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Does Joining the European Union Affect Institutional Trust in Post-Communist Countries? An Application of the Synthetic Control Method

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Abstract. This paper applies the synthetic control method, a statistical methodology for empirical case studies, to examine the effect of EU accession and EU negotiation status on trust in institutions in post-communist European countries. For each examined unit, the method produces a synthetic control unit from a pool of similar countries. The post-treatment trajectories are then compared to establish a treatment effect. A treatment effect cannot be established at the time of EU accession. However, a treatment effect is found at the time of EU negotiation status for one of the treated units, Croatia. No treatment effect can be established at the time of EU negotiation status for the other treated unit, Montenegro.

Keywords: trust, institutions, European Union, synthetic control method, Eastern Europe

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Any errors in this study are the author's own responsibility.

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Introduction

Political trust has long been considered a necessary precondition for the functioning of democratic systems. Already in *The Social Contract* (1762), Jean-Jacques Rousseau sought to answer the fundamental philosophical question of how we can be free and live together. The social contract is formed when individuals voluntarily agree to concede to a sovereign authority in the name of a collective will. Central to this idea is that there must be reciprocity: the sovereign is committed to the good of the individuals constituting the collective body and each individual is committed to the good of the whole (Bertram, 2010).

Today, scholars agree that chronic distrust in important institutions impede the functioning of democratic institutions and, consequently, the functioning of economies as a whole (Algan & Cahuc, 2013). Trust in government has been declining in recent years in OECD countries. In the period 2009-2013, the percentage of people reporting trust in government has decreased every year. In the US, where longer term data is available, trust in government has consistently been falling since the 60s. Cross-country comparisons of trust levels suggest persisting heterogeneity. In Europe, the Nordic countries have the highest rates while the former communist countries in Central and Eastern Europe have the lowest (Ortiz-Ospina & Roser, 2019).

30 years after the end of communism in Eastern Europe, post-communist countries are still dealing with their institutional heritage. EU membership has generally been considered a success for the post-communist countries in the Baltics and in Central Eastern Europe. After the rigours of the pre-accession process of improving institutional efficiency and transparency, these countries have experienced the economic and geopolitical benefits that come with moving closer to the more affluent West (Vachudova, 2009). Some countries in the former Eastern bloc, however, are not yet able to reap these benefits. Aspiring member states in Eastern Europe are still tackling issues such as corruption, high unemployment and brain drain. Many of these challenges stem from their institutional heritage (Jusić & Obradović, 2019). Theory suggests that, for these countries, closer integration with an outside anchor that is perceived as legitimate, such as the EU, may increase institutional legitimacy and, consequently, institutional trust (Grabbe, 2006).

Despite its relevance and strong implications from theory, the potential effect of EU accession on institutional trust in post-communist Eastern European countries, and non-EU or recent EU members in particular, have not been examined thoroughly. This paper aims to fill this gap. By looking at Eastern European countries that have acceded to the EU recently and recently have or

currently are involved in EU negotiations, the effect of EU membership and EU negotiation status on trust in institutions will be examined. The analysis will be based on the data from the Life in Transition survey (LiTS), conducted by the European Bank of Development and Reconstruction (EBRD) (EBRD, 2019).

Due to the well-known limitations of econometric cross-country studies and country-specific case studies, this study applies the synthetic control method (SCM). The SCM employs a data-driven approach to comparative case studies and is considered a third way between quantitative cross-country studies and qualitative case studies. The SCM constructs a "synthetic" treated country from a weighted pool of untreated donor countries. This synthetic country is then compared to the actual treated country. A suitable synthetic control constructs a pre-treatment trajectory that is comparable to the pre-treatment trajectory of the actually treated unit. If the paths between the synthetic control and the treated country diverge after the treatment, it is likely that the treatment has an effect (Abadie, Diamond, & Hainmueller, 2010).

On the back of implications from theory, this study examines two hypotheses. Firstly, it examines the effect of EU membership on four measures of institutional trust: trust in presidency, trust in parliament, trust in courts and trust in banks. Here, evidence of an effect on institutional trust at the time of EU accession on either of these four measures cannot be established. However, due to limitations in the data in the dependent variable, an effect cannot be excluded either. Secondly, the treatment period is shifted to the start of EU accession negotiations. A positive effect is now found in one of the studied countries, Croatia, on three of the measures: trust in presidency, trust in courts and trust in banks. This suggests that the effect of EU membership on trust in institutions is manifested already at the stage of EU negotiation status. This is intuitive as countries perform a number of reforms aimed at improving the quality of institutions and transparency before joining the EU. However, the result could not be replicated for the other treated country, Montenegro. This suggests that the observed effect for Croatia may be due to the specificities of the country's negotiation process.

This study adds nuance to the literature about trust in public institutions, as well as the literature on the EU. Both data collection and existing literature on trust tend to focus on established democracies in Western countries. Political and academic discourse on the "trust crisis", or even the "crisis of democracy" (van der Meer, 2019), paint a bleak picture of the future of our democratic societies. Add to this the narratives on the rise of populism, Brexit and sharp decline in support

for EU institutions and the picture is bleaker still. The findings that EU membership may, in some cases, increase institutional trust in post-communist countries allows for a more multifaceted, complex and, possibly, optimistic view.

The remainder of this paper is structured as follows. Section 1. briefly outlines the EU accession process of some of the Eastern European post-communist economies. Section 2. reviews the literature that provide the theoretical underpinnings of this study. Section 3. synthesises these findings and terminates in two research hypotheses. Section 4. outlines the methodological approach. Section 5. describes the sources of data, the construction of the sample and the independent and dependent variables. Section 6. presents the results and section 7. assesses the significance of these results. Section 8. discusses the findings of the study and section 9. discusses the limitations. Lastly, the study finishes with a conclusion in section 10.

1. Background: The path to EU accession of post-communist economies

In 2004, the first set of post-communist countries joined the EU. The joining post-communist states were the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia. At the time, this enlargement was associated with ending the division of Europe and underlined the EU's desired identity as a European unifying force (Sedelmeier, 2014).

The post-communist countries Bulgaria and Romania joined the EU in 2007. After these two countries had joined the union, their efforts to root out corruption and political interference in institutions were deemed insufficient for EU standards. The EU, therefore, issued a "renewed consensus on enlargement" for the country next in line, Croatia. This consensus resulted in stricter accession requirements than had been imposed on previous candidates (BBC News, 2014; European Parliament, 2019).

Croatia was supposed to begin its negotiation talks in 2005. However, these talks were put on hold until late 2006 as Croatia could not convince the EU that the country was putting in enough efforts to capture the war criminal Gen Ante Gotovina. In 2008, the negotiations were frozen again due to a border dispute with Slovenia. These were unfrozen in late 2009 and accession negotiations and reforms could proceed at full speed. The central chapters concerning the judiciary system "Judiciary and Fundamental Human Rights" (hereafter: chapter 23) and "Justice, Freedom and Security" (hereafter: chapter 24) were marked as "considerable efforts needed", mostly due to widespread corruption, and considered among the toughest to negotiate. In 2011, these chapters were closed, and the European Commission noted that "in one year they [Croatia] have completely reformed their judiciary system and have made it irreversible". During the negotiations, Croatia targeted several high-profile cases of corruption. One of them was to arrest the former Prime Minister, Ivo Sanander, for taking bribes. He was sentenced to ten years in prison in 2012. In late 2011, the negotiations were considered complete and Croatia signed an accession treaty with the EU. After a referendum, Croatia joined the EU in 2013 (BBC News, 2014; European Commission, 2010, 2019; European Parliament, 2019; Jović, 2006; Wikipedia, 2019).

In 2012, accession negotiations were initiated with Montenegro. As of December 2019, three out of 35 chapters have been closed. The negotiations for the central chapters 23 and 24 were opened in late 2013 and are still ongoing (European Commission, 2019).

2. Literature review

This section surveys two strands of literature that provide the theoretical basis for why EU membership could influence institutional trust in post-communist European countries. The first section deals with the concept of institutional trust and the factors that influence it. The second section surveys literature on the specificities of the institutional heritage of the European countries in the former Eastern bloc.

2.1. What is institutional trust and why does it matter?

Trusts is an ambiguous concept that combines aspects from disciplines such as psychology, economics and law. Therefore, trust research has produced a substantial number of definitions (Bauer & Freitag, 2017). Institutional trust can refer to e.g. trust in parliament (van der Meer, 2010), trust in the judiciary (Tyler & Jackson, 2014) and trust in banks (Algan & Cahuc, 2013). Eurofound (2018) defines institutional trust as "confidence in state organisations (e.g. parliament, government, the police or the courts) or non-state organisations (e.g. media, non-governmental organisations (NGOs), churches or corporations)" (Eurofound, 2018).

Van der Meer (2010) defines institutional trust as a subjective evaluation of a relationship with an institution. A person who trusts (the subject) evaluates the relationship with the institution (the object) according to four requirements: the object must be *competent*, *intrinsically committed*, *extrinsically*

committed and *predictable*. Firstly, for the object to be considered *competent*, the subject must think that it has the capabilities to perform according to the subject's interests. Secondly, an object is *intrinsically committed* if it has an intrinsic need to act according to the subject's interests, for example if they share the same goals or care for each other. Thirdly, *extrinsic commitment* refers to accountability. The subject may trust the object if she or he is able to enforce the object's action, for example through the threat to punish untrustworthy behaviour by denying future support. The last and fourth dimension, *predictability*, refers to if the object's past behaviour is consistent (van der Meer, 2010).

In recent years, institutional trust has received increasing attention by researchers and policymakers. This interest is partly driven by the fact that institutional trust is a considered cornerstone of modern democracies. Therefore, institutional trust is a powerful indicator of the well-being of our societies (Eurofound, 2018; Uslaner, 2017).

