remarkably successful in promptly facilitating and shaping the reform efforts of other CEE countries, Bulgaria and Romania's democratization and marketization reforms have been slow and painful, leading to a delayed accession process. Nonetheless, the membership aspirations and EU enlargement policy have helped the two countries to escape the post-socialist stalemate and ultimately broadly fulfill the Copenhagen criteria, subsequently joining the EU in 2007 (Noutcheva & Bechev, 2008).

Tackling the important question of how “returning to Europe” affected the lives of ordinary Bulgarians and Romanians, this is the first study to examine the effect of joining the EU on life satisfaction in the context of the 2007 EU enlargement. Using a DID strategy and Eurobarometer data, our key finding is that EU membership increased average life satisfaction in Bulgaria and had a positive but statistically insignificant effect in Romania. One possible explanation for this finding is that trust towards the EU increased in Bulgaria after joining but remained unchanged in Romania, where the political war of 2007 likely mired the more positive EU-related experiences in that year.

Our heterogeneity analyses show that those who benefited the most from EU integration were the young, the employed and those who stopped their education between the ages of 16-19, while we discovered no gender differences. A more disaggregated analysis revealed that increased life satisfaction in Bulgaria started in the last quarter of 2007, while there were some positive EU-related life satisfaction increases in Romania in the first two quarters of 2008. In short, in both countries EU membership only translated into life satisfaction benefits after a lag. These results suggest that both Bulgarians and Romanians required time to learn to be European and to be satisfied with their EU membership, including the associated benefits and challenges.

From a policy perspective, these findings are relevant to the countries in the Western Balkans that are currently in various stages of their EU integration processes. Like Bulgaria and Romania, these candidate countries are less advanced and less prepared for membership compared with the 2004 enlargement countries. As the EU's poorest and unhappiest members, Bulgaria and Romania also face challenges in terms of closing the quality of life

gap with the EU-15. While the EU has helped its newest members with macroeconomic convergence, this paper demonstrates that joining the EU was also associated with life satisfaction gains, at least in the case of Bulgaria. However, whether these developments will help the EU-2 to close the gap remains to be seen.

Nonetheless, it is important to note that Bulgaria and Romania continue to rank among the EU's least happy members, with Bulgaria being at the bottom (Helliwell et al., 2015). The latest World Happiness Report shows that with a happiness score of 4.2 on a scale of 0 to 10, Bulgaria ranked 134th among 158 countries (Helliwell et al., 2015). Romania's score of 5.1 ranked 86th out of 158 countries, compared with a score of 7.5 in Denmark, the EU's happiest and the world's third happiest nation. Our analyses for 2014 using Gallup Analytics show an average life satisfaction (best possible life) score of 5.05 for Bulgaria and Romania compared to an EU-15 average of 6.7. Thus, the EU-related life satisfaction boost that our study finds for Bulgarians and—to some extent—Romanians appears to be a short-run phenomenon, perhaps largely based on the transient hopes of ordinary citizens that joining the EU would speed up the transition to a modern democracy governed by the rule of law. Despite being a pivotal historical event, the act of joining the EU in itself is not a silver bullet and cannot close the quality of life gap between the EU-2 and the EU-15. While becoming a EU citizen in the legal sense can happen overnight, learning to be European is a complex process that entails both positive and negative experiences with a period of adjustment and adaptation. While our study shows that EU membership could raise the life satisfaction of new members in the short run, joining the EU is by no means a substitute for social transformation and national reforms targeted at improving the governance and quality of life in transition countries.

