EU Accession: A Boon or Bane for Corruption?

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Abstract

The formation and expansion of the European Union (EU) have attracted much attention. However, the impact on the level of corruption in a nation after joining the Union has not been formally studied. Any nation that joins the European Union potentially faces two different and opposite effects on corruption. On the one hand, there are reasons to believe that corruption is going to decrease because of the efforts of the EU to fight corruption or because of the opening of the markets to trade; on the other hand, there are reasons to imagine that corruption may increase due to the increase in bureaucracy and new regulations. Hence, the overall effect is not entirely clear from this perspective. This work focuses on the last three rounds of EU entry and empirically studies the effects of joining the EU on corruption. Placing the analysis in the broader literature on the determinants of corruption, the results suggest that entry into the EU increases corruption. However, equally insightful is that this corruption increase does not hold for nations that are potential entrants or that are in the negotiation stage.

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1. Introduction

The formation of a trading and political block such as the European Union (EU) has had far-reaching ramifications for member nations (and their competitors); see White (2014). Many nations have joined the EU over time, with some others waiting to join (http://ec.europa.eu/). It may be argued that politicians in favour of joining the EU have espoused the economic benefits to motivate public opinion. However, some overall implications of joining, such as the impact on corruption, have not been formally studied and are thus not very well understood. The formation of the EU has led to a formidable trading block with freedom of trade. An extensive literature studies the linkages between trade openness and corruption; often, even if not always, these studies identify a negative relationship between the degree of trade openness of a country and the level of corruption among bureaucrats (Ades and Di Tella, 1999; Krueger, 1974; Larrain and Tavares, 2007; Torrez, 2002). Another common finding is that the size of the government is positively correlated with the level of corruption in a society (among others, Djankov et al., 2002; Fisman and Gatti, 2002; Goel and Nelson, 2010; De Soto et al., 1987; Rose-Ackerman, 1999; Svensson, 2005). The explanation for these findings is intuitive: by nature, corruption requires economic rents, which are lower in the presence of greater trade openness. The notion is that trade restrictions shift resources from directly productive activities to rent-seeking activities, hence spurring corruption. For the same reason, the larger the government's budget, the larger are the rent-seeking opportunities - and the more likely is corruption. The channels through which government resources can be exploited by corrupt bureaucrats depend on the nature and extension of regulations: in general, increased regulations heighten red tape and entail a rise in potential rent-seeking activities.

This work formally tests the impact of EU formation, entry and negotiation on the level of corruption. This will provide insights into whether one of the stated goals of the Union in terms of corruption reduction has been accomplished, in addition to contributing to the literature.

Given the complexity of the phenomenon, it is always difficult to find data to highlight the macroeconomic evidence on corruption. In this context, we believe that joining the European Union could be a natural experiment to test the impact of the increase in both the number of regulations and the degree of free trade on the level of corruption. In fact, the countries that have joined the European Union have suddenly faced an increase in the number of regulations: European Union laws regulate several aspects of trade and commerce and to join the EU, the national governments enforced these regulations, often expanding the bureaucracy and the size of their government. Moreover, the impacts of EU regulations on national laws and national regulations are certainly not negligible since they range in member states between 6% and 84% (Miller, 2010). For instance, from 1994 to 2008 (the year it was repealed), a well-known EU regulation (2257/94) set the minimum length a banana should

have to be considered a first-class banana. A similar regulation was written on cucumbers, this time regulating their curvature. These examples suggest that a state joining the EU is going to impose a greater number of regulations on its citizens, with implications for corruption and rent seeking.

One of the main objectives of the European Union is to fight corruption. Starting with the European Council in Tampere in 1999, followed by The Hague programme in 2004, and finally, the Stockholm programme in 2010, the European Union institutions have been fighting corruption and implementing different policies and programmes with the aim of reducing public (and private) corruption within the European Union. Moreover, the empowering of competition and free trade that follows entry into the European Union should have a decreasing effect on corruption.

Given the presumed linkages between the degree of free trade and the amount of bureaucracy and regulations on the one hand, and corruption on the other, a state joining the EU faces two opposite effects on its corruption level. The first, e.g. the empowering of free trade and the opening of the markets, which is likely to start during the negotiation period before actually joining the EU, should have a negative impact on corruption; while the second, e.g. the increase in the amount of red tape that often follows the joining of the EU, should increase corruption via an increase in rent-seeking activities generated by corrupt officials in search for bribes due to the implementation of the new regulations. Which of these opposite effects is stronger? Does EU membership display a positive or negative impact on corruption in member states? By focusing on recent expansions that have taken place in the EU, this work's main objective is to provide answers to these questions and to shed new light on the effect of increased norms and regulations on a country's corruption levels.

Including the analysis in the literature on the determinants of corruption, the results clearly show that EU membership has not decreased the level of corruption in the last three rounds of joining countries (which are 13 of the 28 countries belonging to the Union, almost half of the total) and that soon after the countries had entered the single market, the level of corruption increased. This main and new finding is robust to alternative modelling formulations, albeit the fate of nations in the EU accession negotiations stage is different.