Some scholars argue that institutional trust contributes to economic outcomes. It is clear that there are strong positive correlations across countries and regions between income per capita and average trust levels. The causal relationship is, however, harder to attest (Algan & Cahuc, 2013). Putnam (1993) argues in an influential study that the differences in institutional and economic performance between Northern and Southern Italy can be explained by stable differences in "social characteristics", of which trust is detrimental factor. Zak & Knack (2001) use a principal-agent model and find evidence that trust can influence growth rates. The idea that higher levels of institutional trust effect economic outcomes is commonly occurring in papers and policy reports (Algan & Cahuc, 2013; Eurofound, 2018; Ortiz-Ospina & Roser, 2019; Uslaner, 2017) but the causal link has not been examined thoroughly and the empirical evidence, consequently, remains rather weak.

Additionally, the reverse relationship, the effect of economic performance on institutional trust, has raised the interest of researchers. The theoretical underpinnings of this view are linked to the previously mentioned theory of institutional trust as an evaluation of institutional performance. Increasingly, scholars hold the view that macro-level relationships (such as to the state) are linked to micro-level processes (individual levels of trust). Again, papers that go beyond theory and examine a causal link are unfortunately scarce (van der Meer, 2017). One of few examples is a recent study by Ruelens et al. (2018). By analysing seven waves of the European Social Survey (2002-2014), they examine the with-in and cross-country effects of macroeconomic variables on

trust in national parliaments. On the with-in country level, GDP growth is found to have a significant positive effect on trust in parliament and the unemployment rate is found to have a significant negative effect on trust in parliament. On the between-country level, the effect of GDP growth on trust in parliament is found to be insignificant. That is, economic performance has an effect on trust in parliament when comparing individuals within a country. On the cross-country level, however, an effect cannot be established. The authors argue that this is because cross-country comparisons are subject to unobserved heterogeneity that is difficult to control for in their framework (Ruelens et al., 2018).

In contrast, corruption, is found to have a strong and robust effect on trust in parliament both on the with-in and cross-country level (Ruelens et al., 2018). The negative effect of corruption on trust in institutions is strongly supported by the literature (Mishler & Rose, 2001; Morris & Klesner, 2010; Uslaner, 2017).

Institutional trust sharply declined in several countries after the 2008 financial crisis. This may add some evidence to the view that institutional trust is affected by economic performance, or at least by the perception of institutions' ability to handle economic shocks. Murtin et al. (2018) suggest that the financial crisis and its ensuing recession in combination with economic insecurity due to globalisation and technological progress, as well as a sharp increase in the unemployment rate may explain the observed pattern (Murtin et al., 2018).

The view that increasing unemployment negatively affects trust in institutions is further supported by Algan et al. (2017). With data from the European Social Survey, the authors find evidence that increases in unemployment lead to a decline in trust in national and European political institutions. In contrast, they find no evidence for a correlation between unemployment levels and interpersonal trust (Algan et al., 2017).

2.2. The institutional heritage of post-communist Europe

Today, perceived corruption levels in Eastern Europe remain at higher levels than in the rest of Europe. Due to the nature of corruption, actual corruption levels are difficult, if not impossible, to measure (Vachudova, 2009). One of the most widely used estimates of corruption is Transparency International's Corruption Perception Index which measures perceptions of public sector corruption. Northern European countries such as Sweden and Finland consistently rank as having

the lowest levels of perceived corruption while post-communist countries such as Serbia and North Macedonia rank as having the highest levels of perceived corruption (Transparency International, 2018). Vachudova (2009) argues that the collapsed socialist institutions resulted in an institutional vacuum that enabled the new political elites to redesign the institutions to benefit their own interests (Vachudova, 2009).

Szelenyi & Wilk (2010) note that the early transitional reforms in post-communist Europe resulted in institutional inconsistencies. Transitional reforms at the time mainly aimed at building up market institutions. The countries did not attempt the more complex and costly task of reforming social institutions relating to healthcare, education and employment. The resulting co-existence of outdated distributive institutions and neoliberal market-oriented institutions resulted in institutional inconsistencies that remain today. This has led to suboptimal or malfunctioning institutions in many of the post-communist economies (Szelenyi & Wilk, 2010)

One manifestation of this institutional inefficiency is that Eastern European economies, and non-EU members in particular, exhibit much higher unemployment rates than their neighbours in the West. Nesporova (2002) notes that many Eastern European countries had adverse starting conditions after the fall of communism that still influence employment markets. Examples of factors that result in employment market inefficiencies today are the inefficient privatization of state enterprises in the beginning of the transition, lagging educational reforms and weak protection of property rights (Nesporova, 2002).

On the path towards the 2004 enlargement, the EU paid special attention to the parts of the accession framework that determined the performance of state institutions and actors in the internal market. At the time, overcoming corruption was not formally part of the negotiation framework but the process likely contributed in indirect ways to reducing corruption. Liberalization of the economy could reduce the influence of state officials and reforms of state institutions aimed at increasing transparency and efficiency may constrain the opportunities of corruption (Vachudova, 2009).

When studying the EU accession of the Central Eastern European (CEE) countries in 2004, Grabbe (2006) put forth four factors that pushed these post-communist countries towards convergence with the EU policy model. This convergence was greater than during previous EU accession processes (of non-post-communist countries). The first factor is speed of adjustment. The CEE countries were expected to fully orient their institutions and policies towards the EU *prior* to membership. In contrast, it took Greece more than a decade after the country's accession to adapt to the EU's single market norms. The second factor is the countries' openness to the EU. The CEE countries started from a much lower institutional starting point than previous members. The EU had more influence due to the institutional gap resulting from the transition period. The third factor is the breadth of the EU's agenda in the CEE. These countries had no possibility to opt out of any parts of the agenda, in contrast to countries such as the UK. The fourth factor was that the EU had a much wider economic agenda for the CEE countries due to their communist past. The members were not only expected to take on the obligations of EU membership but also commit to having a "fully functioning market economy". This condition had not been imposed on previous EU applicants (Grabbe, 2006). As noted in section 1, the institutional demands were even stricter for post-communist countries that joined after 2008 (European Parliament, 2019).

3. Theoretical predictions

As mentioned above, post-communist European countries generally exhibit lower levels of institutional trust than Western European countries (Murtin et al., 2018; Ortiz-Ospina & Roser, 2019). The communist past of these economies has greatly influenced institutional quality (Nesporova, 2002; Szelenyi & Wilk, 2010).

Theory and data suggest that this institutional heritage mainly manifests itself in high levels of perceived corruption. There is clear empirical and theoretical evidence that corruption perceptions influence trust in institutions (Mishler & Rose, 2001; Morris & Klesner, 2010; Ruelens et al., 2018; Uslaner, 2017).

Further, due to the co-existence of outdated distributive institutions from the communist era and newer market-oriented institutions from the transition period, the early post-communist reforms resulted in institutional inconsistencies in economic and political institutions. Some of these inconsistencies remain today and influence the performance of economic and welfare institutions (Szelenyi & Wilk, 2010). For example, unemployment rates are generally higher in Eastern Europe than in Western Europe (Nesporova, 2002). High unemployment rates have been found to negatively affect trust in institutions (Algan et al., 2017).

Recall that van der Meer (2017) defines institutional trust as an evaluation of institutional performance. An individual evaluates an institution according to four criteria: *competence*, *intrinsic commitment*, *extrinsic commitment* and *predictability* (van der Meer, 2017). Institutional inconsistencies resulting from the co-existence of market-oriented institutions and outdated distributive institutions from the communist period, high levels of corruption and high levels of unemployment likely affect all four of these criteria negatively.

In the EU accession process, post-communist countries faced stricter and broader demands than earlier members. This pushed them towards greater convergence with the EU (Grabbe, 2006). The demands are even stricter for countries that joined after 2008 and for those countries that aspire to join the union today (European Parliament, 2019).

In the framework of institutional trust as an evaluation of institutional performance and given the theoretical implications detailed above, it can therefore be concluded that the EU accession process could have an effect on institutional trust in post-communist Eastern European countries due to (1) low initial levels of institutional trust, (2) high initial levels of corruption, (3) institutional inconsistencies resulting from the transition period, (4) high levels of unemployment and (5) strict institutional demands from the EU during the negotiation process.

3.1. Research hypotheses

The arguments laid out in the previous section suggest a possible effect of EU accession on institutional trust for post-communist Eastern European countries. To produce a precise hypothesis, a brief discussion of the exact *mechanism* and *time period* when the effect is likely to manifest in is needed.

A first reasoning is that acceding to the EU may signal to the citizens of an acceding nation that the state has fulfilled several institutional demands, e.g. reformed the justice system, and is now more legitimate than before. For reasons laid out above, this may impact the citizens' perceptions of the country's institutions and in turn increase their trust in institutions. According to this reasoning, the *mechanism* through which the effect is likely to appear is through the signalling of *acceding to the EU*. The time period when this effect will manifest will then be *at the time of EU accession*.

A second reasoning can be derived from the fact that the measures for improving institutional performance are undertaken during the negotiation process (see section 1. and 2.2.). At the time of accession, the acceding country is expected to have fulfilled several institutional requirements. Thus, it could be that the *mechanism* through which potential institutional improvement (and subsequent possible increases in institutional trust) will manifest is through the *measures undertaken during the negotiation process*. The expected *time period* when the effect will manifest itself would, therefore, be *during the negotiation process*. According to this reasoning, most of the measures would already have been undertaken at the time of EU accession and an effect is unlikely to manifest at that exact point in time.

The resulting research hypotheses for this study are as follows.

Hypothesis (1). At the time of EU accession, the level of institutional trust will increase in an acceding post-communist Eastern European country.

