

# A Network Analysis of Judicial Cross-Citations in Europe

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*Recent years have seen a growing literature on citations between courts from different countries. What explains why such cross-citations occur between some courts but not others? This article addresses this question with original data on 2,967 citations between the private law supreme courts of the twenty-eight member states of the European Union. These cross-citations form a valued network of twenty-eight nodes, which can be analyzed with tools of network analysis. The article uses the method of a multiple regression quadratic assignment procedure in order to address the dependency of observations in a network. The explanatory variables distinguish between variables that proxy for legal similarities between countries and other factors, and, thus, this article contributes to the wider debate about the predominance of either legal or nonlegal factors in judicial decision-making. The main finding is that nonlegal factors play a decisive role, notably a common native language and overlapping language skills, while legal families are not found to be a significant determinant.*

## INTRODUCTION

Empirical research on courts often focuses on one particular court at a time—for example, the political positioning of individual judges of a court or the evolution of its case law across time.<sup>1</sup> There is also a line of research that uses quantitative methods in order to compare court proceedings and judgments across countries. For example, projects have examined comparative measurements of procedural formalism of dispute resolution (Djankov et al. 2003),<sup>2</sup> data on the costs and funding of civil litigation in various jurisdictions (Hodges, Vogenauer, and Tulibacka 2010), and ease of access to justice across countries.<sup>3</sup> In Europe, the European Commission for the Efficiency of Justice (CEPEJ) also undertakes “a regular process for evaluating judicial systems of the Council of Europe’s member states.”<sup>4</sup>

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Many thanks to the collaborators on the data collection of the underlying project (see “Cross-Citations between Supreme Courts in Europe,” <http://cross-citations.blogspot.com/>) as well as to three anonymous reviewers for their helpful comments.

1. For data on the US Supreme Court, see, for example, “Martin-Quinn Scores,” <https://mqscores.lsa.umich.edu/>; “The Supreme Court Database,” <http://scdb.wustl.edu/>.

2. This study was also used in the (now discontinued) World Bank’s *Doing Business Reports*, <https://archive.doingbusiness.org/en/methodology/enforcing-contracts>.

3. See “Collecting Data on Justice Needs,” *Hague Institute for Innovation of Law (HiIL)*, <http://www.hiil.org/what-we-do/measuring-justice/>.

4. “European Commission for the Efficiency of Justice (CEPEJ),” *Council of Europe*, <https://www.coe.int/en/web/cepej/>.

The research presented in this article contributes to this literature, yet with a different focus. It analyzes new data on citations between the private law supreme courts of the twenty-eight member states of the European Union (EU) (as they were prior to the United Kingdom's departure from the EU in January 2020). Citations are a key element of legal communication.<sup>5</sup> Cross-citations, in particular, are important because they show to what extent courts use foreign law as a justification for a judicial decision. While a comparative analysis of foreign case law may sometimes be used to highlight differences between countries (Canivet 2006, 1395), a foreign court is more frequently cited because it supports the result and/or reasoning of the citing court.<sup>6</sup>

These data on cross-citations between the twenty-eight courts form a valued network of twenty-eight nodes, which can be analyzed with tools of network analysis. Specifically, this article examines whether the frequency of cross-citations between the courts is mainly a reflection of legal similarities between countries or whether it is due to other factors. For example, the former can be the case due to similarities between countries that are members of the same legal family or that share other legal similarities (for example, belonging to the Eurozone or having been members of the EU for a long period). The latter can be about, for example, countries sharing the same language or other cultural similarities. This article will also consider whether there may be an imbalanced relationship between the countries—for example, smaller countries citing larger countries more often than larger countries cite small ones.

This analysis about cross-citations also has implications about the way in which courts contribute—or do not contribute—to the creation of a common legal culture in a region such as the EU. Descriptively, the findings of this article can show how far cross-citations between courts support the harmonization activities of the EU. Moreover, the regression analysis on what explains the variations in the prevalence of cross-citations can provide clues on what may be needed to make courts more willing to consider foreign case law (or whether this may be difficult, for example, given the weight of cultural and linguistic differences between the countries).

The first section of this article outlines how it contributes to the literature on judicial cross-citations and related fields. Next, it describes the data and research design that form the basis of this article and presents descriptive statistics—notably, the network of cross-citations and hierarchical clusters. It then addresses the question of inferential statistics on what explains the cross-citation network, followed by a conclusion.

## LITERATURE REVIEW AND RESEARCH QUESTION

### Review of Literature on Cross-citations and Related Topics

The topic of cross-border judicial dialogue, including the use of cross-citations, has been discussed in a large body of literature in recent years. Some of it discusses whether it is desirable that courts consider foreign case law (which is not the focus of this

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5. Compare Shapiro 1991, 1453: “Legal communication has two principal components: words and citations.”

6. These motivations are shown in a companion paper of this project. See de Witte et al., *forthcoming*.

article).<sup>7</sup> A number of books have also examined how far judicial comparative law is a reality in the case law of supreme courts (for example, Bobek 2013; Andenas and Fairgrieve 2015; for constitutional courts, see specifically Groppi and Ponthoreau 2013; Müller 2017; Ferrari 2019). In particular, this literature has tried to explore how and when foreign case law has been considered. The general picture is that courts rarely provide a detailed comparative discussion of the suitability of foreign judgments (Gelter and Siems 2014, 69–82), and whether or not courts make use of foreign case law is said to depend on both institutional differences between these courts as well as the specific circumstances of each case (for example, Bobek 2013, 21–34; E. Mak 2013, 89–98, 114–24). If countries belong to the same group of countries—for instance, a regional organization such as the EU—it may be the case that the communication between the highest courts also forms part of a formal or informal network (Claes and de Visser 2012). In Europe, in particular, some say that at least some courts fairly frequently refer to the case law of other countries' courts (for example, Baudenbacher 2003; Bingham 2010), while others claim that courts look across the border only rarely (for example, Markesinis and Fedtke 2005; Markesinis 2006).