The structure of the rest of the paper includes a literature review in the next section, followed by methodology and data, the results, and conclusions.

2. Related literature

The underlying rationale for this study draws on the determinants of corruption on the one hand and the freedom of trade-corruption nexus on the other hand. Even though the literature has extensively analysed the determinants of corruption (see, for example, Dimant and Tosato, 2018 and Lambsdorff, 2006), very few studies have distinctively focused on the relationship between the number of laws

(and related regulations and their complexity) and corruption. To the best of our knowledge, this is indeed the first attempt to study EU membership to unveil the link between trade openness, the regulatory system and corruption.

Some works have studied the corruption level of a specific country before and after EU membership. For example, among these, one can list the studies on the effects of EU membership on corruption in Bulgaria (Pashev, 2011) and in Slovakia (Beblavý and Sičáková-Beblavá, 2014). Anderson and Grey (2006) found that in several Eastern European countries, corruption levels decreased between 2002 and 2005. The idea is that this is due to systematic efforts to fight corruption, such as the revision of legislation, the implementation of risk analysis, random audits, and the intensification of enforcement and sanctions mechanisms. A more recent study (Batory, 2012) has instead analysed the failure of the anti-corruption laws in Eastern Europe (also see Vachudova, 2009). Fazekas and King (2019) finds that the effects of additional EU funding to induce new members to have greater anti-corruption measures might be related to grand corruption.

This literature also includes a study on the likelihood of different international organizations cooperating on anti-corruption policies (Gest and Grigorescu, 2009), which is interesting for us, since in some respects the EU works as an international organization. Of interest to us is also the trust that the citizens have in an international organization, studied with regard to corruption in the United Nations by Torgler (2007).

Considering that EU membership not only implies an increase in regulations but also an increase in trade openness, one also needs to refer to the literature on trade openness and corruption. This is a quite an old and wide literature as well. The first study to approach this topic (Krueger, 1974) is a seminal paper on the theoretical relationship between trade restrictions and rent seeking. This paper departs from the basic argument that corruption, whatever specific definition of it one chooses, depends on the existence of rents. Government restrictions raise rents in a variety of forms, and people often compete for rents. Ades and Di Tella (1999) find that the share of imports in GDP negatively affects the level of corruption. They conclude that the more a country is open, the lower is the level of corruption. By lowering the amount of rents that can be extracted by state institutions, trade openness decreases corruption. By employing a cross-section of countries between 1980 and 1995, Larrain and Tavares (2007) show a causal relationship: a higher level of openness leads to less corruption. Another perspective is used by Gatti (2004). Her work determines that the presence of barriers to international trade and capital flows has an impact on corruption through the incentive for collusive behaviours between individuals and customs officials, rather than through the reduction in competition within the country.

Another field of studies focuses on the relationship between government size, bureaucracy and corruption (Goel and Nelson, 1998; Rose-Ackerman, 1999). This is also very interesting for our

work, considering that it is very likely that entering the EU implies an increase in government size and bureaucracy. Other studies (Fisman and Gatti, 2002; Goel and Nelson, 2010) use the number of public officials convicted for abuse of public office in various U.S. states, assuming this as an indicator of actual levels of corruption. Goel and Nelson relate this variable to the real per capita total expenditures of the local government, arguing that state intervention and public spending give way to increased rent-seeking activities and hence corruption. The authors report a significant, positive association between these variables.

Another interesting work (De Sousa, 2010) provides a report on the development of European anti-corruption agencies. This report analyses the conditions for the success of the anti-corruption agencies, also covering the process of establishment, the institutional formats, the mandate and the scope of action. In short, this report provides an overview of the agencies and gives recommendations for their further development.

In sum, while there is a broad spectrum of related theoretical and empirical literature that we can draw upon, it seems clear that the specific issue addressed in this paper has not been dealt with. In addition to adding to the existing body of knowledge, this has implications for policy, especially within the European context.

3. Methodology and Data

Starting from the six original founding countries of the European Community, the number of members of the political-economic union in Europe has grown steadily (ec.europa.eu). Today, 28 countries are already members of the EU, and several countries have applied to join. The last three enlargements of the Union have taken place in 2004, when the EU encompassed 10 new Eastern European countries: Czech Republic, Cyprus, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia; in 2007, when Bulgaria and Romania joined the EU; and the last one, in 2013, when Croatia entered the Union. Table 1 summarizes the information about the countries, with data from the European Union official website (ec.europa.eu).

However, it was in 1992, with the treaty of Maastricht, that the European Economic Community evolved into something more bureaucratically invasive for member states. Our dataset has a panel structure and comprises data on 38 countries for a period ranging from 1995 to 2012. All these countries are in the European and Eurasian geographical region and include the EU "historical" members (i.e., members before the start of our data in 1995); the new EU members (i.e., the ones who joined the EU during the time span 1995-2012); and finally a set of countries in the geographical European region that have never joined the EU (such as Switzerland and Albania). The latter help us build a counterfactual sample of countries, as they are not yet in the EU but are close enough (in terms

of culture and geography) to become possible future members. Appendix A lists all countries included in the analysis and a description of their status.