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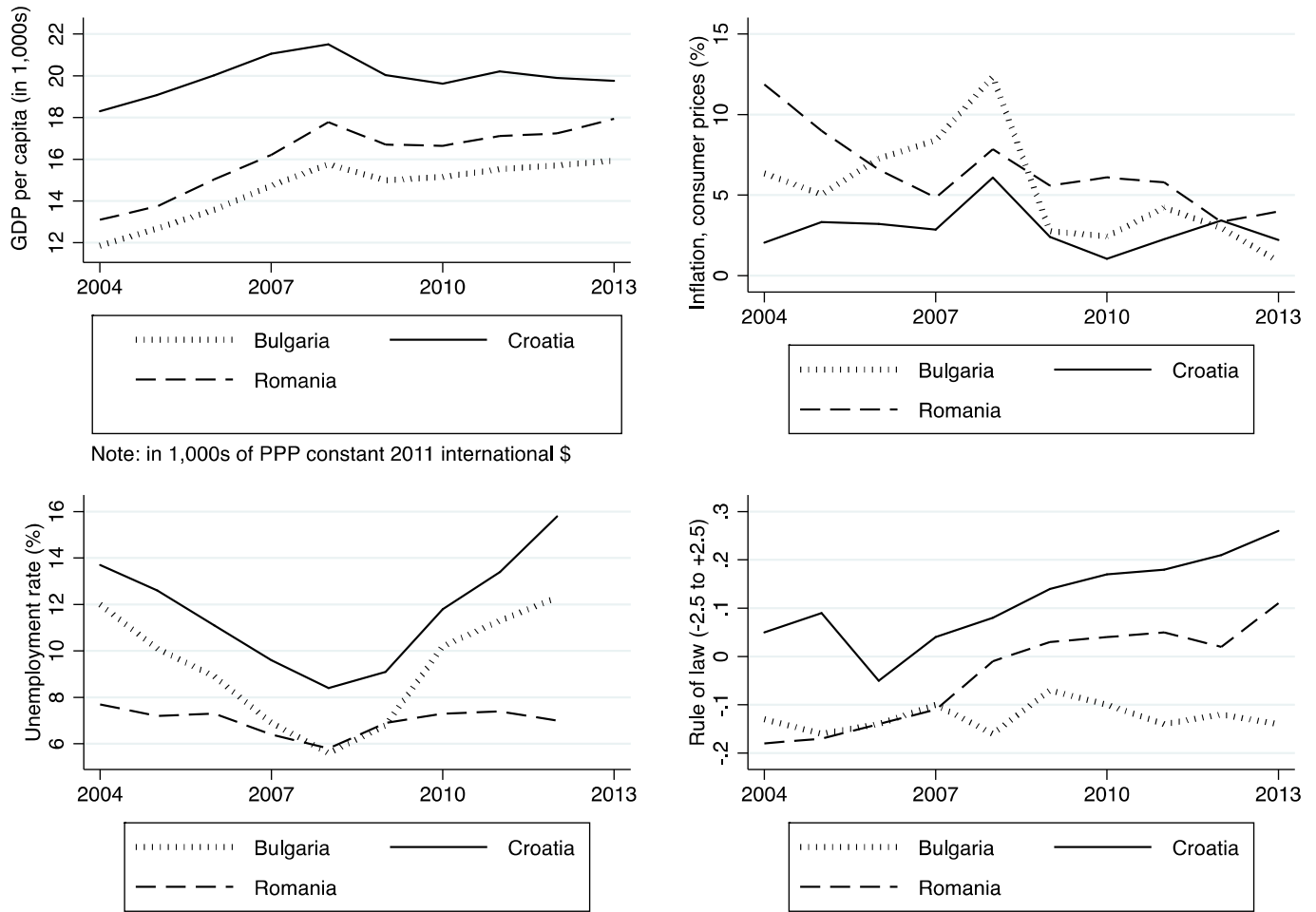
## Tables and Figures

Figure 1: Channels Through Which EU Membership Affects SWB



Source: Authors

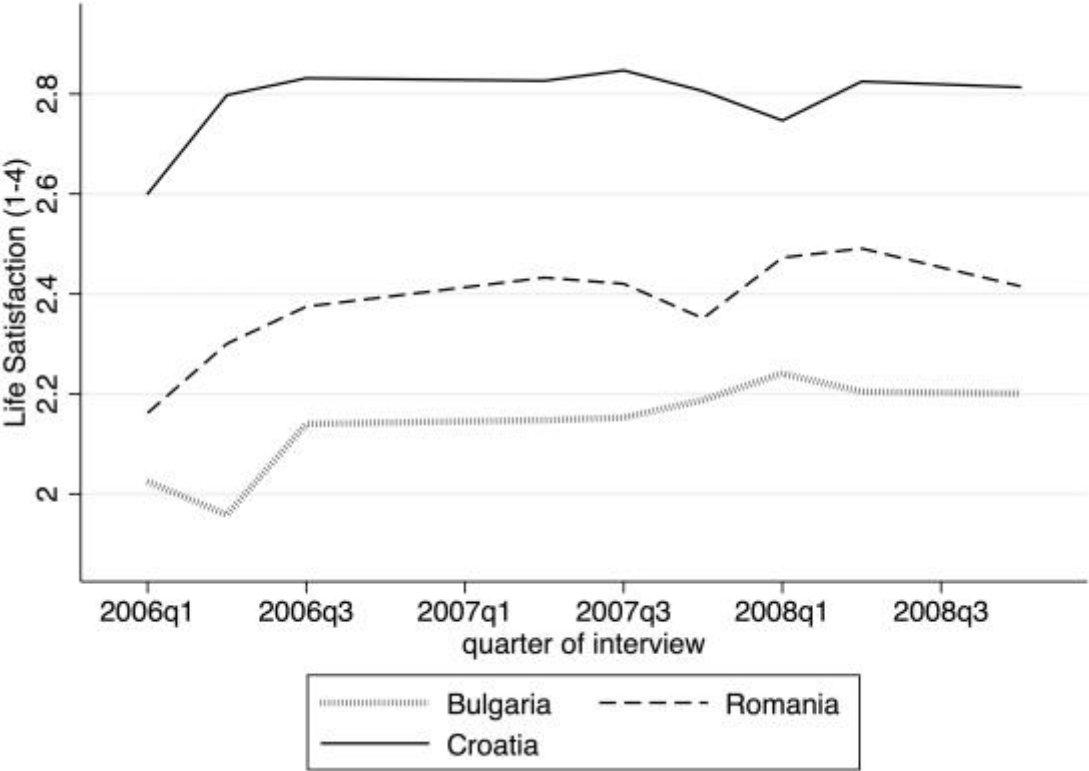
Figure 2: Real GDP Per Capita, Inflation, Unemployment and Rule of Law Trends in Bulgaria, Romania and Croatia, 2004-2013