There has also been a growing effort to analyze cross-citations quantitatively. For example, in the common law world, it was found that UK courts occasionally consider case law from other common law courts (but rarely cite courts from civil law countries) (Örücü 2007, 417) and that courts from Hong Kong, Malaysia, and Singapore cite foreign common law case law in more than 60 percent of reported opinions (Ng and Jacobson 2017), while, in US federal courts, foreign citations are rare and more or less unchanged over time (Zaring 2006). Beyond the common law, a study on the highest courts in matters of civil and criminal law in ten European countries identified 1,430 cross-citations between 2000 and 2007, though with the citations between two pairs of courts (namely, citations from Ireland to England and from Austria to Germany) accounting for more than half of these citations (Gelter and Siems 2013). Data from the highest courts of Japan, South Korea, and Taiwan show few cross-citations, mainly to the United States and Germany (Law 2015, 1035–36), and a broader study on the use of foreign precedents by constitutional judges also finds that courts that rarely cite such precedents are typically those from civil law countries (Groppi and Ponthoreau 2013).

Such variations in cross-citations raise the question why certain courts cite other courts more or less frequently. This topic can be related to the more general empirical literature that has explored reasons for legal differences between countries. A prominent explanation by authors associated with the Law and Finance School (originating from La Porta et al. 1998; for a review, see Schnyder, Siems, and Aguilera 2021) is that legal origins matter—that is, the divide between countries of the common law (English legal origin) and variants of the civil law (French, German, and Nordic legal origin). This claim of a strong path dependency of legal origins is often merely based on an assessment of group differences (for an overview, see La Porta, Lopez-de-Silanes, and Shleifer

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7. For a summary of the main arguments, see, for example, Bobek 2013, 237–51; Kadner Graziano 2013. In the United States, the Supreme Court itself is divided on whether it is legitimate to rely on foreign law in the interpretation of the US Constitution. The main cases are *Roper v. Simmons*, 125 S Ct 1183 (2005); *Lawrence v. Texas* 123 Ct 2472 (2003); *Foster v. Florida*, 537 US 990 (2002); *Aktins v. Virginia*, 536 US 304 (2002).

2008). Only some of the law and finance research uses regression analysis in order to examine the reasons for legal differences. For example, studies on the burden of entry regulations, the regulation of labor markets, the incidence of military conscription, and the level of formalism in civil procedure all find that legal origins are a significant explanatory factor, in addition to other factors such as gross domestic product (GDP) per capita, the system of government, the left-wing orientation of government, and the average age of the population (Djankov et al. 2002; Botero et al. 2004; Balas et al. 2009; Mulligan and Shleifer 2015; on research showing that legal origins are significant for differences in property law but not competition law, see Bradford et al. 2021).

In regard to such other factors, the alternative position is based on findings that legal differences are predominantly the result of nonlegal variations between countries. For instance, a number of studies show how measurements of national culture can be related to differences in rule-of-law indicators (Licht, Goldschmidt, and Schwartz 2007; Davis and Abdurazokzoda 2016) as well as specific legal rules (Licht, Goldschmidt, and Schwartz 2005; Davis and Williamson 2016). Other studies find, for example, that the colonial background of countries and a common language may play a role in the similarities in company law (and possibly also constitutional law) (Siems 2007; Goderis and Versteeg 2014), that differences in the use of the death penalty reflect political and religious differences (Greenberg and West 2008), and that variations of corporate tax rates and labor law rules are a reflection of economic competition and international pressure (Janz and Messerschmidt 2020; Wang 2021).

For courts too, some research has established that legal origins play a key role. For example, one study relates low judicial resolution rates to countries of French and socialist legal origin (Voigt and El Bialy 2016), and another study relates the success rate of the European Commission in the Court of Justice for the European Union (CJEU) to the French legal origin of the reporting judge (Zhang, Liu, and Garoupa 2018). In regard to cross-citations between supreme courts, it may also be plausible that legal families matter since some of the anecdotal research mentioned earlier shows that courts tend to prefer citing foreign judgments of countries with similar laws: “Courts find it easier to learn from precedents which have been formulated within their so-called ‘legal family’ ... or their legal culture understood in the broad sense” (Barak-Erez 2009, 487). However, there is also the quantitative research of the ten European courts that found that some of the nonlegal determinants such as language and size of countries have the primary bearing on which courts are likely to be cited (Gelter and Siems 2013).

### Main Research Question and Wider Implications

At its core, this article empirically explores the question of why cross-citations occur between some courts but not others. The econometric analysis in this article uses a number of variables as possible explanations. Some of these variables will consider the specific European nature of the underlying data. The variables will also be grouped under two headings—namely, whether a particular court feels more inclined to cite a court from one country but not from another one due to reasons of legal similarity

or due to other factors. Thus, in addition to the main research question, this article also contributes to the literature in two further respects. First, as it identifies the determinants of cross-citations in the supreme courts of the EU member states, it is possible to relate this topic to attempts to create a common European legal culture. The feasibility of creating a European legal culture sometimes uses the historical similarities between European countries as a starting point (Wieacker 1990), while others emphasize the role and the actors and institutions in the EU today (Kauppi and Madsen 2013; Vauchez 2015), including in the CJEU (C. Mak 2020).<sup>8</sup> As far as the domestic courts of the member states are concerned, some practical initiatives aim to create a (more) European judiciary—for example, the EU coordinates cooperation between domestic courts,<sup>9</sup> the European Judicial Training Network promotes the exchange of knowledge between judges in Europe,<sup>10</sup> initiatives of the EU Commission foster the training of lawyers in EU law,<sup>11</sup> and a Network of Presidents of the Supreme Judicial Courts of the EU aims to bring courts closer together “by encouraging discussion and the exchange of ideas.”<sup>12</sup>

Domestic courts also play a direct role in creating a European legal culture. The literature often focuses on cases where domestic courts apply EU law and explicitly interact with the CJEU (for example, Pavone and Kelemen 2019; Krommendijk 2020). However, in other instances too, if and when domestic courts consider each other’s case law on a regular basis, it can mean that approaches to legal problems gradually converge between European countries. In this regard, reference can also be made to the literature on legal diffusion, which suggests that the agents of such diffusion are not only governments and legislators but also courts and other actors (Twining 2009, 282; Cohn 2010, 594). Thus, research on the use of cross-citations in Europe can be a means of establishing not only whether such convergence is likely to emerge but also how such limitations arise (for example, due to cultural and linguistic differences between countries).