3.1 Empirical strategy

Based on the above discussion and to focus the analysis, we set up two testable hypotheses:

H1: Corruption in the EU candidate nations decreases in the negotiation stage as a result of the government's effort to polish the bureaucratic system in preparation for acceptance.

H2: Once the countries have joined, corruption in EU members may increase when the new set of EU rules and regulations creates additional rent-extraction opportunities.

To formally test these hypotheses, we specify an empirical model that includes a dummy variable f_i that detects whether country *j* at time *t* is alternatively inside the EU or outside the EU and whether it is in the negotiation process or has ended the negotiations:

$$CORR_{jt} = \beta_0 + \beta_1 X_{jt} + \beta_2 f_{jt} + u_{jt} \qquad \qquad \dots(1)$$

The dichotomous variable *f* signals if the country is (or is not) an EU member in the given year, and suggests the effects of being a member of the EU on corruption. The dependent variable measures the prevalence of corruption in a nation based on the corruption index from International Country Risk Guide (ICRG, details about scaling are found in Table 2). This index is based on expert ratings and has a more superior time series comparability than the Corruption Perceptions Index from Transparency International (see Treisman, 2007).

A preliminary description of the data highlights that the country with the least corruption in the time span considered is Finland, while the most corrupt is Azerbaijan. The overall average sample corruption is 0.43. Regarding the two clusters, the average corruption in EU member countries is 0.36, while in the countries outside the EU it is 0.53.[1] The average corruption among the historical EU members (i.e., the countries that joined the EU before 1996) is 0.27; among the countries that became members in the last three rounds (and that are the object of our analysis), it is 0.52. Again, our formal analysis will determine the effect of joining on corruption.

Following the main literature on the topic, we choose a general model that describes the corruption index *CORR* as a function of several regressors. We draw on the literature on the determinants of corruption to identify the significant drivers to include in our study (see Aidt, 2003; Dimant and Tosato, 2018; Goel and Nelson, 2010; Lambsdorff, 2006; Serra, 2006; Treisman, 2007).[2]

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[1] See Table 2 regarding details about the scaling of the *CORR* variable.

[2] The literature also notes that in many instances, due to the multidimensional nature of corruption, there may be a two-way causality between corruption and some of its determinants (Dimant and Tosato, 2018; Lambsdorff, 2006). However, given the time taken to initiate and implement EU creation and implementation, reverse causality seems less of a concern in the present instance (where the primary focus is on the effects of EU accession on corruption).

These are economic prosperity (*GDP*), law (*SocLegOr*, *RuleLaw*), and fractionalization (either ethnic, religious or a linguistic one, as suggested by Paldam, 2002, and others).[3]

To detect government influence, we consider different dimensions, including size (*GovtSize*), decentralization or government structure (*Decent*). Greater economic prosperity raises the opportunity costs of corruption, and wealthier nations have better governance *ceteris paribus* (Serra, 2006). The role of the government is multidimensional and can affect corruption in different ways (Rose-Ackerman, 1999; also, Goel and Nelson, 1998). Accordingly, we consider government size (tied to more red tape and greater corruption), the level of government decentralization (more decentralized governments are more transparent and less corrupt, *ceteris paribus*),[4] and government quality - better governance should lead to lower corruption. We also consider the effects of the legal system on corruption by including the rule of law index and by considering nations with a socialist legal origin[5] in our estimates (see Beck et al., 2003; also, Capasso et al., 2019).

Finally, we include ethnic, language and religious fractionalization to take into account the effects of socio-cultural norms on corruption. The notion is that in the face of greater fractionalization, corruption may be a way of building trust in trade (Alesina et al., 2003; also see Obydenkova and Arpino, 2018).

3.2 Data

To estimate equation (1), we gather data from different sources. Table 2 summarizes the main variables and data sources and displays some descriptive statistics.

Our main dependent variable is the corruption index of the International Country Risk Guide from the PRS group. We gather the data from the World Development Index database archives, which include the ICRG index as a source. For a more immediate interpretation of the coefficient, we transform this index by multiplying by minus 1 so that a higher value denotes higher corruption. Hence, we obtain an index of corruption, which is a continuous variable in the range [-6, -1], with the minimum value of -6 signalling the absence of corruption and -1 corresponding to the maximum level of corruption.

According to the index methodology,

This is an assessment of corruption within the political system....The most common form of corruption met directly by business is financial corruption in the form of demands for special payments and bribes connected with import and export licenses, exchange controls, tax assessments, police

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[3] We also considered government effectiveness (index) and government wages as alternative regressors. These were statistically insignificant in all instances and are not included in the results that are reported. Additional details are available upon request.