Source: Authors' estimation using World Development Indicators for GDP per capita, unemployment and inflation; Authors' estimation using Worldwide Governance Indicators for the Rule of Law Variable.

Note: The unemployment data are for 2004-2012.

Figure 3: Life Satisfaction Trends in Bulgaria, Romania and Croatia, 2006-2008



Source: Authors' estimation using Eurobarometer data

Table 1: Life Satisfaction and Socio-Demographic Variables, Summary Statistics, 2006-2008

	<b>Bulgaria Before</b>			<b>Romania Before</b>			<b>Croatia Before</b>		
	<i>Obs.</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Obs.</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Obs.</i>	<i>Mean</i>	<i>Std. Dev.</i>
Life Satisfaction (1-4)	1,954	2.059	0.789	1,903	2.337	0.775	1,926	2.810	0.801
Age	1,954	46.961	17.691	1,903	45.468	17.457	1,926	45.070	18.348
Male (1=Yes)	1,954	0.467	0.499	1,903	0.482	0.500	1,926	0.433	0.496
Married or in Civil Partnership (1=Yes)	1,954	0.701	0.458	1,903	0.641	0.480	1,926	0.599	0.490
Employed (1=Yes)	1,954	0.459	0.498	1,903	0.480	0.500	1,926	0.422	0.494
Household Size	1,954	3.061	1.571	1,903	2.632	1.369	1,926	3.153	1.618
Age at Which Stopped Education									
No Education	1,954	0.015	0.123	1,903	0.000	0.000	1,926	0.031	0.174
15 Years or Younger	1,954	0.197	0.397	1,903	0.214	0.410	1,926	0.173	0.378
16-19 Years	1,954	0.494	0.500	1,903	0.455	0.498	1,926	0.471	0.499
20 Years or Older	1,954	0.237	0.425	1,903	0.239	0.427	1,926	0.205	0.403
Still Studying	1,954	0.057	0.232	1,903	0.092	0.290	1,926	0.120	0.326
Large Town (1=Yes)	1,954	0.450	0.498	1,903	0.276	0.447	1,926	0.216	0.412
Child in Household (1=Yes)	1,954	0.276	0.447	1,903	0.261	0.439	1,926	0.307	0.461
Wealth Index (Min=0, Max=9)	1,954	4.020	1.891	1,903	3.874	2.079	1,926	6.061	2.289
Trust in the EU (1=Yes)	1,555	0.712	0.453	1,654	0.771	0.420	1,683	0.407	0.491
	<b>Bulgaria After</b>			<b>Romania After</b>			<b>Croatia After</b>		
	<i>Obs.</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Obs.</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Obs.</i>	<i>Mean</i>	<i>Std. Dev.</i>
Life Satisfaction (1-4)	3,783	2.186	0.802	3,957	2.429	0.763	3,670	2.817	0.782
Age	3,783	48.317	17.771	3,957	45.379	17.411	3,670	46.719	18.005
Male (1=Yes)	3,783	0.451	0.498	3,957	0.481	0.500	3,670	0.416	0.493
Married or in Civil Partnership (1=Yes)	3,783	0.680	0.466	3,957	0.676	0.468	3,670	0.618	0.486
Employed (1=Yes)	3,783	0.477	0.500	3,957	0.514	0.500	3,670	0.428	0.495
Household Size	3,783	3.022	1.580	3,957	2.776	1.406	3,670	3.088	1.571
Age at Which Stopped Education									
No Education	3,783	0.004	0.065	3,957	0.002	0.048	3,670	0.000	0.000
15 Years or Younger	3,783	0.173	0.378	3,957	0.182	0.386	3,670	0.205	0.404
16-19 Years	3,783	0.479	0.500	3,957	0.463	0.499	3,670	0.494	0.500
20 Years or Older	3,783	0.273	0.446	3,957	0.258	0.437	3,670	0.207	0.405
Still Studying	3,783	0.071	0.256	3,957	0.094	0.292	3,670	0.093	0.291
Large Town (1=Yes)	3,783	0.446	0.497	3,957	0.332	0.471	3,670	0.230	0.421
Child in Household (1=Yes)	3,783	0.265	0.441	3,957	0.266	0.442	3,670	0.316	0.465
Wealth Index (Min=0, Max=9)	3,783	4.546	2.058	3,957	4.363	2.171	3,670	6.381	2.241
Trust in the EU (1=Yes)	3,003	0.742	0.438	3,462	0.751	0.432	3,289	0.380	0.485