Second, the question about the determinants of cross-citations contributes to the wider debate about the role of legal and nonlegal factors in judicial decision-making (for a review of this literature, see Dothan 2018, 2172–81). These two groups of explanations also reflect the main positions in the general debate about the relationship between law and society. On the one hand, the “mirror view of law and society” assumes that law reflects the society in question. One variant of this view is that law is a product of a society’s history—for example, with Charles Montesquieu (1748) famously suggesting that laws do (and should) reflect the climate, geography, culture, and character of a nation. Thus, it is said that law reflects the society as it is at the moment, with Émile Durkheim ([1893] 1947, 52), for example, finding that the preference for private law

8. See also the special issue of the *American Journal of Comparative Law*, vol. 64, no. 4 (2016) on supranationalism and foreign law at the Court of Justice of the European Union.

9. “European Judicial Network in Criminal Matters,” [https://e-justice.europa.eu/content\\_ejn\\_in\\_criminal\\_matters-22-en.do](https://e-justice.europa.eu/content_ejn_in_criminal_matters-22-en.do); “European Judicial Network in Civil and Commercial Matters,” [https://e-justice.europa.eu/content\\_european\\_judicial\\_network\\_in\\_civil\\_and\\_commercial\\_matters-21-en.do](https://e-justice.europa.eu/content_european_judicial_network_in_civil_and_commercial_matters-21-en.do).

10. See “European Judicial Training Network (EJTN),” <http://www.ejtn.eu>.

11. See “Training of Justice Professionals and Training Practices,” *European Commission*, [https://ec.europa.eu/info/law/cross-border-cases/training-legal-practitioners-and-training-practices\\_en](https://ec.europa.eu/info/law/cross-border-cases/training-legal-practitioners-and-training-practices_en).

12. See “Network of the Presidents of the Supreme Judicial Courts of the Member States of the European Union,” <https://www.network-presidents.eu/>.

over criminal law in modern societies showed that (in part) “law mirrors” the existence of social solidarity. In comparative law, reference can also be made to scholars such as Pierre Legrand (2015, 429, 432), who suggests that history, politics, society, philosophy, language, economics, epistemology, and culture are inherent parts of the legal text. Such a view would thus anticipate that judges are not only judges but “also English,” for example (or French, German, and so on)<sup>13</sup> and that variations in cross-citations would largely reflect nonlegal factors.

On the other hand, there is the position that law is a largely autonomous subsection of society, which may follow the reasoning that it is not society as a whole but, rather, mainly the internal discussion between jurists that determines the substance of legal rules (Watson 2007). It is also said that legal discourses have their own dynamics and that legal systems have, as subsystems of modern society, their own forms of self-reproduction (Deakin and Carvalho 2011). This idea sounds quite abstract, yet the survival of many century-old civil codes in continental European countries may indeed show that law is often static, despite the many changes happening in society. Thus, in the present context, such a view would imply a general reluctance to consider foreign case law, yet it is also in line with the position that legal rules (and ideas) can “travel” across borders independent of the sociocultural context of a particular country (Watson 1993).

## DATA ON CROSS-CITATIONS

### Data Collection

This article analyzes the cross-citations between the supreme courts responsible for matters of private law in twenty-eight EU member states (still including the United Kingdom as it concerns data prior to its departure from the EU). Table 1 lists these courts, the databases, and the total number of available decisions from 2000 to 2018.

A companion paper explains the data underlying this article in more detail (D’Andrea et al. 2021). It shows that, using various databases and search techniques, it has been possible to collect information about cross-citations from all the twenty-eight supreme courts under investigation. However, this paper also outlines some of the challenges and limitations of this data collection. For example, some countries’ databases have gaps—in particular, in the early years of the studied period—while the information on the number of supreme court decisions published by the CEPEJ also gave us the confidence that the total number of decisions available in the databases was fairly accurate.<sup>14</sup> A further aspect that the companion paper discusses in detail is the precise search algorithms used to identify the cross-citations between these twenty-eight courts (and also the opinions of the advocate generals in France, Belgium, and the Netherlands, as they can be seen as functionally equivalent to the more detailed

13. In the words of Pierre Legrand (1999, 73–74), “an English judge is not only a judge; she is also English.”

14. See “European Commission for the Efficiency of Justice (CEPEJ),” <https://www.coe.int/en/web/cepej/country-profiles>.

**TABLE 1.**  
**Supreme courts, databases, and the total number of decisions**

Country	Country code	Name of the court	Database(s)	Total number of available decisions, 2000–18
Austria	AT	Oberster Gerichtshof	Rechtsinformationssystem des Bundes (RIS)	~17,621
Belgium	BE	Cour de cassation, Hof van Cassatie	Juridat	24,754
Bulgaria	BG	Върховен касационен съд	Lakorda	40,176
Croatia	HR	Vrhovni sud	Sudska praksa	92,919
Cyprus	CY	Ανωτάτο Δικαστήριο	Cylaw	7,654
Czech Republic	CZ	Nejvyšší soud	Nejvyšší soud	84,293
Denmark	DK	Højesteret	Højesteret	1,660
Estonia	EE	Riigikohus	Riigikohus	3,183
Finland	FI	korkein oikeus	Edilex	1,382
France	FR	Cour de cassation	LegiFrance, Cour de Cassation	~176,000
Germany	DE	Bundesgerichtshof	Entscheidungsdatenbank des Bundesgerichtshofs	32,997
Greece	EL	Αρειος Πάγος	Areios Pagos, Nomos, DSA Isokratis	34,891
Hungary	HU	Kúria (since 2012; prev.: Magyarország Legfelsőbb Bírósága)	Bírósági Határozatok Gyűjteménye	35,498
Ireland	IE	Supreme Court	British and Irish Legal Information Institute (BAILII)	~686
Italy	IT	Corte Suprema di Cassazione	Dejure	445,709
Latvia	LV	Augstākā tiesa	Augstākā tiesa	3,054
Lithuania	LT	Aukščiausiasis Teismas	Liteko	7,925
Luxembourg	LU	Cour de Cassation	Cour de Cassation	1,876
Malta	MT	Court of Appeal	eCourts	9,577
Netherlands	NL	Hoge Raad	de Rechtspraak	18,884
Poland	PL	Sąd Najwyższy	Sąd Najwyższy, LEX	42,983
Portugal	PT	Supremo Tribunal de Justiça	Instituto de Gestão Financeira e Equipamentos da Justiça (IGFEJ)	48,513
Romania	RO	Înalta Curte de Casație și Justiție	Înalta Curte de Casație și Justiție	60,792
Slovakia	SK	Najvyšší súd	Najvyšší súd	37,917
Slovenia	SI	Vrhovno sodišče	Sodna praksa	37,899
Spain	ES	Tribunal Supremo	Centro de Documentación Judicial (CENDOJ)	96,392
Sweden	SE	Högsta domstolen	Lagrummet	~1,990
United Kingdom	United Kingdom	Supreme Court (since 2009; previously the House of Lords)	BAILII	~607