[4] As noted in Table 2, our measure of decentralization captures fiscal decentralization—more spending authority at lower levels of government makes local/regional bureaucrats better able to demand rents, while also increasing transparency.

[5] Seven socialist origin countries are part of the EU (Bulgaria, Croatia, Hungary, Poland, Romania, Slovenia, and the Slovak Republic).

protection, or loans... Although our measure takes such corruption into account, it is more concerned with actual or potential corruption in the form of excessive patronage, nepotism, job reservations, 'favor-for-favors', secret party funding, and suspiciously close ties between politics and business.

Being based on the rating of corruption across countries, the ICRG corruption index provides more consistent time series than other perceptions-based indices, as the Corruption Perception Index.

We calculate the EU membership and the accession dummies by referring to the European Union website data. The main control variables are the governance and rule of law indexes; the government spending and the GDP per capita are from the World Bank, the legal origins dummies and government size are from La Porta et al. (1999), the democracy levels are from the Polity IV project, and decentralization as a sub-national share of public spending is from Fan et al. (2009). In our sample, the expenditure share of sub-national governments was, on average, approximately 24%. This is significant since it captures discretion and transparency at the local level, both of which have implications for corruption. These are from reputed sources that are routinely used in the literature. See Table 2 for details on the variables used.

The results section follows.

4. Results

To test our main hypotheses, we first run an F-GLS regression on our baseline model in eq. (1) on the whole sample and then we implement a difference-in-difference estimation on different subsamples to analyse the effects on corruption during the various stages preceding EU membership acquisition.

4.1 Baseline models

We study the effects of EU membership on corruption on the whole panel by first running an F-GLS model. The corresponding results are shown in Table 3. The baseline model entails the dummy variable *InEU*, which in a given year takes the value 1 if the country is in the EU and 0 in all the other cases. We employ a random effect estimator since we are interested in the variance between countries that are not homogeneous. The dummy *InEU* is very significant in all the specifications, suggesting that belonging to the EU does affect the corruption level. Interestingly, the sign of the coefficient is always positive, suggesting that corruption does increase in the countries in the years following the accession to the EU. In our opinion, this is consistent with the notion that the additional layers of regulations and bureaucracy that the accession to the EU brings increase corruption.[6] To our knowledge, this is the first formal evidence in this context.

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[6] The main findings with regard to the positive effect of EU on corruption hold when the ICRG corruption measure is replaced by the CPI from Transparency International. These results are not reported but are available upon request.

The overall fit of the estimated models, as shown by the R-squared and the Chi-square statistics, is within acceptable ranges.

All other coefficients have the expected signs: a higher government size causes greater corruption, as does socialist legal origin (see Lambsdorff, 2006, Paldam, 2002). These results are consistent with the expectations that larger governments and socialist systems are likely to have a more cumbersome bureaucracy and that, other things the same, they produce more red tape. In contrast, a higher level of decentralization, rule of law and government effectiveness corresponds to a lower level of corruption. Greater decentralization is associated with more transparency, and the rule of law and government effectiveness are associated with more transparency and better governance. In our sample, Switzerland is the most decentralized nation. Additionally, the effects of democracy, although not statistically significant, are of the expected sign.

Some interesting results emerge from the three fractionalization variables (see Alesina et al., 2003). Greater ethnic fractionalization generally increases corruption, but language and religious fractionalizations have opposite effects (with statistical significance in some cases). In the next section, we examine the different aspects of the process of joining the EU, including the effects of new entry and the negotiation stages.

4.2 New EU entrants

To avoid measuring a vague effect between the countries that were historical members of the Union and the countries that were new entrants, we also run the same set of regressions (eq. 1) re-defining the dummy f as 1 if the country was a new entry. Hence, in our sample, the dummy is 1 if the country is one of the 13 countries that joined the EU after 2003, and the year is subsequent to the entry. The results are shown in Table 4.

Even in this case, the EU dummy is positive and significant in all the specifications, suggesting that belonging to the EU does increase the corruption level. Again, even for new entrants, the extra layers of bureaucracy and regulations associated with EU entry seem to contribute to corruption. Once again, the other coefficients are of the expected signs.

These latter findings show that hypothesis 2 is consistent with the idea that more regulations in the EU lead to greater rent-extracting opportunities and therefore to more corruption.

4.3 Effects of the stages of EU negotiation

It is possible that the different stages of negotiation could have different effects on corruption. Indeed, entering the EU is a long process that includes a phase of negotiation, the end of negotiations and eventually, only after this, proper membership. During the negotiations, it is likely that the EU candidate nations try to do their best to improve their chances of joining and hence they improve their

governance system: this should result in a lower level of corruption. We studied the effects of negotiations and the end of negotiations on corruption levels to isolate possible different effects from those effects that are effectively due to EU membership. This consideration can be seen as uniquely studying the effects of the level of negotiations on corruption.