Hypothesis (2). At the time of EU accession negotiations, the level of institutional trust will increase in a negotiating post-communist Eastern European country.

4. Methodological approach and methods

This section presents the choice of methodology for testing the research hypotheses outlined above.

The difficulties of empirically confirming predictions made by the theoretical literature in international economics are well-known. Cross-country econometric studies, for example, are generally plagued by extensive limitations such as endogeneity due to unobserved country characteristics and measurement issues (Rodriguez & Rodrik, 2001). Further, Billmeier & Nannicini (2007) show that cross-country comparisons often fail to properly restrict the sample and lead to far-fetched country comparisons. Srinivasan & Bhagwati (2001) argue that due to "their weak theoretical foundation, poor quality of their database and inappropriate econometric methodologies", great caution is needed when cross-country studies are used as empirical support.

Instead, Srinivasan & Bhagwati (2001) suggest country-specific case studies. However, this methodology also faces limitations. In particular, case-studies generally lack a clearly defined

counterfactual and heavily relies on the selection of appropriate comparison units (Adhikari, Duval, Hu, & Loungani, 2016).

There have therefore been calls for a methodology that combines the statistical rigour of quantitative approaches and the more fine-grained attention to country heterogeneity of qualitative analysis. The synthetic control method (SCM), invented by Abadie & Gardeazabal (2001) and extended in Abadie et al. (2010) and Abadie, Diamond, & Hainmueller (2015), is considered to meet these demands.

The SCM provides a methodology for systematically constructing an appropriate counterfactual, a synthetic control. The synthetic control chooses weights from a pool of potential controls such that it is as similar as possible to the treated unit in terms of preintervention outcomes of the dependent variable, as well as a set of independent variables ("predictors"). This way, the treated unit and its non-treated, synthetic counterpart will, ideally, have a close to identical trajectory before the treatment. The estimated treatment effect is then given by the difference in post-treatment trajectories between the treated unit and its synthetic control (Abadie et al., 2010).

The SCM improves on standard panel models in several ways. Firstly, it is transparent. A researcher can evaluate how well the treated country's outcome matches the synthetic country's outcome before the treatment. Secondly, it does not require the same strict assumptions as e.g. fixed effects of difference-in-differences. Thirdly, it improves on the standard econometric methods in its ability to deal with endogeneity from omitted variable bias. E.g. difference-in-differences and fixed effects can only deal with endogeneity through controlling for time-invariant variables. The SCM, however, can substantially reduce any bias from time-invariant and time-variant confounders. The intuition for this is that only countries that are alike in observed and unobserved predictors would produce a similar pre-treatment trajectory (Abadie et al., 2010; Adhikari et al., 2016; Billmeier & Nannicini, 2013).

However, some limitations of the method remain. The SCM has not been able to solve the issue of endogeneity from reverse causality. For example, if a policy reform such as EU membership is motivated by expectations of higher levels of institutional trust, this would bias the estimated treatment effect. Further, the countries that make up the synthetic control should ideally not experience any idiosyncratic shocks in the sample period that could affect the outcome of interest, in this case institutional trust. Lastly, it is important to restrict the donor pool to countries that are

similar to the treated country. The treated country should for example not be an outlier in the pretreatment period, neither in the dependent variable, nor in the independent variables. This is to avoid interpolation biases and overfitting. Overfitting occurs when the treated unit is artificially matched by a synthetic control that combines idiosyncratic variation in a large sample (Abadie et al., 2015; Adhikari et al., 2016; Billmeier & Nannicini, 2013; Mcclelland & Gault, 2017).

The SCM has previously been applied on case studies looking at, for example, the effect of economic liberalization on GDP per capita (Billmeier & Nannicini, 2013), the effect of emission targets on reducing CO₂ emissions (Almer & Winkler, 2015) and the economic impact of the 1990 reunification of West Germany (Abadie et al., 2015). Additionally, there is a paper that applies the SCM to measure the effect of austerity measures after the European debt crisis on life satisfaction and trust in European countries (Armingeon, Guthmann, & Weisstanner, 2016) and a paper that measures the effect of EU membership on GDP per capita growth (Campos, Coricelli, & Moretti, 2019).

Given the recent evidence for the effectiveness of the SCM and its extensive applications in studies in related fields, this paper will employ the SCM with two alternative specifications. The first specification will test hypothesis (1) and the second specification will test hypothesis (2).

4.1. The model

Abadie et al. (2010) outline the following model for applying the SCM on comparative case studies.

Assume that we observe J + 1 regions (in this case countries). Suppose that the first country is exposed to an intervention or "treatment" such that we have J remaining countries as potential controls or "donors".

Let Y_{it}^N be the the outcome that would be observed for country *i* at time *t* in the absence of a treatment. T_0 is the number of preintervention periods and $1 \leq T_0 < T$. Next, let Y_{it}^I be the outcome that is observed for country *i* at time *t* when country *i* is exposed to the treatment in the periods $T_0 < T$. The remaining potential donor countries remain untreated. It is assumed that the intervention has no effect prior to the implementation period, T_0 . Treatments may have an effect prior to their implementation, e.g. because of anticipation effects. In that case, the intervention can be redefined such that T_0 is the period when the treated country may first react to the intervention

(Abadie et al., 2010). This feature of the model will be exploited in this study as two alternative hypotheses will be tested.

Let $\alpha_{it} = Y_{it}^I - Y_{it}^N$ be the effect of the treatment for country *i* at time *t*. Let D_{it} be an indicator that takes on value one if country *i* is exposed to the treatment and zero otherwise. The outcome for country *i* at time *t* is then

$$Y_{it} = Y_{it}^N + \alpha_{it} D_{it}$$

We now want to estimate $(\alpha_{1T_0+1}, ..., \alpha_{1T})$, for the period $t > T_0$. That is, the treatment effect:

$$\alpha_{it} = Y_{it}^{I} - Y_{it}^{N} = Y_{1t} - Y_{1t}^{N}$$

Since Y_{it}^{I} , the outcome after the treatment, is observed, we only need to estimate Y_{it}^{N} , the outcome for country *i* at time *t* if no treatment would have taken place. Y_{it}^{N} is given by

$$Y_{it}^{N} = \delta_{t} + \theta_{t} Z_{i} + \lambda_{t} \mu_{i} + \varepsilon_{it}$$

where δ_t is an unknown common factor with constant factor loadings across units, θ_t is a $(1 \times r)$ vector of unknown parameters, Z_i is a $(r \times 1)$ of observed covariates not affected by the intervention (these are referred to further down as the "predictors" or the independent variables), λ_t is a $(1 \times F)$ vector of unobserved common factors, μ_i is an $(F \times 1)$ vector of unknown factor loadings and ε_{it} is the error terms of unobserved transitory shocks at the country level with zero mean.

Next, we define $(J \times 1)$, a vector of the weights $W = (w_2, ..., w_{J+1})$ such that $w_j \ge 0$ for j = 2, ..., J + 1 and $\sum w_j = 1$. Each value W corresponds to a potential synthetic control for country *i*. That is, a weighted average of control countries.

Abadie et al. (2010) show that as long as we can choose w^* such that

$$\sum_{j=2}^{J+1} w_j^* Z_j = Z_1$$
 and $\sum_{j=2}^{J+1} w_j^* \mu_j = \mu_1$

then $\hat{\alpha}_{1t} = Y_{1t} - \sum_{j=2}^{J+1} w_j^* Y_{jt}$ is an unbiased estimator of the treatment effect, α_{it} .

To find the optimal weights, let the $(T_0 \times 1)$ vector $K = (k_1, ..., k_{T_0})'$ define a linear combination of pre-treatment outcomes, $\bar{Y}_i^K = \sum_{s=1}^{T_0} k_s Y_{js}$, where *j* is part of $\{1, ..., J+1\}$, j = 1 is the treated country and the donor countries are denoted by $j \neq 1$. Consider *M* such linear combinations in vectors $(K_1, ..., K_M)$. Let $X_1 = (Z'_1, \bar{Y}_1^{K_1}, ..., \bar{Y}_1^{K_M})'$, be a vector of pre-treatment variables that we will match as closely as possible to the treated country. X_0 is a matrix where each column is a vector of the same set of pre-treatment variables for each potential donor country. The SCM method chooses W^* to minimize the distance between the pre-intervention variables of the treated country and the donor countries such that

$$\parallel X_1 - X_0 W \parallel V = \sqrt{(X_1 - X_0 W)' V (X_1 - X_0 W)}$$

where V is a symmetric and positive semidefinite matrix such that the root mean square prediction error (RMSPE) of the outcome variable is minimized for the pre-intervention periods.

4.2. Inference

The standard tools used for inference in econometric studies, such as confidence intervals and tests for significance, are not calculated in the SCM. These tools are inappropriate due to the small sample size that is typical for comparative studies such as this one. This leaves the researcher without the standard tools for calculating the statistical significance of the results (Adhikari et al., 2016; Mcclelland & Gault, 2017). Fortunately, there are other tools to evaluate the estimated treatment effects from the SCM.

Abadie et al. (2010), Abadie & Gardeazabal (2001) and Bertrand, Duflo, & Mullainathan (2002), among others, use placebo tests for inference. In this test, the SCM is run separately on each country in the donor pool such that each country in the donor pool receives a placebo "treatment". The outcomes for each of these countries is then compared to the outcome of the actual treated country. If the treated country is the only country that experiences an effect in the variable of interest, it is likely that the treatment had an effect. If not, there is a risk that the observed treatment effect occurred by chance. This kind of placebo test is referred to as an *inspace placebo test* (Abadie et al., 2010; Mcclelland & Gault, 2017).