explanations by courts in other countries). Here too, using multiple strategies as well as other databases to cross-check some of the findings, we are confident that the data collection is as accurate as possible. Furthermore, a website that accompanies this article contains a list of all the cross-citations in order to replicate our findings.<sup>15</sup>

Overall, we identified 2,967 cross-citations between these courts between 2000 and 2018. For many of the country pairs, there is only a single-digit number of citations (see the descriptive statistics in the subsequent section). There are also few, if any, changes across time in the explanatory variables (discussed in the next section). For these reasons, this article analyzes the aggregate of these citations for each country pair during the entire time period (2000–18) and, thus, a network of twenty-eight member states multiplied by twenty-seven, which equals 756 observations.

### Descriptive Statistics and Visualizations

Table 2 displays the matrix of cross-citations between the twenty-eight supreme courts. It can be seen that there is a large variation of numbers from 0 to 1,038 citations (namely, those from Austria to Germany). Partly, these variations reflect the large range in the total number of decisions of the courts (see Table 1); thus, most of the following analysis will be based on the relative number of citations per the total number of cross-citations of each particular court. For example, the citations from the Austrian to the German courts are “only” the second highest country pair ( $1,038/17,621 = 5.8$  percent) as they are exceeded by the citations from the Irish to the UK Supreme Court ( $192/686 = 28.0$  percent).

The matrix of Table 1 forms the basis for the network analysis of this article. Thus, the “nodes” of the valued network are the courts of the twenty-eight countries and the “ties” are the cross-citations between them.<sup>16</sup> In Figure 1, all ties with five or more cross-citations (one way) are displayed, using the program Netdraw (part of UCINET software).<sup>17</sup> The closeness of the countries in the chart is determined by the technique of “spring embedding,” and the size of the nodes is varied according to the total number of decisions of these courts (for example, compare Austria and Ireland again). The strength of the ties has been adjusted, as explained in Figure 1, in order to visualize the frequency of cross-citations.

Figure 1 shows that six countries are isolated, and two further ones (Denmark and Sweden) are only connected to each other. In the “giant component” (in the terminology of network analysis), countries often have multiple weak links, but there are also a number of links indicating more frequent cross-citations—for example, from Slovakia to the Czech Republic, from Austria and the Netherlands to Germany, from Belgium to France, from Malta to Italy and the United Kingdom, and from Ireland and Cyprus to the United Kingdom (in bold in Figure 1). This figure also shows which countries are more and less well connected—for instance, Croatia and Lithuania are at the

15. See “Cross-Citations between Supreme Courts in Europe,” <http://cross-citations.blogspot.com/>.

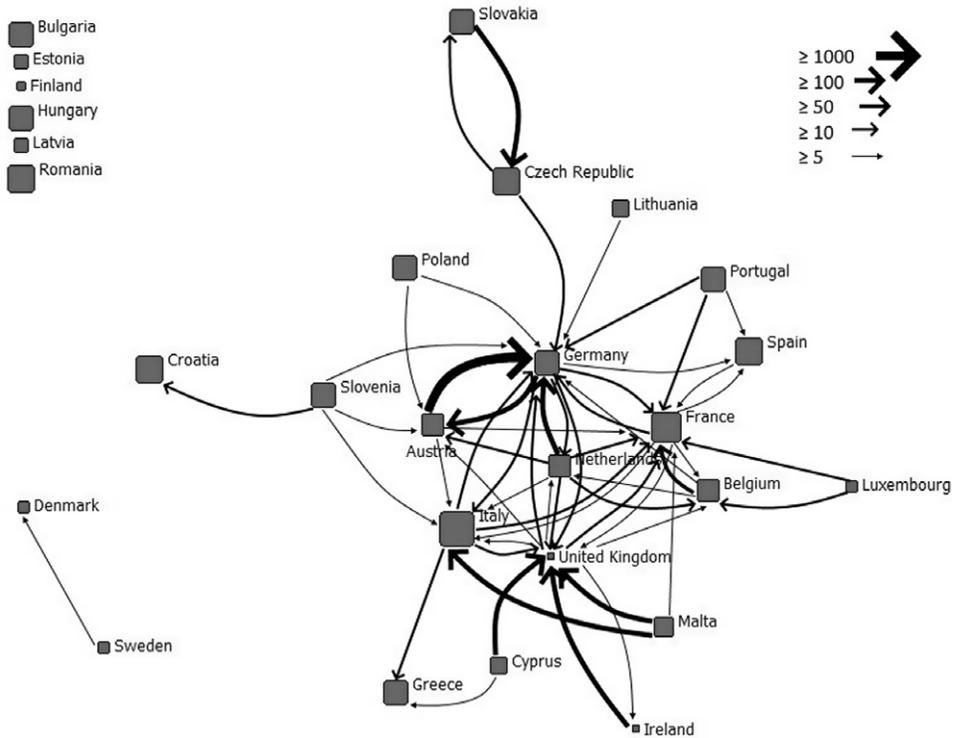
16. Thus, this form of network analysis is different from studies that treat each individual decision of the same court as a “node” and analyzes, for example, the citations between these decisions (for example, Fowler et al. 2007; Šadl and Olsen 2017; Van Kuppevelt, van Dijck, and Schaper 2020).