To isolate the effects of the negotiation stages, we implement a difference-in-difference estimation. The difference-in-difference is a statistical technique that mimics an experimental research design, using observational study data by studying the differential effect of a treatment on a 'treatment group' versus a 'control group' in a natural experiment. The technique calculates the effect of an independent variable on an outcome (a dependent variable) by comparing the average change over time in the outcome variable for the treatment group to the average change over time for the control group.

4.3.1 Start of negotiations

We redefined our dummy f as equal to 1 if the negotiation to join the EU is in progress and as equal to 0 if not. We call this dummy variable *Negotiation*, and it is our treatment variable. We also add a temporal dummy, equal to 1 in the years after the treatment (i.e., the years after the start of the negotiations) and 0 in the years before. For the difference-in-difference estimation, the interaction variable between the two dummies shows the effect of the treatment. The regression is relative to the start of the negotiations process, and the temporal dummy is set in 1998 (equal to 1 for the years after 1997 and equal to 0 before) because it is the year in which most of the countries that joined the EU in the last 20 years started the negotiations process. The results are shown in Table 5.

The interaction variable is not significant in all specifications, suggesting that the start of the negotiations process does not influence the corruption level. The sign is negative in most instances, implying that there is a decrease in corruption, which may be due to the efforts undertaken by the government to reach the European Union standards. It is important to emphasize that during this period, the country is not yet subject to the whole European legislation, and hence this result reinforces the idea that it is indeed the EU membership and the increase in the burden of rules and regulations that increases corruption, rather than the influence of extraneous variables.

4.3.2 End of negotiations

It is possible that nations at the end of negotiations might behave differently. This is the interval during which a country has ended negotiations but is not yet a formal member of the EU. Hence, we also test the effects of the end of the negotiations on corruption using the same methodology and theoretical framework. In this case, the temporal dummy is set in 2002, since this is the year in which most of the sample has ended the negotiations. Additionally, in all these models,

the effect on corruption is negative, sometimes non-significant, and in general of a very small magnitude. Again, we find some support for Hypothesis 1.

5. Conclusions

The formation and expansion of the European Union has been a major structural and institutional change for many nations, both within and outside the Union. An important aspect well-recognized by policy makers have been the consequences following the formation of the Union for the level of corrupt activity. The channels through which EU membership may affect corruption are various: from trade liberalization to bureaucracy, from culture to international anti-corruption policies, from market competition to market regulations, etc. However, little is formally known about the impact of EU on member nations, and this study provides formal insights.

Our empirical analysis shows that for the last three rounds of entry into the EU, the effect on corruption levels (estimated by three different indexes) in the last 13 countries that entered the Union (a total of 28, representing almost half of the EU countries) has always been positive: being part of the EU has subsequently led to increased corruption in those countries. The increase in corruption, however, does not manifest in nations who are aspirants or in the negotiation stages and who have not yet formally entered the Union. These results support the hypothesis that EU membership generates greater corruption due to an additional layer of bureaucracy (H2) and provide some support for corruption in potential entrants decreasing (H1). Stated alternatively, and going back to the title of this paper, EU accession has been a boon for corruption.

This is possibly a temporary effect that could be due to a number of causes and that seems to wax and wane over time. One possible and likely channel leading to increased corruption in a country that joins the EU is the sudden increase in the number of regulations that a country faces, which increases rent-seeking opportunities. In general, our results show that EU accession does increase corruption. However, the effects on corruption during the different stages of accession are not the same. From a policy perspective, the stated goal of corruption reduction in the EU does not seem to have been accomplished. Perhaps this is a long-term realization that will be accomplished as the Union matures.

Table 1
EU JOINING PROCESS

Country	Application	Start of negotiations	End of negotiations	Member of the EU
Cyprus	3/7/1990	31/3/1998	12/2002	1/5/2004
Czech Republic	17/1/1996	31/3/1998	12/2002	1/5/2004
Estonia	24/11/1995	31/3/1998	12/2002	1/5/2004
Hungary	31/3/1994	31/3/1998	12/2002	1/5/2004
Latvia	22/6/1995	13/10/1999	12/2002	1/5/2004
Lithuania	8/12/1995	13/10/1999	12/2002	1/5/2004
Malta	16/7/1990	13/10/1999	12/2002	1/5/2004
Poland	5/4/1994	31/3/1998	12/2002	1/5/2004
Slovakia	22/6/1995	13/10/1999	12/2002	1/5/2004
Slovenia	10/6/1996	31/3/1998	12/2002	1/5/2004
Bulgaria	14/12/1995	13/10/1999	14/12/2004	1/1/2007
Romania	27/6/1995	13/10/1999	14/12/2004	1/1/2007
Croatia	21/2/2003	20/10/2005	30/6/2011	1/7/2013

Source: http://ec.europa.eu/
Please note that our analysis does not include Croatia's joining, since this latest entrant was too far from the vast majority of the countries who joined, making it an outlier.