Abadie et al. (2015) extends on this and also perform *in-time placebo tests*. Here, the treatment is assigned to alternative time periods in the pre-treatment period. The sample period for this model must end when the real treatment occurred to avoid capturing its effects (Abadie et al., 2015; Mcclelland & Gault, 2017).

Lastly, Abadie et al. (2015) perform a third significance test, *RMSPE-ratio ranking*. The SCM reports the RMSPE value for each synthetic control. This value measures the magnitude of the posttreatment gap observed between the treated country and its synthetic counterpart. If the treatment is effective, the path of the treated country will move away from the path of the synthetic control. The RMSPE value of the treated country should therefore be large relative to its value before treatment. An RMSPE ratio is constructed by dividing the post-treatment RMSPE with its pre-treatment RMSPE. This is done for the treated country and for all the countries in the donor pool. When comparing them, the treated country should ideally have a larger RMSPE ratio than the countries in the donor pool (Abadie et al., 2015; Mcclelland & Gault, 2017).

All of the three above-mentioned inference techniques, in-time placebo tests, in-space placebo tests and RMSPE-ratios, are employed in this study.

5. Data

This study aims to measure the effect of EU membership and EU negotiation status on the level of institutional trust in Eastern European countries. Because of the intangible nature of trust, researchers and typically rely on self-reported measures through e.g. household surveys. Although trust, and trust in institutions in particular, is considered important by policy-makers (Eurofound, 2018; OECD, 2017), obtaining data is challenging. The OECD (2017) notes that self-reported measures of trust are generally valid and reliable. However, due to the financially and technically demanding process of performing household surveys, the data usually have a small sample size, is gathered only occasionally and/or is costly to acquire.¹(OECD, 2017).

This study will use the Life in Transition Survey (LiTS) conducted by the EBRD in collaboration with the World Bank. It has been conducted in three rounds from 2006 to 2016 and surveys 29 000

¹ See Appendix A for a note on databases with data on trust

individuals across over 29 countries in each round. It aims to assess public attitudes, well-being, the impact of political and economic change and, most importantly, trust in institutions. It also includes the post-communist European economies that are of interest to this study (EBRD, 2019). The characteristics of the LiTS will be outlined in more detail below.

Further, this study includes annual data from the World Bank World Development Indicators (World Bank, 2019d) for the independent variables. This will also be described in detail below.

5.1. Sample selection

This paper addresses two alternative hypotheses, (1) the effect of EU accession on trust in institutions and (2) the effect of EU negotiation status on trust in institutions. Thus, the case and control selection procedure must be performed separately for each hypothesis.

5.1.1. Selection of treated units

To test hypothesis (1), the treated units will be countries that become EU members during the studied period. There is one such country in the sample: Croatia. The country became an EU member in 2013 (European Commission, 2019). Croatia is therefore selected as the treated unit.

To test hypothesis (2), the treated units will be countries that enter negotiation status during the studied period. There are two such countries in the sample: Croatia and Montenegro. Croatia enters negotiations in 2010 and Montenegro in 2012. Croatia and Montenegro are therefore selected as treated units. Serbia enters negotiations in late 2015 (that are still ongoing) (European Commission, 2019). As the sampling period ends in 2016, the post-treatment period is close to non-existent for Serbia. Serbia is therefore not included as a treated unit.

5.1.2. Selection of control group

Next step is to choose a suitable control group. One of the distinctive features of the SCM is that it allows for the combination of qualitative and quantitative methods. One such example is the selection of a donor pool for the synthetic control. The donor pool should be restricted to a sample of "similar" units. This should be done to avoid interpolation biases resulting from far-fetched comparisons in large samples of countries with much idiosyncratic variation (Abadie et al., 2015; Adhikari et al., 2016). Further, a suitable control group selection allows us to account for similarities between countries resulting from geographic and/or cultural proximity (Billmeier & Nannicini, 2013).

Examples of control group selection from the literature are a donor pool of European countries for measuring the effect of austerity measures on trust (Armingeon et al., 2016), a donor pool of OECD and EU neighbouring countries for measuring the impact of EU membership on growth (Campos et al., 2019) and a restriction of the donor pool to countries from the same income group to measure the effect of labour market reforms on GDP per capita (Adhikari et al., 2016).

Firstly, for this study to be feasible and following Adhikari et al. (2016), countries that are not included in all rounds of the survey are dropped from the donor pool.²

Secondly, following Abadie et al. (2010), no country in the pool of potential donor regions can have a similar policy change. For hypothesis (1), this disqualifies all countries that became EU members before the studied period. Therefore, the EU members Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia. For hypothesis (2), this disqualifies the same set of countries as no country in the sample can have achieved negotiation status before the studied period.

Thirdly, Abadie et al. (2010) note that "the outcomes of the states in the donor pool should be driven by the same process as that found in the treated state before treatment". This study aims to estimate an effect on institutional trust, a variable that is highly likely affected by institutional heritage such as from a previous regime. For the countries in the donor pool to be sufficiently similar and comparable, it is therefore a requirement that they share a similar institutional background. The LiTS is already partly restricted in that it mainly surveys post-communist, transition economies. However, there is much variation in the post-communist states and, consequently, in the sample. As this study will examine the process of EU accession, only countries that have a possibility of entering the union at some point will be included. This excludes countries such as the Central Asian economies of Kazakhstan, Kyrgyzstan and Tajikistan. Apart from geographic and cultural remoteness from Europe, these countries have substantially lower levels of GDP per capita than the treated units (World Bank, 2019d). Further, many of the countries have

² These countries are Cyprus, France, Germany, Greece, Italy, Kosovo, Sweden and the UK. All of them are included in only one round of the survey (EBRD, 2019).

authoritarian regimes which likely causes their institutional dynamics to differ from the more democratic European countries in the sample.

The remaining countries are all post-communist, democratic and European countries. Several of them are participating in or aspire to participate in EU negotiations (European Commission, 2019). Further, several of them, just like the treated units, are part of the former Yugoslavia. The countries in the former Yugoslavia and Albania have been referred to as the "Yugosphere" due to the similarities in language, culture and history. Additionally, trade links between the countries are intense and citizens can often travel freely within the region (Judah, 2009; The Economist, 2011). However, restricting the sample to only countries from the Yugosphere results in a donor pool of only four countries for hypothesis (2) and only five for hypothesis (1). As discussed by Billmeier & Nannicini (2013), having a donor pool that is too small decreases statistical rigour, especially during inference. The sample is, therefore, restricted to post-communist and European countries. These countries would arguably be similar enough in terms in institutional and economic dynamics due to similar institutional heritage, geographic proximity, closeness to the European Union and similar regime types. The included countries are Albania, Armenia, Belarus, Bosnia and Herzegovina, Georgia, Moldova, North Macedonia, Serbia and Ukraine.

Abadie et al. (2010) note that the policy in the affected region cannot affect the outcome in the pool of donor regions. For hypothesis (1) the policy change is EU membership. As noted by Campos et al. (2019), EU membership is a binary variable: either a country is an EU member or it is not. When removing all EU members, the remaining countries will not, by definition, be directly affected by the policy change.

There is remaining possibility that these countries may be affected in some way indirectly by the EU accession of a similar and neighbouring country, in this case Croatia. One argument that cannot be ruled out completely is that, if the EU accession of a country affects trust in institutions, it may also affect trust in institutions in neighbouring countries if they perceive the EU accession of a similar country as increasing the likelihood of their own accession. However, the link between EU accession and institutional trust is not clear and it is unlikely that the EU accession of a neighbouring country will, in itself, lead to increased levels of institutional trust.

Another reasoning could be that the negotiation process of a neighbouring country could lead to increased levels of institutional trust. That is, for hypothesis (2), it could be that the EU negotiation

status of Croatia and Montenegro will result in increased levels of trust in neighbouring countries. If, for example, Croatia takes measures to eradicate corruption, citizens from a similar country such as Serbia may anticipate that the same will happen in their country. However, the direction of the anticipation effect is ambiguous. It might as well work in such a way that when neighbouring countries observe large institutional shifts aimed at reducing corruption in similar countries, they hold their own institutions to a higher standard, which in turn could reduce trust. Additionally, institutional trust is a slow-moving variable (OECD, 2017; van der Meer, 2017) and to argue that this anticipation alone would lead to higher institutional trust is rather far-fetched.

It can therefore be concluded that the policy changes in the treated countries are unlikely to affect countries from the donor pool.

5.2. Dependent variables

The dependent variables are LiTS survey responses to the following question: "To what extent do you trust the following institution?". The respondents respond on a continuous scale from 1 ("complete distrust") to 5 ("complete trust") (EBRD, 2019). The institutions that will be studied are the presidency, the parliament, courts and banks.

In line with Armingeon et al. (2016), who use aggregated trust scores from Eurobarometer surveys, and Ruelens et al. (2018), who use aggregated trust scores from the European Social Survey, the individual trust responses in the LiTS are summed up and averaged per country and year. Following Mishler & Rose (2001), each country is weighted equally as having 1000 cases per year.

In all three rounds of the LiTS, the EBRD benchmark the sample against demographic statistics on gender, age and location of residence (geographical region and urban/rural) in each country. This allows the sample proportions to be reflective of the true population proportions. There is therefore no need to employ weighting techniques such as post-stratification weights that are recommended for e.g. the European Social Survey (European Social Survey, 2019). Further, the surveyed households and respondents within each household are chosen at random (EBRD, 2016; World Bank, 2013, 2017)

5.2.1. Limitations of the data in the dependent variables

An unfortunate characteristic of the LiTS is that it is conducted in only three waves over a tenyear period. This is an issue that is pervasive for survey data and survey data on developing and transition economies in particular. Household surveys are often the only available method to produce reliable estimates for developing countries and these surveys require substantial technical and financial resources. As a consequence, they are typically conduced every few years (Dang, Lanjouw, & Serajuddin, 2016). As the SCM does not allow for missing data in either the pretreatment or post-treatment period (Amjad, Shah, & Shen, 2017), a suitable procedure for imputing the missing years in the LiTS is required.