17. “UCINET Software,” <https://sites.google.com/site/ucinetsoftware/home>.

TABLE 2.

Matrix of cross-citations between supreme courts (vertical axis: citing courts; horizontal axis: cited courts)

	AT	BE	BG	HR	CY	CZ	DK	EE	FI	FR	DE	EL	HU	IE	IT	LV	LT	LU	MT	NL	PL	PT	RO	SK	SI	ES	SE	UK	
AT		0	0	0	0	0	0	0	0	7	1038	0	0	1	9	0	0	1	0	3	0	0	0	0	0	0	0	0	3
BE	0		0	0	0	0	1	0	0	70	5	0	0	0	1	0	0	0	0	10	0	0	0	0	0	0	0	0	1
BG	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HR	1	0	0		0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CY	0	0	0	0		0	0	0	0	0	0	5	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	220
CZ	3	0	0	0	0		0	0	0	1	11	0	0	0	1	0	0	0	0	2	1	0	0	37	0	0	0	0	0
DK	0	0	0	0	0	0		0	1	2	3	0	0	0	1	0	0	0	0	3	0	0	0	0	0	0	0	3	1
EE	1	0	0	0	0	0	0		0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FI	0	1	0	0	0	0	0	0		1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FR	1	7	2	0	0	0	0	0	0		11	2	0	4	5	0	0	0	0	1	2	1	0	0	0	0	6	0	6
DE	103	1	0	0	0	0	0	0	0	10		0	1	1	11	0	0	0	0	8	0	0	0	0	0	0	6	2	19
EL	0	0	0	0	0	0	0	0	0	1	4		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HU	1	0	0	0	0	0	0	0	0	0	1	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IE	0	1	0	0	0	0	0	0	0	0	0	0	0		0	0	1	0	0	0	0	0	0	0	0	0	0	0	192
IT	1	0	0	0	0	0	0	0	0	37	17	10	0	0		0	0	0	0	0	0	0	0	0	0	0	1	0	19
LV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0
LT	0	0	0	0	0	0	0	0	0	1	5	0	0	0	0	0		0	0	3	0	0	0	0	0	0	2	0	0
LU	0	12	0	0	0	0	0	0	0	45	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
MT	4	1	2	0	0	0	0	0	0	5	1	1	0	0	141	0	0	0		1	0	0	0	0	0	0	0	0	143
NL	13	31	0	0	0	1	2	0	0	21	114	2	1	1	6	0	0	2	0		0	0	0	0	0	1	2	4	20
PL	7	0	0	0	0	0	0	0	0	2	10	2	0	0	1	0	0	0	0	1		0	0	1	0	0	0	0	1
PT	0	0	0	0	0	0	0	0	0	15	13	0	0	0	3	0	0	0	0	1	0		0	0	0	8	0	0	2
RO	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	2
SK	1	0	0	0	0	204	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0
SI	8	0	0	35	0	0	0	0	0	1	9	0	0	0	8	0	0	0	0	1	0	0	0	0		0	0	0	1
ES	1	0	0	0	0	0	0	0	0	5	3	0	0	0	4	0	0	0	0	0	0	0	0	0	0		0	1	2
SE	1	0	0	0	0	0	8	0	0	1	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0		0	2
UK	4	5	0	2	0	0	1	0	1	10	10	1	0	6	6	0	1	0	0	7	1	1	0	0	0	1	0	0	0



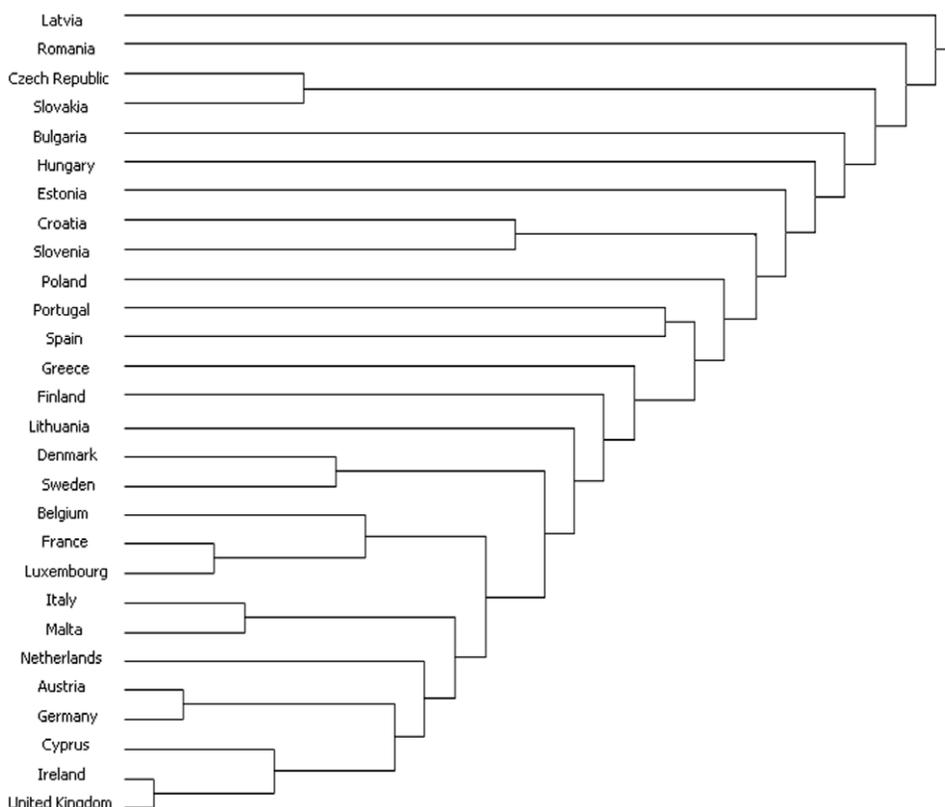
**Figure 1.**  
Networks of cross-citations between supreme courts.

periphery, while Germany, the Netherlands, and the United Kingdom are at the center as they are well connected through outgoing and/or incoming citations.