Source: Eurobarometer, 2006-2008

Notes: The table shows the number of observations, means and standard deviations for each variable and for each country. The means of the binary variables show the proportion of non-missing responses. The wealth index variable sums the total number of household durables (such as a car, a TV, a computer and others).

Table 2: The Effects of Joining the EU on Life Satisfaction in Bulgaria and Romania, Baseline Results

	(1)	(2)	(3)	(4)	(5)	(6)
	Treatment: <i>Bulgaria</i>			Treatment: <i>Romania</i>		
EU-2 Country (1=Yes)	-0.752*** (0.026)	-0.746*** (0.025)	-0.581*** (0.026)	-0.473*** (0.025)	-0.469*** (0.024)	-0.318*** (0.025)
2007Q2 and After (1=Yes)	0.007 (0.022)	0.079 (0.056)	0.047 (0.055)	0.007 (0.022)	0.249*** (0.080)	0.214*** (0.078)
EU-2×2007Q2	0.120*** (0.031)	0.086*** (0.030)	0.076** (0.029)	0.085*** (0.031)	0.044 (0.029)	0.045 (0.029)
Individual Controls	N	Y	Y	N	Y	Y
Individual Controls + Wealth Index	N	N	Y	N	N	Y
Quarter of Interview Dummies	N	Y	Y	N	Y	Y
Observations	11,333	11,333	11,333	11,456	11,456	11,456
Adj. R <sup>2</sup>	0.154	0.259	0.283	0.068	0.164	0.187

Sources: Author's estimation using Eurobarometer, 2006-2008

Notes: The dependent variable in all models is life satisfaction (on a scale of 1-4). Robust standard errors in parentheses. The treatment variable is the interaction (EU×(after Q2, 2007)). The control country in all regressions is Croatia. The EU-2 Country dummy variable takes the value of 1 for Bulgaria in Columns (1)-(3) and takes the value of 1 for Romania in Models (4)-(6). The individual controls are age, age squared, gender, an indicator for whether the respondent is married or in a civil partnership, married×gender interaction, employment status indicator, household size, household size squared, whether there are any children in the household, an indicator for a large or small town and age-education categories (age at which the respondent stopped his/her full-time education): no education, still in school, 15 years or younger, 20 years or older; the reference group is 16-19 years. Models (3) and (6) include an additional wealth index control, which sums the total number of household durables (such as a car, a TV, a computer and others). All regressions include quarter of interview dummies.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 3: The Effects of Joining the EU on Life Satisfaction in Bulgaria and Romania, Quarterly Interactions

	(1)	(2)	(3)	(4)
	Bulgaria		Romania	
EU-2 Country (1=Yes)	-0.751*** (0.036)	-0.785*** (0.034)	-0.473*** (0.036)	-0.490*** (0.035)
Before				
EU-2×2006Q1	0.176 (0.122)	0.163 (0.117)	0.036 (0.166)	-0.087 (0.155)
EU-2×2006Q2	-0.088* (0.053)	-0.038 (0.049)	-0.024 (0.051)	0.002 (0.048)
EU-2×2006Q3	0.059 (0.051)	0.091* (0.048)	0.017 (0.051)	0.028 (0.048)
After				
EU-2×2007Q2	0.072 (0.050)	0.091* (0.047)	0.080 (0.050)	0.080* (0.047)
EU-2×2007Q3	0.056 (0.063)	0.093 (0.060)	0.047 (0.064)	0.051 (0.061)
EU-2×2007Q4	0.133** (0.063)	0.161*** (0.060)	0.019 (0.062)	0.040 (0.059)
EU-2×2008Q1	0.245*** (0.072)	0.197*** (0.070)	0.199*** (0.072)	0.145** (0.071)
EU-2×2008Q2	0.130** (0.062)	0.142** (0.058)	0.139** (0.056)	0.110** (0.053)
EU-2×2008Q4	0.138*** (0.051)	0.122** (0.048)	0.076 (0.051)	0.012 (0.048)
Individual Controls	N	Y	N	Y
Individual Controls + Wealth Index	N	N	N	N
Quarter of Interview Dummies	Y	Y	Y	Y
Observations	13,286	13,286	13,365	13,365
Adj. R-squared	0.160	0.264	0.071	0.169