A common technique for imputing missing values or converting low frequency data to higher frequency is linear interpolation. Linear interpolation is a straight line fit between two datapoints.³ It is used by the World Bank e.g. in their PovcalNet data for international poverty measurement (World Bank, 2019a), in their measurement of adolescent fertility (World Bank, 2019c), and in their estimations of population data (World Bank, 2019b). Further, it is used for survey responses on life satisfaction (Guriev & Zhuravskaya, 2009), on population data (Finkelstein, 2007), on sales ratios (only when data is available for both an earlier and a later year) (Autor, Dorn, Katz, Patterson, & Van Reenen, 2019), GDP per capita and financial liberalization index (Égert, Backe, & Zumer, 2016), and on investment data (Acemoglu & Zilibotti, 2001).

Linear interpolation is reasonable for measures that change slowly over time such as GDP, human capital, and mortality (Honaker et al., 2010). An underlying assumption is that the interpolated variable is a linear function of the year it is interpolated on and that the trend is not affected by other factors that would cause a sharp deviation from the trend (Chen & Aybar, 2015). Failing to account for a civil war for example would bias a linear interpolation estimate (Honaker et al., 2010).

Van Der Meer (2017) and OECD (2017) note that trends in institutional trust tend to move slowly and this is true also for recent years. The most significant shock was the financial crisis, which caused trust in public institutions to fall in most OECD countries (OECD, 2017).

³ If the two known values are (x_0, y_0) and (x_1, y_1) , the in-between value y for some point x, where $x_0 < x$ and $x_1 > x$, is: $y = y_0 + (x - x_0) \frac{y_1 - y_0}{x_1 - x_0}$. Note that y_0 and y_1 must be observable. In this study, these calculations have been performed through the *ipolate* command in STATA (STATA Manual, 2019). The y variable is the level of trust for a country in a given year and the x variable is the year.

It is therefore not far-fetched to assume that our studied sample of transition economies will follow a trust trend that is stable except for during the financial crisis. Fortunately, the LiTS capture the post-crisis year 2010, which allows us to interpolate between 2006 and 2010 (three years) and between 2010 and 2016 (five years). LiTS 2010 was explicitly conducted by the EBRD to capture the effect of the financial crisis (EBRD, 2011). Arguably, no events took place in the interpolated periods that would have affected the trust trend more severely than the financial crisis. It is possible that trust fell to even lower levels than the 2010 values during the height of the financial crisis in 2008. However, all of the studied treatment periods take place after 2010. Therefore, a 2010 base measure of trust just after the financial crisis and before the treatment period, together with the end year 2016, should yield an accurate interpolated estimate of the post-treatment trust trend from 2010 to 2016. This will allow for the treatment effect to be distinguished.

5.5. Independent variables

The independent variables, or predictors, included in an SCM estimation are used to construct the synthetic control. Control units that are similar in pre-treatment outcomes of the dependent variables and the predictors will then be selected into the synthetic control (Abadie et al., 2010; Mcclelland & Gault, 2017).

When selecting predictors, it is important to select them such that they have a solid relationship to the variable of interest, in this case institutional trust. However, the choice of predictors should not include variables that are directly affected by the treatment, in this case EU membership or EU negotiation status. As an example, Campos et al. (2019), who study the effect of EU membership on economic growth, include variables such as population growth, school enrolment and share of industry in value added but exclude variables directly affected by EU membership such as trade, foreign direct investment and financial integration (Campos et al., 2019).

This study will therefore exclude a variable that would otherwise have a clear connection to levels of institutional trust: corruption (Ruelens et al., 2018; Uslaner, 2017). A large part of the theoretical underpinnings for why closer EU integration would lead to higher institutional trust in post-communist countries is that the rigours of the accession process force aspiring members to take measures to eradicate corruption. A measure of corruption is therefore not included in this SCM application.

Other potential candidates for predictors are measures of economic performance such as GDP per capita, GDP growth and GDP per capita growth. However, as mentioned in section 2.1., the theoretical support for an effect of economic performance on institutional trust is weak, especially on a cross-country level (Ruelens et al., 2018; van der Meer, 2017). Further, there is a possibility that these measures are directly affected by the treatment. E.g. Campos et al. (2019) find a positive relationship between growth and EU accession. As a result, the measures GDP per capita, GDP growth and GDP per capita growth are not included in the estimation.

This leaves us with the following predictors:

(1) Unemployment rate. As mentioned in section 2.1., the effect of unemployment on trust in institutions has support in theory. Algan et al. (2017) find that an increase in unemployment following the 2009 financial crisis was associated with a decline in trust in national and European political institutions and courts. Annual measures of unemployment are therefore in included in all specifications. ⁴ The data is extracted from the World Development Indicators (World Bank, 2019d).

(2) Outcome lags. Following Abadie et al. (2010), outcome lags from years in the pre-treatment period are included. The outcome for the earliest year in the sample (2006), the outcome lag for the last year before the intervention and an outcome lag in the middle of the pre-treatment period are included when testing both hypotheses.

6. Results

This section presents the results from running hypothesis (1) and hypothesis (2) on the sample presented above.

6.1. Hypothesis (1): EU membership

This section presents the results for hypothesis (1). Recall that hypothesis (1) reads as follows: At the time of EU accession, the level of institutional trust will increase in an acceding post-communist Eastern European country.

⁴ Unemployment, total. Percent of total labour force. Modelled ILO estimate. Retrieved from World Development Indicators.

As outlined in section 5.3., the treated unit is Croatia. The treatment period is 2013. As elaborated upon in section 5.2., the included predictors are total unemployment rate and outcome lags for year 2006, 2010 and 2012. The test is run one time for each of the four dependent variables: trust in presidency, trust in parliament, trust in courts and trust in banks.

The synthetic Croatia is constructed from the pre-treatment trend of the dependent variable(s) and form the values of the predictors in the donor pool. The resulting control unit is a weighted combination of donor countries. The values for each synthetic Croatia compared to the values of the real Croatia and the donor weights are presented in Appendix B.



Figure 1. - Effect of EU membership on institutional trust. Real versus synthetic Croatia

The results for hypothesis (1) are presented graphically in figure 1.

For trust in banks, the pre-treatment trajectories match well. However, the SCM is not able to produce closely matching pre-treatment paths for trust in parliament, trust in presidency and trust

in courts. Due to the lack of matching pre-treatment trajectories, these three cases cannot be analysed further.

A poor treatment fit can result from a lack of appropriate predictors or diverging trends in the dependent variable between the treated unit and donor countries. However, the effect of adding predictor variables is ambiguous. Mcclelland & Gault (2017) note that a poor pre-treatment fit will not necessarily be improved by adding more predictor variables (Mcclelland & Gault, 2017). In this application, the same predictor, total unemployment rate, is used for all dependent variables. Since it matches well for the satisfactory specification, trust in banks, the misspecification likely results from diverging trends in the dependent variable.

Further, the synthetic controls are constructed from very few countries in the donor pool (see tables B.1., B.2. and B.3.). This suggest that only these countries had similar pre-treatment trends. This would be in line with hypothesis (2), that institutional improvement and, hence, increased levels of institutional trust takes place before actual EU accession. This way, Croatia would have experienced an increase in trust before the treatment year 2013 that few other countries in the donor pool experienced, which causes its trend to diverge.

In contrast, the specification in which the pre-treatment outcomes match well, trust in banks, is constructed from all countries in the donor sample (see table B.4.). This suggests that several countries in the sample have a similar trend in the dependent variable. From the plot of trust in banks, no clear path divergence can be seen at the time of the treatment in 2013. This suggests that hypothesis (1) does not hold.

Note that, due to linear interpolation, these results should be interpreted with caution. As noted in section 5.2.1., linear interpolation is employed to estimate a linear trend between the year 2010 and 2016. Since the examined treatment period is in year 2013, we cannot observe a trend break in this period when there might in fact be one. Therefore, a treatment effect resulting from EU accession in 2013 cannot be fully excluded.

In conclusion, the results from testing hypothesis (1) suggest that there is no effect on institutional trust at the time of EU accession for Croatia. However, due to linear interpolation, this effect cannot be fully excluded either.

6.2. Hypothesis (2): Negotiation status

This section presents the results for hypothesis (2). Recall that hypothesis (2) reads as follows: At the start of EU accession negotiations, the level of institutional trust will increase in a negotiating post-communist Eastern European country.

As outlined in section 5.3., the treated units are Croatia and Montenegro. The treatment periods are 2010 and 2013, respectively. As in the testing of hypothesis (1), the included predictors are total unemployment rate and outcome lags. Since the treatment periods are different, the outcome lags are also different. One outcome lag for the first year of the pre-treatment period (2006 for both countries), one outcome lag in the middle of the pre-treatment period (2007 for Croatia and 2009 for Montenegro) and one outcome lag for the last year before treatment (2009 for Croatia and 2011 for Montenegro) are included.

The test is run one time for each of the four dependent variables, trust in presidency, trust in parliament, trust in courts and trust in banks in both of the countries. Tables of predictor means and donor weights are presented in Appendix C.



Figure 2. - Effect of negotiation status on institutional trust. Real versus synthetic Croatia

Figure 2 shows the results for hypothesis (2) on Croatia.

In contrast to the previous hypothesis test, the pre-treatment trajectories are identical for trust in presidency, trust in courts and trust in banks. Additionally, there is a clear divergence between the real Croatia and its synthetic counterpart, which suggests a treatment effect.