A companion paper of the underlying project coded a sample of these judgments containing cross-citations based on various criteria (de Witte et al. *forthcoming*). These findings identify the most frequently represented areas of law in these judgments, finding that these areas are core civil law and civil procedure for most countries, while it is human rights law in the United Kingdom (mainly citing the French and German courts). In further analysis, this companion paper also identifies the judgments that explicitly refer to provisions of EU law: here, topics of conflicts of laws and intellectual property law are the most frequent ones, which are explainable by the extensive harmonization measures in these fields.

Further visualization of the data is shown in the dendrogram in *Figure 2*. It uses hierarchical clustering based on the relative citations per all decisions of a particular court (thus, for example, Ireland and the United Kingdom are closer than Austria and Germany).<sup>18</sup> Moving from the left to the right, the clusters gain in members as the requirement to be part of a cluster becomes less strict. It confirms that some of the close pairs are the same as shown in *Figure 1*—notably, between the Czech

18. For the technical definition applied by UCINET, see “UCINET Software,” <http://www.analytictech.com/ucinet/help/3j.x0e.htm>.



**Figure 2.**  
Hierarchical cluster of cross-citations between supreme courts.

Republic and Slovakia, Croatia and Slovenia, Denmark and Sweden, France and Luxembourg, Italy and Malta, Austria and Germany, and Ireland and the United Kingdom. It can also be seen that other countries that are also close in the network join the clusters in the next step—for instance, this can be seen for Belgium, France, and Luxembourg, on the one hand, and for Cyprus, Ireland, and the United Kingdom, on the other.

## INFERENCE STATISTICS: WHAT EXPLAINS THE CROSS-CITATION NETWORK?

### Explanatory Variables

The dependent variable in this article is the cross-citation network between the courts of the twenty-eight EU member states, as displayed in [Figure 1](#). This has two implications for the explanatory variables used in this article: first, as the observations refer to the countries of this study, the explanatory variables also code information that relates to these countries. Thus, it is not the aim of this article to analyze why a cross-citation may occur in a specific judgment—for example, how much the identity

of a specific judge may make a difference, whether he or she has studied or worked in another country, or whether he or she is a member of an international network of judges (see, for example, Lazega 2012; Piana and Guarnieri 2012).

Second, as the cross-citation network displays relational data, the explanatory variables are also defined in a way that they always relate to a particular country pair (that is, they also form matrices).<sup>19</sup> For some of the explanatory variables, this means that they are dummy variables that code as “1” if two countries belong to the same group (the same legal family, the Eurozone, and so on) (see Table 3). In other instances, the variables are based on more complex calculations such as the joint years of EU membership and the difference between countries under a measure of cultural similarity. Finally, two of the variables use the ratio between data points—namely, the ratio between country pairs in terms of GDP per capita and population.

These explanatory variables reflect the two categories discussed earlier in this paper, namely whether similarities and differences in cross-citation patterns are mainly due to legal or nonlegal factors.

Two of the legal variables consider whether there are more intra-group citations within the same legal family/origin than across legal families/origins. European legal systems are typically divided into “common law” and “civil law” jurisdictions, and, frequently, a further distinction is drawn between French, German, and Scandinavian civil law (see, for example, Zweigert and Kötz 1998; Kischel 2019). As already mentioned, this latter distinction has been adopted by financial economists, and it has sparked a voluminous literature on the possible economic consequences of countries’ legal origins during the past twenty-five years (for references, see the previous review of literature). Specifically, the variable on “common-civil law” uses a simple distinction between the two main categories. For this purpose, the United Kingdom, Ireland, Cyprus, and Malta are classified as predominantly “common law,” while all other countries are classified as “civil law.” Potentially contentious is the classification of Maltese law as it also has a strong civil law influence (notably, a Civil Code similar to its French counterpart).<sup>20</sup> Yet it is hypothesized that Malta’s more recent status as a British Crown colony (from 1813 to 1964) had a dominant influence, following the advice that “if you want to understand why a country has a particular legal system, look at the nationality of the last soldier who departed its shores” (Feeley 1997, 94).<sup>21</sup> The “legal origin” variable used by financial economists also classifies these four countries as belonging to the common law (or, in their terminology, “English legal origin”), yet it then distinguishes between different types of “civil law,” which seems to be more precise than the legal family variable (see Table 3). However, this classification has been challenged by legal scholars due to the lack of a sound basis for classifying specific countries (for example, Siems 2007; Garoupa and Pargendler 2014).

19. As also implemented in UCINET, see “UCINET Software,” <http://www.analytictech.com/ucinet/help/1rds4u.htm>.

20. For further discussion of Maltese law, see Donlan, Andò, and Zammit 2012. Elements of civil law can also be found in Cyprus and the United Kingdom (through Scottish law), yet both clearly remain predominantly countries with a common law legal system.

21. As a robustness check, Malta was coded as having the difference of 0.5 from both common and civil law countries, yet the result that “common-civil law” is insignificant (see subsequent regression analysis) remained unchanged.