Sources: Author's estimation using Eurobarometer, 2005Q4-2008

Notes: The dependent variable in all models is life satisfaction (on a scale of 1-4). Robust standard errors in parentheses. The omitted category for the interactions is EU-2×2005Q4. The control country in all regressions is Croatia. The EU-2 Country dummy variable takes the value of 1 for Bulgaria in Columns (1)-(3) and takes the value of 1 for Romania in Models (4)-(6). The individual controls are age, age squared, gender, an indicator for whether the respondent is married or in a civil partnership, married×gender interaction, employment status indicator, household size, household size squared, whether there are any children in the household, an indicator for a large or small town and age-education categories (age at which the respondent stopped his/her full-time education): no education, still in school, 15 years or younger, 20 years or older; the reference group is 16-19 years.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1



Table 4: Joining the EU and Life Satisfaction, Heterogeneous Treatment Effects, By Age Groups

	By Age Groups						
	(1)	(2)		(4)	(5)		(6)
	Under 35	Treatment: Bulgaria Ages 36-60		Under 35	Treatment: Romania Ages 36-60		Over 60
EU-2 Country (1=Yes)	-0.716*** (0.043)	-0.773*** (0.039)	-0.718*** (0.053)	-0.506*** (0.039)	-0.403*** (0.038)	-0.546*** (0.056)	
2007Q2 and After (1=Yes)	0.029 (0.095)	0.087 (0.076)	0.115 (0.099)	0.391*** (0.143)	0.202* (0.115)	0.001 (0.148)	
EU-2×2007Q2	0.152*** (0.051)	0.122*** (0.046)	-0.066 (0.064)	0.036 (0.048)	0.017 (0.045)	0.091 (0.067)	
Individual Controls	Y	Y	Y	Y	Y	Y	
Individual Controls + Wealth Index	N	N	N	N	N	N	
Quarter of Interview Dummies	Y	Y	Y	Y	Y	Y	
Observations	3,481	4,889	2,963	3,812	4,984	2,660	
Adj. R <sup>2</sup>	0.247	0.212	0.211	0.143	0.120	0.134	

Sources: Author's estimation using Eurobarometer, 2006-2008

Notes: The dependent variable in all models is life satisfaction (on a scale of 1-4). Robust standard errors in parentheses. The treatment variable is the interaction (EU×(after Q2, 2007)). The control country in all regressions is Croatia. The EU -2 Country dummy variable takes the value of 1 for Bulgaria in Columns (1)-(3) and takes the value of 1 for Romania in Models (4)-(6). The individual controls are age, age squared, gender, an indicator for whether the respondent is married or in a civil partnership, married×gender interaction, employment status indicator, household size, household size squared, whether there are any children in the household, an indicator for a large or small town and age-education categories (age at which the respondent stopped his/her full-time education): no education, still in school, 15 years or younger, 20 years or older; the reference group is 16-19 years. All regressions include quarter of interview dummies.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 5: Joining the EU and Life Satisfaction, Heterogeneous Treatment Effects, By Employment Status

Panel A: By Employment Status				
	(1) Treatment: Bulgaria		(4) Treatment: Romania	
	Employed	Not Employed	Employed	Not Employed
EU-2 Country (1=Yes)	-0.754***	-0.735***	-0.461***	-0.481***
	(0.036)	(0.035)	(0.034)	(0.034)
2007Q2 and After (1=Yes)	0.050	0.087	0.055	0.335***
	(0.072)	(0.070)	(0.091)	(0.117)
EU-2×2007Q2	0.192***	-0.003	0.082**	0.016
	(0.043)	(0.042)	(0.041)	(0.041)
Individual Controls	Y	Y	Y	Y
Individual Controls + Wealth Index	N	N	N	N
Quarter of Interview Dummies	Y	Y	Y	Y
Observations	5,084	6,249	5,331	6,125
Adj. R <sup>2</sup>	0.198	0.287	0.114	0.187
Panel B: By Unemployment Status				
	(5) Treatment: Bulgaria		(8) Treatment: Romania	
	Unemployed	Not Unemployed	Unemployed	Not Unemployed
EU-2 Country (1=Yes)	-0.857***	-0.721***	-0.404***	-0.479***
	(0.077)	(0.026)	(0.092)	(0.025)
2007Q2 and After (1=Yes)	0.019	0.084	0.798**	0.181**
	(0.146)	(0.054)	(0.347)	(0.079)
EU-2×2007Q2	0.111	0.084***	0.063	0.045
	(0.092)	(0.032)	(0.112)	(0.031)
Individual Controls	Y	Y	Y	Y
Individual Controls + Wealth Index	N	N	N	N
Quarter of Interview Dummies	Y	Y	Y	Y
Observations	1,365	9,968	1,013	10,443
Adj. R <sup>2</sup>	0.274	0.251	0.140	0.166
Panel C: By Retirement Status				
	(9) Treatment: Bulgaria		(12) Treatment: Romania	
	Retired	Not Retired	Retired	Not Retired
EU-2 Country (1=Yes)	-0.747***	-0.746***	-0.530***	-0.440***
	(0.047)	(0.030)	(0.049)	(0.028)
2007Q2 and After (1=Yes)	0.073	0.095	0.361**	0.169*
	(0.090)	(0.063)	(0.155)	(0.092)
EU-2×2007Q2	-0.075	0.158***	0.047	0.044
	(0.057)	(0.035)	(0.059)	(0.034)
Individual Controls	Y	Y	Y	Y
Individual Controls + Wealth Index	N	N	N	N
Quarter of Interview Dummies	Y	Y	Y	Y
Observations	3,456	7,877	3,240	8,216
Adj. R <sup>2</sup>	0.229	0.238	0.143	0.140