Table 2
VARIABLE DEFINITIONS, SOURCES AND SUMMARY STATISTICS

Variable	Description	Source	Total sample	In EU	Not in the EU
InEU?	Dummy variable. 1 is a member of the EU in the given year.	Authors' calculations.	Dummy	Dummy	Dummy
CORR	Measures corruption. This variable is an assessment of corruption in the political system. This index is based on expert ratings and is scaled from 0 to 6 with higher numbers denoting less corruption; it is rescaled by multiplying by -1, so that higher numbers denote greater corruption.	ICRG Corruption of PRS Group's International Country Risk Guide, from World Development Index Database (2016)	-3.624 (1.381)	-4.041 (1.242)	-3.105 (1.371)
Post1997	Dummy variable. 1 is a year after 1997.	Authors' calculations.	Dummy	Dummy	Dummy
Negotiation	Dummy variable. 1 is negotiating accession to the EU in the given year.	Authors' calculations.	Dummy	Dummy	Dummy
Post1997 Negotiating	Interaction variable between NEGOTIATING and POST1997.	Authors' calculations.	Dummy	Dummy	Dummy
Post2002	Dummy variable. 1 is a year after 2002.	Authors' calculations.	Dummy	Dummy	Dummy
Negotiated	Dummy variable. 1 is already negotiated (i.e., negotiations for accession to the EU are finished) in the given year.	Authors' calculations.	Dummy	Dummy	Dummy
Post2002 Negotiated	Interaction variable between NEGOTIATED and POST2002.	Authors' calculations.	Dummy	Dummy	Dummy
RuleLaw	Measures the rule of law. The variable is based on the perception that	Kaufmann et al. (2010)	0.795 (0.953)	1.275 (0.534)	0.160 (1.012)

	individuals abide by the law, with a focus on the quality of contract enforcement, property rights, police and the court system. The variable is scaled from -2.5 to +2.5, with higher values denoting a stronger rule of law.				
GovtEff	Measures government effectiveness. The variable captures the perceptions of the quality of public service, the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. The variable is scaled from -2.5 to +2.5, with higher values denoting better government effectiveness.	Kaufmann et al. (2010)	0.872 (0.945)	1.329 (0.604)	0.268 (0.976)
GDP	Gross Domestic Product per capita (constant, in dollars).	World Bank (2018)	27049.8 (23329.6)	36120.1 (19154.3)	16792.7 (23404.6)
Dem	Measures democracy. The variable captures the degree of democracy based on a scale from 0 to 10, with higher numbers signifying higher degrees of democracy.	Marshall et al. (2016)	8 (5.622)	9.785 (0.504)	5.767 (7.872)
Decent	Measures decentralization.	Fan, C. S., Lin, C., & Treisman, D. (2009).	23.80 (9.999)	23.11 (9.960)	24.45 (10.01)

	Share of public expenditure at a sub-national level.				
GovtSize	General government final consumption expenditure as percentage of GDP.	World Bank (2018)	18.70 (3.925)	19.91 (2.812)	17.34 (4.519)
SocLegOr	Socialist legal origin. Dummy variable equal to 1 if the country has socialist legal origin.	La Porta et al. (1999)	0.432 (0.496)	0.207 (0.405)	0.703 (0.458)
EthnoFrac	Ethnic fractionalization, which measures the probability that two randomly selected people from a given country will belong to the same ethnolinguistic group. Year of data varies by country.	Alesina et al. (2003)	0.247 (0.172)	0.210 (0.168)	0.292 (0.166)
LangFrac	Linguistic fractionalization, which measures the probability that two randomly selected people from a given country will belong to the same linguistic group. Year of data varies by country.	Alesina et al. (2003)	0.245 (0.192)	0.231 (0.195)	0.263 (0.188)
RelFrac	Religion fractionalization, which measures the probability that two randomly selected people from a given country will belong to the same religious group. Year of data varies by country.	Alesina et al. (2003)	0.385 (0.194)	0.358 (0.197)	0.418 (0.187)
Observations			684	363	321

Note: All observations are annual at the country level.

Table 3
EU MEMBERSHIP AND EFFECT ON CORRUPTION

	(3.1) CORR	(3.2) CORR	(3.3) CORR	(3.4) CORR
InEU?	0.731***	0.735***	0.725***	0.641***
	(8.07)	(7.81)	(8.09)	(7.00)
Dem	-0.00889	-0.00632	0.0430**	0.0104
	(1.46)	(1.23)	(1.99)	(0.49)
GovtSize	0.00510			
	(0.37)			
GDP	0.0000124**	0.0000206***	0.0000167***	0.00000333
	(2.49)	(3.53)	(3.19)	(0.69)
EthnoFrac	2.766**	-1.671	1.695*	2.174**
	(2.33)	(0.68)	(1.69)	(2.24)
LangFrac	-2.124**	0.722	-1.576*	-1.615*
	(2.06)	(0.36)	(1.81)	(1.92)
RelFrac	-0.278	5.406***	0.103	-0.0989
	(0.42)	(3.12)	(0.19)	(0.18)
SocLegOr	2.449***	2.059***	1.216***	1.266***
	(7.69)	(4.14)	(4.16)	(4.39)
Decent		-0.0591**		
		(2.54)		
RuleLaw			-1.183***	
			(7.68)	
GovtEff				-0.656***
				(5.32)
Observations	600	372	480	480
R-Sqr_Overall	0.345	0.543	0.699	0.675
R-Sqr_Within	0.193	0.231	0.139	0.083
R-Sqr_Between	0.395	0.594	0.794	0.777
Chi-sqr	161.624	141.771	222.904	196.769