**TABLE 3.**  
Description of explanatory variables

Variable	Description	Source <sup>a</sup>
<b>Legal topics</b>		
Common civil law	Dummy variable of country pair that both belong to the common law (UK, IE, MT, CY) or the civil law (other countries)	Own coding
Legal origin	Dummy variable of country pair that both have the same legal origin (English, French, German or Nordic legal origin)	La Porta et al. 2008 <sup>b</sup>
Colony	Dummy variable showing if citing country has been a “colony” of cited country	CEPII <sup>c</sup>
EU membership	Years of joint EU (EEC/EC) membership of each country pair	Own coding
Eurozone	Dummy variable if both countries were founding members of the Eurozone	Own coding
Former Comecon	Dummy variable if both countries belonged to the Comecon	Own coding
<b>Nonlegal topics</b>		
Native language	Dummy variable of country pair that share the same official language (or one of the official languages—for example, for Belgium)	Own coding
Language skills	Percentage of the population of citing country that speaks the language of cited country	Eurobarometer 2012 <sup>d</sup>
Cultural difference	Cumulative difference between citing and cited countries’ values on the Hofstede index	Hofstede (2010) <sup>e</sup>
Feel European	Difference between country pair to the answer of whether their populations “feel European”	Eurobarometer, 2009 <sup>f</sup>
GDP per capita	Ratio between GDP per capita of cited and citing country	World Bank, 2010 <sup>g</sup>
Population	Ratio between population of cited and citing country	Eurostat, 2008 <sup>h</sup>

*Notes:*

<sup>a</sup>As far as possible, a point in time in the middle of the data (that is, circa 2008 to 2010) was used.

<sup>b</sup>With data available at [http://faculty.tuck.dartmouth.edu/images/uploads/faculty/rafael-laporta/EconomicCon\\_data.xls](http://faculty.tuck.dartmouth.edu/images/uploads/faculty/rafael-laporta/EconomicCon_data.xls). Note that, in contrast to previous versions of their legal origin classification, La Porta et al. (2008) now classify all Central and Eastern European countries as French or German legal origin (not “socialist legal origin”). See also the map at “Legal Origins,” VOX EU, <https://voxeu.org/article/legal-origins>.

<sup>c</sup>“Databases and Models,” *Centre d’études prospectives et d’informations internationales (CEPII)*, [http://www.cepii.fr/CEPII/en/bdd\\_modele/bdd\\_modele.asp](http://www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp) (category “GeoDist”).

<sup>d</sup>“Eurobarometer,” *European Union*, <https://europa.eu/eurobarometer/surveys/detail/1049> (question SD5b.1 about reading skills). For Croatia, which was not included in this Eurobarometer, the website “Europeans and Their Languages,” <https://europa.eu/eurobarometer/surveys/detail/1562> was used. For Belgium, the higher value of either French or Dutch was used given that judgments are published in both languages.

<sup>e</sup>“Dimension Data Matrix,” *Geert Hofstede*, <https://geerthofstede.com/research-and-vsm/dimension-data-matrix/> (note that for Cyprus only the category “indulgence versus restraint” was available).

<sup>f</sup>“Standard Eurobarometer 71, Spring 2009,” *European Union*, <https://europa.eu/eurobarometer/surveys/detail/829>.

<sup>g</sup>“GDP per capita,” *World Bank*, <https://data.worldbank.org/indicator/NY.GDP.PCAP.KD>.

<sup>h</sup>“Demography, Population Stock & Balance,” *Eurostat*, <https://ec.europa.eu/eurostat/web/population-demography/demography-population-stock-balance>.

It can be (and has been) argued that the notions of broad legal families and legal origins have lost relevance in today's interconnected world (Siems 2022, 92–108). Thus, the following analysis also uses four variables that show more specific legal similarities of particular country pairs and may thus explain the frequency of cross-citations. First, the variable “colony” reflects that, in countries that used to be part of another country, “legal transplants” are said to play a strong and persistent role (Watson 1993). Second, the process of EU harmonization may be another factor that explains stronger legal similarities—namely, whether it matters that in EU member states a large proportion of today's laws is due to the impact of EU law.<sup>22</sup> Thus, the variable “EU membership” codes information on the time of joint EU membership of each country pair,<sup>23</sup> testing the hypothesis that this joint membership may have also stimulated cross-citations between their courts. Third, it could matter more specifically whether countries initially joined the EU's Economic and Monetary Union. Again, this is based on the additional common rules that these countries need to follow, and there is also more informal cooperation between these countries on further legal topics through their membership in the “Eurogroup.”<sup>24</sup> Thus, this variable tests whether it matters that, in a particular country pair, both countries have been founding members of the Eurozone.<sup>25</sup> Finally, the fourth variable of this group codes whether countries were members of the Comecon—that is, the organization of the communist Eastern Bloc until 1991.<sup>26</sup> This variable thus reflects claims of the survival of the “Socialist legal tradition” in these countries (for example, applying a strictly formalist approach to law) (see, for example, Kühn 2011; Maňko 2013).

The “nonlegal factors” start with two variables on languages given that legal ideas from abroad are likely to be more accessible if they are expressed in language that the reader can easily understand. The first variable codes whether the native language of the citing and the cited country are the same. The second language variable uses data on language skills and thus measures the percentage of the population of the citing country that speaks the language of the cited court. While judges typically enjoy a higher level of education than the average person, knowledge of languages in general is likely to correlate with that of judges. Moreover, even if judges have special language skills, they may be reluctant to cite a decision written in this language since the acceptability of their legal argumentation depends on being understood by the population of their respective home country (for a discussion of judges and their audiences, see Baum 2006). Of course, this does not imply that common languages or language skills are

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22. For a discussion of the precise percentage of laws impacted by the European Union (EU) law, see House of Commons Library, “How Much Legislation Comes from Europe?,” 13 October 2010, <https://commonslibrary.parliament.uk/research-briefings/rp10-62/>.

23. Including the former European Economic Community (EEC)/European Community (EC) membership. The Treaty of Rome of 1957 created the EEC, which was then transformed into the EC in 1993 and into the EU in 2009.

24. See “How the Eurogroup Works,” *European Council*, <https://www.consilium.europa.eu/en/council-eu/eurogroup/how-the-eurogroup-works/>.

25. Thus, this variable includes the eleven founding members of the Eurozone as it was established in 1999. As a robustness check, the subsequent regressions were also run with all of the current nineteen Eurozone members.

26. Or where the countries that existed previously on the territory were members of Comecon (relevant for the Czech Republic, Slovakia, Latvia, Lithuania, and Estonia).

necessarily relevant given that judges may be able to make use of translated judgments or else simply rely on precedents cited by the lawyers of the trial. But, then, it is also conceivable that these language variables function as proxies for cultural affinity. Thus, it is worth revisiting the results of previous research (discussed at the beginning of this article) that found such language variables to be a key determinant for cross-citations.