A suitable pre-treatment trajectory is not found for trust in parliament as a dependent variable. Again, this is likely due to the fact that the countries in the donor sample do not exhibit a trend in trust in parliament that is similar to the trend in Croatia. This is indicated further by comparing table C.2.1. of donor weights to the other tables. In the case of trust in presidency, trust in courts and trust in banks, the synthetic controls include weights from a majority or all of the donor countries. In the case of trust in parliament, however, only two countries are included in the synthetic control. Due to the poor pre-treatment fit, trust in parliament cannot be included for further analysis. The results from testing hypothesis (2) on Croatia suggest that, indeed, there is a positive effect of EU negotiation status on trust in presidency, trust in courts and trust in banks. These results will be investigated further in the following sections.



Figure 3. – Effect of negotiation status on institutional trust. Real versus synthetic Montenegro

Figure 3. shows the results for hypothesis (2) on Montenegro.

The pre-treatment trajectories of trust in parliament and trust in courts do not match. The same pattern as in previous sections emerges where the synthetic controls are constructed form only a few countries in the donor pool (see table C.2.2., C.3.2. and C.4.2.). These cases can, therefore, not be examined further.

In contrast, the pre-treatment trajectory matches well for trust in presidency as dependent variable. No divergence from the synthetic control can be observed in the treatment period.

This suggests that hypothesis (2) does not hold for Montenegro. In other words, there is no effect of EU negotiation status on trust in presidency. This result is discussed further below.

7. Significance tests

This section presents the results of the inference methods outlined in detail in section 4.2. Standard estimates for inference, such as confidence intervals and standard errors, are inappropriate for the SCM. Other available methods are instead in-space placebo tests, in-time placebo tests and ranking RMSPE ratios (Abadie et al., 2015; Mcclelland & Gault, 2017). All of these three methods are applied below. They will be applied on the cases where the SCM indicates a treatment effect. These cases are trust in presidency for Croatia, trust in courts for Croatia and trust in banks for Croatia.

7.1. Placebo tests

The results from running the two different placebo tests suggested by Abadie et al. (2010) and Abadie et al. (2015) are presented below.

7.1.1. In-space

This section presents the results from running the EU negotiation treatment on each country in the donor pool. The aim is to answer the question whether we would obtain results of the same magnitude as those observed in section 6.2. and illustrated in figure 2 if a country would be chosen at random instead of Croatia. If the analysis provides a gap of similar magnitude to the gap observed for Croatia, then there is a possibility that the observed results are driven entirely by chance. In this case, there will not be enough evidence to confirm a treatment effect of EU negotiation status on trust in presidency, trust in courts and trust in banks for Croatia (Abadie et al., 2010).



Figure 4. – Placebo tests on all countries in the donor pool. Dependent variable: trust in presidency

Figure 4 presents the results from running the hypothesis (2) specification on the nine countries in the donor pool with trust in presidency as a dependent variable.

For Belarus, Bosnia and Herzegovina, Georgia and Moldova, the algorithm does not find a matching pre-treatment trajectory. These countries must therefore be excluded from further analysis.

In the case of Albania, Armenia, North Macedonia and Serbia, a small positive effect is observed at the time of the treatment. For Ukraine, a small negative effect is observed. The observed effects for these countries are of a smaller magnitude than the effect observed for Croatia. The gap between synthetic Croatia and real Croatia is around 0.5 points (see figure 2), while it hovers around 0.2 for the countries in the donor pool. This effect is small but recall that the dependent variable consists of survey responses ranging from 1 ("complete distrust") to 5 ("complete trust"). As institutional trust is a slow-moving variable, effects of larger magnitude are unlikely. The in-space placebo test for trust in presidency suggest evidence for a treatment effect of EU negotiation status on trust in presidency in Croatia. This is because the magnitude of the effect is larger for Croatia than for all of the countries in the donor pool. The robustness of this result will be examined further in following sections.



Figure 5. – Placebo tests on all countries in the donor pool. Dependent variable: trust in courts

Figure 5 presents the results from running the hypothesis (2) specification on the nine countries in the donor pool with trust in courts as a dependent variable.

The pre-treatment trajectories of Belarus, Armenia, Belarus, Bosnia and Herzegovina, Moldova, North Macedonia and Ukraine do not match. These countries must therefore be excluded from further analysis.

The pre-treatment trajectories for Albania, Georgia and Serbia match well. In these countries, a gap is observed between the real countries and their synthetic counterparts. However, this effect

is very small, ranging from an increase of around 0.05 points for Serbia to a 0.2 points increase for Albania. In contrast, as presented in figure 2, the effect for Croatia is estimated to a 0.51 increase.

This suggest an effect of EU negotiation status on trust in courts for Croatia that will be examined further in following sections.



Figure 6. – Placebo tests on all countries in the donor pool. Dependent variable: trust in banks

Figure 6 presents the results from running the hypothesis (2) specification on the nine countries in the donor pool with trust in banks as a dependent variable.

For Albania, Moldova, North Macedonia, Serbia and Ukraine, the pre-treatment trajectories do not match. These countries must therefore be excluded from further analysis.

Armenia, Belarus, Bosnia and Herzegovina and Georgia have matching trajectories. A small positive effect is observed for Armenia, Belarus and Bosnia and Herzegovina. A small negative effect is observed for Georgia. The magnitudes of the observed effects are slightly smaller than

those observed previously, all of them hover at around 0.1 points. The effect for Croatia, presented in figure 2, is larger and estimated to a 0.3 points increase.

As in previous cases, this suggests an effect of EU negotiation status on trust in banks for Croatia. See following sections for an elaboration of these results.

7.1.2. In-time

In the in-time placebo tests, the EU negotiation status treatment is reassigned to periods before the actual time of treatment. The test must be run in the sample period before the actual treatment to avoid capturing its effect (Abadie et al., 2015). The treatment will be assigned to all feasible years. That is, year 2007, 2008 and 2009.

The specification is identical to the specification for Croatia in hypothesis (2) (see section 6.2.) except in the inclusion of outcome lags. As noted by (Mcclelland & Gault, 2017), including all outcome lags will bias the results. Therefore, no outcome lag is included when running the test in 2007 and one outcome lag, year 2006, is included when running the test in year 2008. When running the test in 2009, two outcome lags are included one for 2006 and one for the year before treatment, 2008 (Abadie et al., 2010; Mcclelland & Gault, 2017).

If an effect is observed in the "false" treatment periods, there will not be enough evidence to support the previous evidence that a treatment effect occurred around the time when Croatia entered EU negotiations in 2013.

Figure 7. – Placebo tests for Croatia in alternative treatment periods. Dependent variable: trust in presidency



Figure 7 displays the results from running the specification with trust in presidency as a dependent variable.

The SCM is unable to find matching pre-treatment trajectories for the placebo treatments in year 2007 and year 2008. As discussed previously, including an outcome lag in the first year and one in the year before treatment, yields the best pre-treatment fit in SCM estimations. However, including all outcome lags in the pre-treatment trajectory will bias the results (Mcclelland & Gault, 2017). Therefore, adding the sufficient amount of outcome lags is not feasible in the 2007 and 2008 placebo tests.

A matching pre-treatment trajectory is, therefore, only produced in the 2009 placebo test. Here, it is apparent that no treatment effect occurs when running the treatment in 2009.

Hence, this in-space placebo test provides evidence for an effect of EU negotiation status on trust in presidency for Croatia.





Figure 8 displays the results from running the specification with trust in courts as a dependent variable.

Again, for reasons discussed above, the SCM produces a matching pre-treatment trajectory between real and synthetic Croatia only in the 2009 placebo test.

In the 2009 placebo test, no treatment effect occurs. This strengthens the evidence for an effect of EU negotiation status on trust in courts for Croatia.

Figure 9. – Placebo tests for Croatia in alternative treatment periods. Dependent variable: trust in banks



Figure 9 displays the results from running the specification with trust in banks as a dependent variable.

The same results are repeated again, where the pre-treatment trajectories for years 2007 and 2008 are unsatisfactory.

The 2009 placebo treatment exhibits no treatment effect, suggesting an effect of EU negotiation status on Croatia when trust in banks is the dependent variable.

7.2. RMSPE ratio ranking

Lastly, as laid out in section 4.2., a third significance test will be run. Abadie et al. (2015) reports the RMSPE ratios that are produced by the SCM when running the placebo tests on each country in the donor pool.

The RMSPE measures the magnitude in the gap between each country and its synthetic control. A large post-treatment RMSPE is not indicative of a large treatment effect unless the synthetic control closely matches the pre-treatment trajectory. In other words, the RMSPE will be indicative of a treatment effect if the specification produces a small RMSPE value prior to the treatment and large

treatment value post-treatment. Abadie et al. (2015) create the RMSPE ratio by dividing the posttreatment RMSPE with its pre-treatment RMSPE value. This is done for the treated country and for each country in the donor pool. The RMSPE values are then ranked. If the treated unit exhibits a large RMSPE ratio compared to the RMSPE ratios of the donor countries, this indicates a treatment effect (Abadie et al., 2015).



Figure 10. - Ranking of RMSPE ratios. Dependent variable: trust in presidency

Figure 10 ranks the RMSPE ratios resulting from the running the hypothesis (2) specification on Croatia and on the countries from the donor pool with trust in presidency as the dependent variable.

The treated unit, Croatia, has the highest RMSPE ratio. As explained previously, this is indicative of a treatment effect for Croatia. The post-treatment ratio for Croatia is more than ten times as high as its pre-treatment ratio. If one were to pick a country at random from the sample the likelihood of achieving an RMSPE value of this magnitude would be 1/10 which is a 10 % chance.