Notes: See Table 1 for variable details.
Constants are included but not reported. All models are estimated using the GLS random effect estimator.
t- statistics in absolute value are in parentheses.
Asterisks denote significance at the following levels: *** p<0.01, ** p<0.05, * p<0.1.

Table 4
EU MEMBERSHIP: MARGINAL EFFECT ON CORRUPTION – ONLY NEW ENTRY

	(4.1) CORR	(4.2) CORR	(4.3) CORR
InEU?	0.795***	0.740***	0.773***
	(8.57)	(7.70)	(8.46)
Dem	-0.00882	-0.00616	0.0404
	(1.45)	(1.20)	(1.91)
GovtSize	0.0103		
	(0.75)		
GDP	0.0000105*	0.0000193**	0.0000144**
	(2.12)	(3.23)	(2.80)
EthnoFrac	2.866*	-2.370	1.786
	(2.46)	(0.93)	(1.86)
LangFrac	-2.363*	1.313	-1.799*
	(2.35)	(0.63)	(2.16)
RelFrac	-0.131	5.408**	0.235
	(0.20)	(3.00)	(0.44)
SocLegOr	1.773***	1.400**	0.551
	(5.55)	(2.68)	(1.87)
Decent		-0.0693**	
		(2.87)	
RuleLaw			-1.157***
			(7.71)
Observations	600	372	480
R-Sqr_Overall	0.386	0.537	0.728
R-Sqr_Within	0.188	0.230	0.137
R-Sqr_Between	0.440	0.585	0.828
Chi-sqr	172.436	136.999	242.629

Notes: See Table 1 for variable details.
Constants are included but not reported. All models are estimated using the GLS random effect estimator.
t-statistics in absolute values are in parentheses.
Asterisks denote significance at the following levels: *** p<0.01, ** p<0.05, * p<0.1.

Table 5
EFFECT OF EU NEGOTIATIONS (1997): DIFFERENCE-IN-DIFFERENCE EFFECT ON CORRUPTION

	(5.1) CORR	(5.2) CORR	(5.3) CORR	(5.4) CORR
Negotiation	-0.00246	0.328*	-0.117	-0.120
	(0.02)	(1.82)	(0.53)	(0.53)
Post1997	1.278***	1.166***	1.171***	1.227***
	(11.32)	(9.25)	(7.23)	(7.46)
Post1997 Negotiating	-0.605***	-0.853***	-0.445**	-0.441**
	(4.27)	(5.29)	(2.14)	(2.08)
Dem	-0.00474	-0.00384	0.0360*	0.0151
	(0.84)	(0.78)	(1.70)	(0.74)
GovtSize	-0.00681			
	(0.53)			
GDP	-0.00000713	0.00000476	0.000000330	-0.00000906*
	(1.39)	(0.73)	(0.06)	(1.84)
EthnoFrac	2.301**	-1.734	1.608*	1.925**
	(2.11)	(0.73)	(1.65)	(2.08)
LangFrac	-1.719*	1.248	-1.438*	-1.448*
	(1.82)	(0.64)	(1.70)	(1.80)
RelFrac	-0.415	3.860**	-0.132	-0.265
	(0.68)	(2.26)	(0.24)	(0.52)
SocLegOr	0.996***	0.959*	0.546*	0.544*
	(3.14)	(1.91)	(1.83)	(1.87)
Decent		-0.0610***		
		(2.68)		
RuleLaw			-0.718***	
			(4.84)	
GovtEff				-0.400***
				(3.42)
Observations	600	372	480	480
R-Sqr_Overall	0.628	0.674	0.745	0.742
R-Sqr_Within	0.255	0.280	0.186	0.163
R-Sqr_Between	0.725	0.739	0.840	0.841
Chi-sqr	296.973	189.732	270.303	271.042

Notes: See Table 1 for variable details.
Constants are included but not reported. All models are estimated using the GLS random effect estimator in a difference-in-difference specification, where the treatment group is negotiating accession to the EU, and the temporal dummy is set at 1998 because it is the year in which most countries started negotiations.
t-statistics in absolute value are in parentheses.
Asterisks denote significance at the following levels: *** p<0.01, ** p<0.05, * p<0.1.