Sources: Author's estimation using Eurobarometer, 2006-2008

Notes: The dependent variable in all models is life satisfaction (on a scale of 1-4). Robust standard errors in parentheses. The treatment variable is the interaction (EU×(after Q2, 2007)). The control country in all regressions is Croatia. The EU -2 Country dummy variable takes the value of 1 for Bulgaria in Columns (1)-(3) and takes the value of 1 for Romania in Models (4)-(6). The individual controls are age, age squared, gender, an indicator for whether the respondent is married or in a civil partnership, married×gender interaction, household size, household size squared, whether there are any children in the household, an indicator for a large or small town and age-education categories (age at which the respondent stopped his/her full-time education): no education, still in school, 15 years or younger, 20 years or older; the reference group is 16-19 years. Note that the regressions exclude employment status indicators. All regressions include quarter of interview dummies.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 6: Joining the EU and Life Satisfaction, Heterogeneous Treatment Effects, By Education

	By Age At Which Stopped Full-Time Education								
	(1)	(2) Treatment: Bulgaria			(4)	(5)	(6) Treatment: Romania		
	15 Years or Younger	16-19 Years	20+ Years	Still Studying	15 Years or Younger	16-19 Years	20+ Years	Still Studying	
EU-2 Country (1=Yes)	-0.717*** (0.060)	-0.789*** (0.036)	-0.747*** (0.051)	-0.461*** (0.089)	-0.407*** (0.059)	-0.519*** (0.035)	-0.434*** (0.050)	-0.419*** (0.069)	
2007Q2 and After (1=Yes)	0.207* (0.124)	0.054 (0.070)	0.060 (0.102)	0.185 (0.236)	0.403** (0.196)	0.176* (0.102)	0.226 (0.148)	0.379 (0.241)	
EU-2×2007Q2	-0.046 (0.073)	0.154*** (0.043)	0.079 (0.061)	-0.003 (0.101)	-0.015 (0.071)	0.126*** (0.043)	-0.027 (0.059)	-0.119 (0.086)	
Individual Controls	Y	Y	Y	Y	Y	Y	Y	Y	
Individual Controls + Wealth Index	N	N	N	N	N	N	N	N	
Quarter of Interview Dummies	Y	Y	Y	Y	Y	Y	Y	Y	
Observations	2,124	5,499	2,651	953	2,214	5,420	2,629	1,124	
Adj. R <sup>2</sup>	0.197	0.211	0.213	0.102	0.088	0.112	0.120	0.131	

Sources: Author's estimation using Eurobarometer, 2006-2008

Notes: The dependent variable in all models is life satisfaction (on a scale of 1-4). Robust standard errors in parentheses. The treatment variable is the interaction (EU×(after Q2, 2007)). The control country in all regressions is Croatia. The EU-2 Country dummy variable takes the value of 1 for Bulgaria in Columns (1)-(3) and takes the value of 1 for Romania in Models (4)-(6). The individual controls are age, age squared, gender, an indicator for whether the respondent is married or in a civil partnership, married×gender interaction, employment status indicator, household size, household size squared, whether there are any children in the household, an indicator for a large or small town. The regressions exclude indicators for the age at which the respondent stopped full-time education. All regressions include quarter of interview dummies.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 7: The Effects of Joining the EU on Trust Towards the EU in Bulgaria and Romania