Figure 11. - Ranking of RMSPE ratios. Dependent variable: trust in courts

Figure 11 ranks the RMSPE ratios resulting from the running the hypothesis (2) specification on Croatia and on the countries from the donor pool with trust in courts as the dependent variable.

Again, Croatia exhibits a higher RMSPE ratio than the countries in the donor pool. This time the ratio is slightly lower. The post-treatment RMSPE value of Croatia is just below six times as high as its pre-treatment ration. If one were to pick a country at random from the sample the likelihood of achieving an RMSPE value of this magnitude would be 1/10 which is a 10 % chance.





Figure 12 ranks the RMSPE ratios resulting from the running the hypothesis (2) specification on Croatia and on the countries from the donor pool with trust in banks as the dependent variable.

Croatia exhibits the highest RMSPE ratio in the sample, indicating significance. The post-treatment RMSPE value of Croatia is close to 16 times larger than its pre-treatment RMSPE value. If one were to pick a country at random from the sample the likelihood of achieving an RMSPE value of this magnitude would be 1/10 which is a 10 % chance.

To conclude, the results above indicate significance for all specifications. This indicates a treatment effect of EU negotiation status on trust in presidency, trust in courts and trust in banks.

8. Discussion

The results presented above suggest that there is no effect on trust in presidency, trust in parliament, trust in courts or trust in banks at the time of EU accession for an acceding country. Therefore, these is no evidence to support hypothesis (1). However, due to linear interpolation, an effect on the level of institutional trust from EU accession cannot be fully excluded either.

The results further suggest an increase in trust in presidency, trust in courts and trust in banks for Croatia at the time of EU negotiation status. These results are confirmed to be significant in section 7.1.1., section 7.1.2. and section 7.2. No effect can be confirmed for trust in presidency due to a poor fit of the pre-treatment trajectory.

In contrast, no effect at all can be observed for Montenegro. Three out of four pre-treatment trajectories do not match well enough enable further analysis. For trust in presidency, the pre-treatment trajectory matches well. However, no treatment effect can be observed.

The results for Croatia are in line with theory and suggest that hypothesis (2) holds. However, the fact that the results cannot be reproduced for Montenegro must be addressed.

There is a possibility that the case of Croatia is exceptional. As described in section 1., the accession negotiations for Croatia differed from previous EU negotiations in many ways. Firstly, they were stricter than previous negotiations with a larger focus on eradicating corruption and reforming the justice system. Secondly, the reforms of the justice system (chapter 23 and chapter 24) were substantial and undertaken during a very short time period (one year). Thirdly, the efforts to reduce corruption led to several high-profile arrests, including of the former prime minister, during the negotiation period. This attracted much media attention. All of these factors made the institutional reforms more rigorous, more intense and more publicly visible than for older EU members. Due to previously mentioned difficulties in measuring corruption, it cannot be confirmed that corruption did in fact decrease in Croatia during the EU negotiation process. However, what matters for the Croatians level of institutional trust is their *perception* of the levels of corruption. Therefore, the likelihood that the levels of institutional trust will change during EU negotiations likely increases the more visible the undertaken reforms are.

In contrast, the EU negotiation process for Montenegro proceeds at a much slower, less intense and less visible pace. As described in section 1., since the start of negotiations in 2012, only three out of 35 chapters have been closed.⁵ Further, the important chapters 23 and 24 about judicial reform have not been closed. In hindsight, it is clear that the people of Montenegro have reasons to be more sceptical of a fast reform process and quick accession to the EU. When obtaining EU negotiation status in 2012, Montenegro faced the same strict institutional requirements as Croatia did during the country's negotiation process. However, the process for Montenegro was slower and less tangible. Further, to the author's knowledge, the opening of negotiations did not lead to any high-profile arrests as in the case of Croatia. It is, therefore, likely that the EU accession negotiations were less publicly visible in Montenegro. Thus, the Montenegrins would not perceive the reform progress as strongly as the Croatians did at the time of entering the negotiations.

⁵ As of December 2019.

Consequently, this decreases the likelihood that the levels of institutional trust changed during the EU negotiations in Montenegro, which would explain the observed results.

To test this argument, we would ideally test the effect of e.g. the 2004 enlargement when several post-communist European countries acceded to the union (see section 1.) If no effect is observed for these countries, Croatia may be an exceptional case. However, this would require data on institutional trust in the year 2004 and earlier, which is not available for this study. This is therefore a suggestion for further research.

To conclude this section, the issue of reverse causality will be discussed. As noted in section 4., the SCM addresses omitted variable bias but not reverse causality. If EU membership or EU negotiation status is motivated by expectations of higher levels in institutional trust, this would imply reverse causation and bias our results. This, however, is highly unlikely. Most importantly, there is no plausible mechanism that explains why higher expected levels of institutional trust would motivate EU accession. Possibly, EU membership could be motivated by an expected increase in the quality of institutional quality could lead to higher institutional trust. This way, reverse causality could be an issue indirectly. However, as neither the relationship between higher institutional quality and higher institutional trust nor the relationship between higher institutional quality and EU membership is completely clear, this mechanism is not very plausible.

9. Limitations

Before presenting the conclusions of this study, a couple of limitations will be addressed.

Firstly, an obvious limitation is the lack of available data on institutional trust. Ideally, this study would be based on annual measures of institutional trust for each of the included countries. However, the LiTS only gathers data for three years. This is a pervasive feature of much survey data and data on trust in particular. In this study, this lack of data is dealt with through linear interpolation, as discussed in detail in section 5.1.1. As survey data is available for the critical years and trust in institutional is a slow-moving variable, this study still produces meaningful results. However, no data imputation technique, such as linear interpolation, can fully compensate for lack of available data. Further, the scarcity of data also refers to the length of the studied time period. A longer sample period, both pre- and post-intervention, would have

enabled a more complete overview of country-specific trends in institutional trust. Also, more cases could have been included, such as the Eastern European countries that joined the EU in 2004, which would have increased the precision of the analysis.

Secondly, the study only includes one predictor, total unemployment, that is not an outcome lag. Ideally, more variables with predictive power should be included. Possibly, this would have yielded matching pre-treatment trajectories in cases that were excluded from this analysis. More cases with satisfactory pre-treatment fits between the treated units and their synthetic controls would have enabled more analysis. This could possibly have strengthened the observed results. However, as noted in section 2.1., few empirical studies have been able to confirm which factors influence trust in institutions. One such factor, corruption, is excluded due to its clear connection to the channel through which EU membership would affect the outcome variable.

The third and last limitation stems from the fact that the treatment period for hypothesis (2) is not well-defined. As mentioned previously, EU membership is a binary variable as a country is either an EU member or not. This limits the treatment period for hypothesis (1) to the time of accession. Negotiation status, on the other hand, is a process that exists on a continuum. In the case of Croatia, the negotiation process was concentrated around a short time period and many crucial reforms and events coincided with each other. As laid out in this study, the negotiation process for Montenegro proceeds at a much slower pace. Since the opening of negotiations, only three out of 35 chapters have been closed. It is possible that no treatment effect was observed for Montenegro because the treatment period was not well-defined enough. Possibly, an increase in institutional trust will be observed when crucial chapters are closed. Two obvious candidates for crucial chapters are the chapters aimed at reforming the justice system (chapters 23 and 24). For Croatia, the negotiation of this chapters coincided with the opening of the negotiations. For Montenegro, however, the chapters have not yet been closed, as of December 2019. As longer-term data becomes available, a topic for further research could be to experiment with different time periods to establish the exact point in time when an effect can be observed.

10. Conclusion

This paper explores the effect of EU membership on institutional trust in post-communist European countries. Two hypotheses are drawn from the literature on institutional trust and institutional heritage in post-communist Europe. Hypothesis (1) predicts that *at the time of EU*

accession, the level of institutional trust will increase in an acceding post-communist European country. Hypothesis (2) predicts that at the time of EU accession negotiations, the level of institutional trust will increase in a negotiating post-communist European country.

To test these hypotheses, the synthetic control method is applied. This methodology is considered more appropriate than standard panel methods, such as differences-in-differences and fixed effects, for case studies such as this one. The essence of the method is that it constructs a synthetic control for each treated country that is a weighted average of similar countries. This synthetic control is supposed to exactly mimic the pre-treatment trajectory of the treated unit. This way, the treated country and the synthetic control will be comparable and a treatment effect can be estimated.

Starting from a sample of Eastern European post-communist countries, each hypothesis is examined. For hypothesis (1), Croatia is the treated unit. For hypothesis (2), Croatia and Montenegro are the treated units. No effect on institutional trust is found when the specified treatment period is EU membership. Therefore, no support is found for hypothesis (1). However, due to linear interpolation, an effect on institutional trust cannot be fully excluded either. A treatment effect is found for Croatia when the specified treatment period is negotiation status. This supports hypothesis (2). However, no effect is found when the specification is run for Montenegro.

This implies that the case of Croatia is exceptional. The EU negotiations for the country were characterized by strict demands from the EU, extensive reforms undertaken during a short time period and high-profile arrests of corrupt officials that attracted much media attention. In contrast, the EU negotiations for Montenegro are proceeding at a much slower and less intense pace. This likely made the negotiation process less visible and tangible. Therefore, the negotiation process for Montenegro did not result in an evident effect on institutional trust during the studied period.

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Appendix

A. A note on databases with trust data

The Gallup World Poll (Gallup Inc., 2019) provides annual data on trust in institutions since 2006 but is unavailable to the author of this paper. Additionally, the sample size is so small that it should be pooled over at least 3 years.⁶

Further, the Eurobarometer (GESIS, 2019) has included institutional trust in some modules. However, the different modules are not comparable as the question wordings and order of questions have changed, which influences data quality.⁷ (OECD, 2017).