Table 6
EFFECTS OF END OF EU NEGOTIATIONS (2002): DIFFERENCE-IN-DIFFERENCE EFFECT ON CORRUPTION

	(6.1) CORR	(6.2) CORR	(6.3) CORR	(6.4) CORR
Negotiated	0.199	0.612***	0.253*	0.269*
	(1.37)	(3.69)	(1.76)	(1.77)
Post2002	0.823***	0.784***	0.764***	0.765***
	(12.19)	(11.40)	(10.81)	(10.55)
Post2002 Negotiated	-0.391***	-0.656***	-0.448***	-0.448***
	(4.10)	(6.60)	(4.37)	(4.10)
Dem	-0.0152***	-0.0137***	0.0154	-0.0113
	(2.66)	(2.88)	(0.73)	(0.56)
GovtSize	-0.0123			
	(0.92)			
GDP	-0.00000775	0.00000434	-1.93e-10	-0.0000107**
	(1.43)	(0.63)	(0.00)	(2.05)
EthnoFrac	2.261**	-1.301	1.624*	2.038**
	(1.99)	(0.50)	(1.66)	(2.22)
LangFrac	-1.465	1.013	-1.281	-1.325*
	(1.48)	(0.48)	(1.51)	(1.66)
RelFrac	-0.515	3.673**	-0.228	-0.399
	(0.81)	(1.99)	(0.42)	(0.78)
SocLegOr	1.290***	1.441***	0.590*	0.689**
	(3.76)	(2.61)	(1.90)	(2.33)
Decent		-0.0489**		
		(1.99)		
RuleLaw			-0.862***	
			(5.85)	
GovtEff				-0.430***
				(3.46)
Observations	600	372	480	480
R-Sqr_Overall	0.614	0.678	0.766	0.750
R-Sqr_Within	0.243	0.335	0.213	0.177
R-Sqr_Between	0.709	0.734	0.859	0.849
Chi-sqr	274.589	221.402	294.044	285.247

Notes: See Table 1 for variable details.
Constants are included but not reported. All models are estimated using the GLS random effect estimator in a difference-in-difference specification, where the treatment group is negotiating accession to the EU, and the temporal dummy is set at 1998 because it is the year in which more countries started negotiations.
t-statistics in absolute value are in parentheses.
Asterisks denote significance at the following levels: *** p<0.01, ** p<0.05, * p<0.1.

Appendix A
LIST OF COUNTRIES INCLUDED IN THE ANALYSIS

Country	Application	Start of negotiations	Member of the EU	Note
Albania	28/4/2009	27/6/2014	-	
Armenia	-	-	-	Expressed an interest to join the EU up to 2013 when the country entered the Eurasian Tariff Union led by Russia.
Austria	17/7/1989	1/2/1993	24/6/1994	
Azerbaijan	-	-	-	Member of the Council of Europe since 2001.
Belarus	-	-	-	Expressed an interest to join the EU but was affected by political turmoil.
Belgium	17/4/1951	-	Founding member	
Bulgaria	27/6/1995	13/10/1999	1/1/2007	
Croatia	21/2/2003	20/10/2005	1/7/2013	
Cyprus	3/7/1990	31/3/1998	1/5/2004	
Czech Republic	17/1/1996	31/3/1998	1/5/2004	
Denmark	11/5/1975	22/1/1972	1/1/1973	
Estonia	24/11/1995	31/3/1998	1/5/2004	
Finland	16/3/1992	1/2/1993	1/1/1995	
France	17/4/1951	-	Founding member	
Germany	17/4/1951	-	Founding member	
Greece	12/6/1975	27/6/1976	1/1/1981	
Hungary	31/3/1994	31/3/1998	1/5/2004	
Iceland	23/7/2009	27/7/2010	-	
Ireland	11/5/1967	30/6/1970	1/1/1973	
Italy	17/4/1951	-	Founding member	
Latvia	22/6/1995	13/10/1999	1/5/2004	
Lithuania	8/12/1995	13/10/1999	1/5/2004	

Luxembourg	17/4/1951	-	Founding member	
Malta	16/7/1990	13/10/1999	1/5/2004	
Moldova	-	-	-	Expressed an interest to join the EU and signed an agreement of association on 27/2/2014.
Norway	1972, 1994	-	-	Popular referenda rejected the membership.
Poland	5/4/1994	31/3/1998	1/5/2004	
Portugal	28/3/1977	6/6/1978	1/1/1986	
Romania	27/6/1995	13/10/1999	1/1/2007	
Serbia	22/12/2009	1/3/2012	-	
Slovenia	10/6/1996	31/3/1998	1/5/2004	
Spain	28/7/1978	5/2/1979	1/1/1986	
Sweden	1/7/1991	1/2/1993	1/1/1995	
Switzerland	20/5/1992	-	-	Popular referenda rejected the membership after application to join the EU was made.
The Netherlands	17/4/1951	-	Founding member	
Turkey	14/4/1987	12/12/1999	-	
Ukraine	-	-	-	The country has expressed an interest in joining the EU, but it is politically divided among pro-European and pro-Russian factions.
United Kingdom	10/5/1967	30/6/1970	1/1/1975	

Notes: Additional details are provided under "Note" for nations that are special cases.

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