	(1)	(2)	(3)	(4)	(5)	(6)
	Treatment: Bulgaria			Treatment: Romania		
EU-2 Country (1=Yes)	0.305*** (0.017)	0.292*** (0.017)	0.322*** (0.018)	0.364*** (0.016)	0.362*** (0.016)	0.390*** (0.017)
2007Q2 and After (1=Yes)	-0.027* (0.015)	-0.069* (0.038)	-0.074** (0.037)	-0.027* (0.015)	0.065 (0.059)	0.058 (0.059)
EU-2×2007Q2	0.057*** (0.020)	0.046** (0.021)	0.044** (0.021)	0.007 (0.019)	-0.000 (0.019)	-0.000 (0.019)
Individual Controls	N	Y	Y	N	Y	Y
Individual Controls + Wealth Index	N	N	Y	N	N	Y
Quarter of Interview Dummies	N	Y	Y	N	Y	Y
Observations	9,530	9,530	9,530	10,088	10,088	10,088
Adj. R <sup>2</sup>	0.119	0.138	0.140	0.139	0.151	0.152

Sources: Authors' estimation using Eurobarometer, 2006-2008

Notes: The dependent variable in all models is EU trust (1=Yes). Robust standard errors in parentheses. The treatment variable is the interaction (EU×(after Q2, 2007)). The control country in all regressions is Croatia. The EU-2 Country dummy variable takes the value of 1 for Bulgaria in Columns (1)-(3) and takes the value of 1 for Romania in Models (4)-(6). The individual controls are age, age squared, gender, an indicator for whether the respondent is married or in a civil partnership, married×gender interaction, employment status indicator, household size, household size squared, whether there are any children in the household, an indicator for a large or small town and age-education categories (age at which the respondent stopped his/her full-time education): no education, still in school, 15 years or younger, 20 years or older; the reference group is 16-19 years. Models (3) and (6) include an additional wealth index control, which sums the total number of household durables (such as a car, a TV, a computer and others). All regressions include quarter of interview dummies. All regressions are estimated using linear probability models.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 8: The Effects of Joining the EU on Life Satisfaction in Bulgaria and Romania, Placebo Tests

Panel A: 2005Q1 - 2008Q4, Fake Treatment: 2005Q4 and after						
	(1)	(2)	(3)	(4)	(5)	(6)
	Treatment: Bulgaria			Treatment: Romania		
EU-2 Country (1=Yes)	-0.696*** (0.026)	-0.713*** (0.024)	-0.512*** (0.036)	-0.314*** (0.026)	-0.314*** (0.024)	-0.228*** (0.036)
2005Q4 and After (1=Yes)	-0.046** (0.021)	-0.284*** (0.048)	0.106*** (0.032)	-0.046** (0.021)	-0.461*** (0.079)	0.082** (0.032)
EU-2×2005Q4	0.012 (0.029)	0.004 (0.027)	-0.018 (0.038)	-0.109*** (0.029)	-0.136*** (0.028)	-0.061 (0.038)
Individual Controls	N	Y	Y	N	Y	Y
Individual Controls + Wealth Index	N	N	Y	N	N	Y
Quarter of Interview Dummies	N	Y	Y	N	Y	Y
Observations	17,057	17,057	13,209	17,124	17,124	13,278
Adj. R <sup>2</sup>	0.157	0.268	0.284	0.064	0.174	0.188
Panel A: 2008Q1 - 2009Q2, Fake Treatment: 2009Q1 and after						
	(1)	(2)	(3)	(4)	(5)	(6)
	Treatment: Bulgaria			Treatment: Romania		
EU-2 Country (1=Yes)	-0.596*** (0.026)	-0.631*** (0.026)	-0.504*** (0.027)	-0.360*** (0.025)	-0.414*** (0.024)	-0.271*** (0.026)
2005Q4 and After (1=Yes)	0.022 (0.024)	0.012 (0.037)	-0.007 (0.037)	0.022 (0.024)	-0.018 (0.037)	-0.037 (0.037)
EU-2×2005Q4	-0.020 (0.034)	-0.026 (0.033)	-0.015 (0.032)	-0.049 (0.033)	-0.024 (0.032)	-0.028 (0.031)
Individual Controls	N	Y	Y	N	Y	Y
Individual Controls + Wealth Index	N	N	Y	N	N	Y
Quarter of Interview Dummies	N	Y	Y	N	Y	Y
Observations	9,173	9,173	9,173	9,476	9,476	9,476
Adj. R <sup>2</sup>	0.125	0.220	0.239	0.057	0.139	0.162