Additionally, there is the OECD Trust Database⁸, which is publicly available. However, it only covers OECD countries and all of the studied countries in this paper are non-OECD members.

Consequently, neither of these databases are appropriate for this study.

⁶ As the Gallup World Poll is unavailable to the author, information about the content of this database is from a personal conversation with Lara Fleisher at the OECD Statistics Directorate, 20 November 2019.

⁷ As the Eurobarometer is unavailable to the author, information about the content of this database is from a personal conversation with Lara Fleisher at the OECD Statistics Directorate, 20 November 2019.

⁸ Included as an online annex to the paper "The Accuracy of Measures of Institutional Trust in Household Surveys: Evidence from the OECD Trust Database" by González & Smith (2017).

B. Tables for hypothesis (1)

	Croatia		
D			Average of
Predictors	Real	Synthetic	10 countries
Unemployment, total (%	11.571	14.613	16.578
of labour force)			
Trust in presidency (2006)	3.039	3.039	2.492
Trust in presidency (2010)	3.133	3.159	2.642
Trust in presidency (2012)	3.116	2.988	2.538

Table B.1.Trust in presidency, predictor means

Note: Unemployment is averaged for the 2006 - 2012 period.

Trust in presidency, country weights in the synthetic Croatia

Country	Weight	Country	Weight
Albania	0	Moldova	0
Armenia	0	Montenegro	0.38
Belarus	0.184	North Macedonia	0
Bosnia and Herzegovina	0	Serbia	0
Georgia	0.778	Ukraine	0

Table B.2. Trust in parliament, predictor means

	Croatia		
		_	Average of
Predictors	Real	Synthetic	10 countries
Unemployment, total (%	11.571	17.286	16.578
of labour force)			
Trust in parliament (2006)	2.35	2.385	2.590
Trust in parliament (2010)	1.853	2.041	2.384
Trust in pariament (2012)	2.046	2.147	2.324

Note: Unemployment is averaged for the 2006 - 2012 period.

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Country	Weight	Country	Weight
Albania	0.158	Moldova	0
Armenia	0	Montenegro	0
Belarus	0	North Macedonia	0
Bosnia and Herzegovina	0	Serbia	0.842
Georgia	0	Ukraine	0

	Croatia		
			Average of
Predictors	Real	Synthetic	10 countries
Unemployment, total (%	11.571	18.125	16.578
of labour force)			
Trust in courts (2006)	2.386	2.383	2.646
Trust in courts (2010)	2.149	2.206	2.338
Trust in courts (2012)	2.279	2.193	2.276

Table B.3. Trust in courts, predictor means

Note: Unemployment is averaged for the 2006 - 2012 period.

Trust in courts, country weights in the synthetic Croatia

Country	Weight	Country	Weight
Albania	0.12	Moldova	0
Armenia	0.151	Montenegro	0
Belarus	0	North Macedonia	0
Bosnia and Herzegovina	0	Serbia	0.729
Georgia	0	Ukraine	0

Table B.4. Trust in banks, predictor means

	Croatia		
		-	Average of
Predictors	Real	Synthetic	10 countries
Unemployment, total (%	11.571	17.565	16.578
of labour force)			
Trust in banks (2006)	3.066	3.069	3.176
Trust in banks (2010)	2.537	2.539	2.670
Trust in banks (2012)	2.598	2.601	2.640

Note: Unemployment is averaged for the 2006 - 2012 period.

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Weight	Country	Weight
0.036	Moldova	0.023
0.515	Montenegro	0.036
0.035	North Macedonia	0.145
0.07	Serbia	0.068
0.035	Ukraine	0.038
	Weight 0.036 0.515 0.035 0.07 0.035	WeightCountry0.036Moldova0.515Montenegro0.035North Macedonia0.07Serbia0.035Ukraine

C. Tables for hypothesis (2)

	Croatia		
		-	Average of
Predictors	Real	Synthetic	9 countries
Unemployment, total (% of	9.75	13.201	15.787
labour force)			
Trust in presidency (2006)	3.039	3.035	2.409
Trust in presidency (2007)	3.05	3.045	2.5
Trust in presidency (2009)	3.11	3.107	2.546

Table C.1.1 Trust in presidency, predictor means

Note: Unemployment is averaged for the 2006 - 2009 period.

Trust in presidency, country weights in the synthetic Croatia

Country	Weight	Country	Weight
Albania	0.01	Moldova	0.006
Armenia	0.006	North Macedonia	0.006
Belarus	0.175	Serbia	0.008
Bosnia and Herzegovina	0.005	Ukraine	0.006
Georgia	0.777		

Table C.1.2. Trust in presidency, predictor means

	Montenegro		
		-	Average of
Predictors	Real	Synthetic	9 countries
Unemployment, total (%	20	17.366	15.787
of labour force)			
Trust in presidency (2006)	3.237	3.237	2.409
Trust in presidency (2009)	3.152	3.153	2.304
Trust in presidency (2011)	3.031	3.030	2.546

Note: Unemployment is averaged for the 2006 - 2011 period.

Country	Weight	Country	Weight
Albania	0.01	Moldova	0.006
Armenia	0.006	North Macedonia	0.006
Belarus	0.175	Serbia	0.008
Bosnia and Herzegovina	0.005	Ukraine	0.006
Georgia	0.777		

Trust in presidency, country weights in the synthetic Montenegro
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	Croatia		
			Average of
Predictors	Real	Synthetic	9 countries
Unemployment, total (%	9.75	16.85	15.787
of labour force)			
Trust in parliament (2006)	2.35	2.35	2.532
Trust in parliament (2007)	2.27	23	2.423
Trust in parliament (2009)	1.97	2.127	2.379

Table C.2.1. Trust in parliament, predictor means

Note: Unemployment is averaged for the 2006 - 2009 period.

Trust in parliament, country weights in the synthetic Croatia

Country	Weight	Country	Weight
Albania	0	Moldova	0
Armenia	0.114	North Macedonia	0
Belarus	0	Serbia	0.886
Bosnia and Herzegovina	0	Ukraine	0
Georgia	0		

Table C.2.2. Trust in parliament, predictor means

	Montenegro		
			Average of
Predictors	Real	Synthetic	9 countries
Unemployment, total (%	20	14.388	15.787
of labour force)			
Trust in parliament (2006)	3.117	3.120	2.532
Trust in parliament (2009)	3.01	3.01	2.452
Trust in parliament (2011)	2.842	2.737	2.379

Note: Unemployment is averaged for the 2006 - 2011 period.

Trust in parliament	, country weigh	nts in the synth	etic Montenegro
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Country	Weight	Country	Weight
Albania	0	Moldova	0
Armenia	0	North Macedonia	0
Belarus	0.184	Serbia	0
Bosnia and Herzegovina	0	Ukraine	0
Georgia	0.816		

	Croatia		
		_	Average of
Predictors	Real	Synthetic	9 countries
Unemployment, total (%	9.75	13.024	15.787
of labour force)			
Trust in courts (2006)	2.386	2.388	2.594
Trust in courts (2007)	2.357	2.34	2.55
Trust in courts (2009)	2.208	2.211	2.351

Table C.3.1. Trust in courts, predictor means

Note: Unemployment is averaged for the 2006 - 2009 period.

Trust in courts, country weights in the synthetic Croatia

Country	Weight	Country	Weight
Albania	0.09	Moldova	0.073
Armenia	0.112	North Macedonia	0.154
Belarus	0.024	Serbia	0.093
Bosnia and Herzegovina	0.081	Ukraine	0.317
Georgia	0.057		

Table C.3.2. Trust in courts, predictor means

	Montenegro		
			Average of
Predictors	Real	Synthetic	9 countries
Unemployment, total (%	20	13.081	15.787
of labour force)			
Trust in courts (2006)	3.116	3.224	2.594
Trust in courts (2009)	3.05	3.1	2.456
Trust in courts (2011)	2.899	2.746	2.351

Note: Unemployment is averaged for the 2006 - 2011 period.

Trust in courts, country weights in the synthetic Montenegro

Country	Weight	Country	Weight
Albania	0	Moldova	0
Armenia	0	North Macedonia	0
Belarus	0.679	Serbia	0
Bosnia and Herzegovina	0.321	Ukraine	0
Georgia	0		

	Croatia		
			Average of
Predictors	Real	Synthetic	9 countries
Unemployment, total (%	9.75	14.081	15.574
of labour force)			
Trust in banks (2006)	3.066	3.066	3.147
Trust in banks (2007)	2.973	2.972	3.103
Trust in banks (2009)	2.669	2.669	2.756

Table C.4.1. Trust in banks, predictor means

Note: Unemployment is averaged for the 2006 - 2009 period.

Trust in banks, country weights in the synthetic Croatia

Country	Weight	Country	Weight
Albania	0.067	Moldova	0.142
Armenia	0.116	North Macedonia	0.102
Belarus	0.07	Serbia	0.134
Bosnia and Herzegovina	0.103	Ukraine	0.194
Georgia	0.072		

Table C.4.2. Trust in banks, predictor means

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	Montenegro		
			Average of
Predictors	Real	Synthetic	9 countries
Unemployment, total (%	20	16.747	15.787
of labour force)			
Trust in banks (2006)	3.437	3.437	3.147
Trust in banks (2009)	3.102	3.232	3.02
Trust in banks (2011)	3.027	3.027	2.756

Note: Unemployment is averaged for the 2006 - 2011 period.

Trust in banks, country weights in the synthetic Montenegro

Country	Weight	Country	Weight
Albania	0.713	Moldova	0
Armenia	0	North Macedonia	0.103
Belarus	0	Serbia	0
Bosnia and Herzegovina	0	Ukraine	0
Georgia	0.184		