Sources: Authors' estimation using Eurobarometer, 2006-2008

Notes: The dependent variable in all models is life satisfaction (on a scale of 1-4). Robust standard errors in parentheses. The placebo treatment variable is the last quarter of 2005 in Panel A; and the first quarter of 2009 in Panel B. The control country in all regressions is Croatia. The EU-2 Country dummy variable takes the value of 1 for Bulgaria in Columns (1)-(3) and takes the value of 1 for Romania in Models (4)-(6). The individual controls are age, age squared, gender, an indicator for whether the respondent is married or in a civil partnership, married×gender interaction, employment status indicator, household size, household size squared, whether there are any children in the household, an indicator for a large or small town and age-education categories (age at which the respondent stopped his/her full-time education): no education, still in school, 15 years or younger, 20 years or older; the reference group is 16-19 years. Models (3) and (6) include an additional wealth index control, which sums the total number of household durables (such as a car, a TV, a computer and others). All regressions include quarter of interview dummies.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 9: The Effects of Joining the EU on Life Satisfaction in Bulgaria and Romania, Wild Bootstrapped Standard Errors, Eurobarometer 2006-2008

	(1)	(2)	(3)	(4)	(5)	(6)
	Treatment: Bulgaria			Treatment: Romania		
EU-2 Country (1=Yes)	-0.752*** (0.002)	-0.746*** (0.002)	-0.581*** (0.002)	-0.473*** (0.002)	-0.469*** (0.002)	-0.318*** (0.002)
2007Q2 and After (1=Yes)	0.007*** (0.000)	0.079*** (0.000)	0.047 (0.484)	0.007*** (0.000)	0.249 (0.500)	0.214*** (0.000)
EU-2×2007Q2	0.120*** (0.000)	0.086*** (0.000)	0.076*** (0.000)	0.085*** (0.000)	0.044*** (0.000)	0.045*** (0.000)
Individual Controls	N	Y	Y	N	Y	Y
Individual Controls + Wealth Index	N	N	Y	N	N	Y
Quarter of Interview Dummies	N	Y	Y	N	Y	Y
Observations	11,333	11,333	11,333	11,456	11,456	11,456
Adj. R <sup>2</sup>	0.154	0.259	0.283	0.068	0.164	0.187

Sources: Authors estimation using Eurobarometer, 2006-2008

Notes: The dependent variable in all models is life satisfaction (on a scale of 1-4). P-values in parentheses. The treatment variable is the interaction (EU×(after Q2, 2007)). The control country in all regressions is Croatia. The EU-2 Country dummy variable takes the value of 1 for Bulgaria in Columns (1)-(3) and takes the value of 1 for Romania in Models (4)-(6). The individual controls are age, age squared, gender, an indicator for whether the respondent is married or in a civil partnership, married×gender interaction, employment status indicator, household size, household size squared, whether there are any children in the household, an indicator for a large or small town and age-education categories (age at which the respondent stopped his/her full-time education): no education, still in school, 15 years or younger, 20 years or older; the reference group is 16-19 years. Models (3) and (6) include an additional wealth index control, which sums the total number of household durables (such as a car, a TV, a computer and others). All regressions include quarter of interview dummies.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

## APPENDIX

Table A1: Joining the EU and Life Satisfaction, Heterogeneous Treatment Effects, By Gender

	(1)		(2)		(4)		(5)	
	Treatment: Bulgaria				Treatment: Romania			
	Males		Females		Males		Females	
EU-2 Country (1=Yes)	-0.710***	-0.768***	-0.451***	-0.487***	(0.037)	(0.034)	(0.035)	(0.033)
2007Q2 and After (1=Yes)	0.114	0.038	0.358***	0.097	(0.076)	(0.067)	(0.108)	(0.106)
EU-2×2007Q2	0.095**	0.079*	0.050	0.046	(0.045)	(0.040)	(0.043)	(0.040)
Individual Controls	N	Y	N	Y				
Individual Controls + Wealth Index	N	N	N	N				
Quarter of Interview Dummies	N	Y	N	Y				
Observations	4,980	6,353	5,183	6,273				
Adj. R <sup>2</sup>	0.257	0.263	0.166	0.165				

Sources: Authors' estimation using Eurobarometer, 2006-2008

Notes: The dependent variable in all models is life satisfaction (on a scale of 1-4). Robust standard errors in parentheses. The treatment variable is the interaction (EU×(after Q2, 2007)). The control country in all regressions is Croatia. The EU-2 Country dummy variable takes the value of 1 for Bulgaria in Columns (1)-(2) and takes the value of 1 for Romania in Models (3)-(4). The individual controls are age, age squared, an indicator for whether the respondent is married or in a civil partnership, household size, household size squared, whether there are any children in the household, an indicator for a large or small town and age-education categories (age at which the respondent stopped his/her full-time education): no education, still in school, 15 years or younger, 20 years or older; the reference group is 16-19 years. All regressions include quarter of interview dummies.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1