The two subsequent variables concern further similarities between countries that may play a role as far as judicial decision-making reflects the cultural context of a country. The variable on “cultural difference” measures the cultural distance between two countries following the Hofstede cultural value study, averaging the absolute values of its cultural dimensions. While the Hofstede index is based on general surveys, the variable “Feel European” uses a specific European survey on the issue whether citizens perceive themselves as mainly being nationals of their own countries or also European. In the debate about the possibility of a “European legal culture,” it has been suggested that the EU needs to form a denser community of shared interests by persuading citizens of the “European project” (Collins 2008, 18). Thus, it is plausible to test whether the cultural affinity of a similar attitude toward the EU is also reflected in the cross-citation network.

The final two variables are relative in the sense that it may be expected that the wealth of a country and a large population may support a supreme court’s authority. In regard to the variable on the ratio in GDP per capita between two countries, a further possible explanation is that richer countries have better law-making institutions and are therefore more attractive for other legal systems. The ratio in population between two countries may matter since, in larger countries, new legal questions are more likely to reach the highest courts earlier than elsewhere. In some of the country pairs included in this study—for example, Austria and Germany, Ireland and the United Kingdom—anecdotal evidence suggests that lawyers of the smaller country follow legal developments in the larger country quite closely, while those from the larger country are less interested in the developments in the smaller country. Of course, there can also be other factors that play a role—for example, courts of countries with a high GDP per capita and a large population may have better resources to provide research on foreign law. Thus, the following discussion tests whether there is such an effect, be it a positive or a negative one.

Tables 4 and 5 present the summary statistics and correlation matrix of the explanatory variables. It is interesting to note that, while it may be expected that some of the variables are strongly correlated (for example, legal families and native languages), all of the correlations are weak or moderate. The highest correlation is between the variables on “native language” and “language skills” (0.577), yet, here too, it is below the threshold that would indicate a problem of multicollinearity.<sup>27</sup>

## Econometric Method

Network analysis has become increasingly popular in the social sciences in recent years (see, for example, Borgatti, Everett, and Johnson 2013; Barabási 2016; Knoke and

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27. See the review in Dormann et al. 2013, 33 ( $r < 0.7$  most commonly applied).

TABLE 4.

Summary statistics of explanatory variables (as for country pairs;  $n = 756$ )

Variable	Mean	Median	Minimum	Maximum	Standard deviation
Common-civil law	0.746	1	0	1	0.436
Legal origin	0.317	0	0	1	0.466
Colony	0.016	0	0	1	0.125
EU membership	20.214	15	6	67	13.405
Eurozone	0.276	0	0	1	0.448
Former Comecon	0.095	0	0	1	0.294
Native language	0.022	0	0	1	0.146
Language skills	0.055	0	0	1	0.151
Cultural difference	23.927	23.064	0.223	56.920	9.875
Feel European	0.118	0.090	0	0.420	0.095
GDP per capita	1.533	1	0.066	15.147	1.592
Population	6.467	1	0.005	199.555	19.015

Yang 2021). For regression analysis, however, network data present a particular challenge. Statistical methods usually require that observations are independent of each other. This poses a well-known problem for time series analysis, but it also applies to network-based interdependence. The following uses a multiple regression quadratic assignment procedure (MR-QAP) in order to address this issue. This non-parametric procedure relies “on a comparison of the observed matrices with permutations of random matrices,” with p-values estimating the “probability that the correlation coefficients could have been calculated by chance among the permuted random matrices” (Baird 2017, 43). In the initial use of this approach, it was found that there was still the risk of statistical bias. Today, this problem is commonly addressed by applying the double-semi-partialling approach developed by David Dekker, David Krackhardt, and Tom Snijders (2007) (also called “Double Dekker Semi-Partialling”), which has therefore been identified as the “state of art” of this method (Cranmer et al. 2017, 238).

While the literature also discusses other econometric methods that can address the interdependencies of network data (for reviews of these methods, see Broekel et al. 2014; Cranmer et al. 2017), MR-QAP is preferred here. At a general level, it has the advantage that its standardized coefficients can be “interpreted like those in conventional multiple regression models” (Koster 2011, 401)—that is, it is as easy to interpret as other forms of regression analysis (Cranmer et al. 2017, 249). Specifically, it is relevant here that MR-QAP is more parsimonious—that is, fewer parameters are needed than for the other methods (Cranmer et al. 2017, 240), given that cross-citations mainly concern a relatively small number of country pairs. Practically speaking, it is a further advantage that MR-QAP has been implemented in network analysis software. The following will thus be based on the Double Dekker Semi-Partialling MR-QAP algorithm, as implemented in UCINET (using two thousand random permutation and two-tailed p-values).<sup>28</sup>

28. For a description of the corresponding UCINET command, see Borgatti, Everett, and Johnson 2013, 132–33.

**TABLE 5.**  
**Correlation matrix of explanatory variables**

	Common-civil law	Legal origin	Colony	EU membership	Eurozone	Former Comecon	Native language	Language skills	Cultural difference	Feel European	GDP per capita	Population
Common-civil law	1	0.293	0.050	-0.021	0.041	0.189	0.048	-0.116	-0.166	-0.237	0.059	-0.138
Legal origin	0.293	1	0.118	0.059	0.023	0.476	0.184	0.097	-0.259	-0.102	-0.098	0.026
Colony	0.050	0.118	1	0.016	-0.031	-0.005	0.124	0.194	-0.051	-0.020	0.022	0.129
EU membership	-0.021	0.059	0.016	1	0.45	-0.157	0.249	0.393	-0.119	0.08	-0.131	0.075
Eurozone	0.041	0.023	-0.031	0.45	1	-0.201	0.086	0.121	-0.127	-0.168	-0.255	-0.059
Former Comecon	0.189	0.476	-0.005	-0.157	-0.201	1	0.012	-0.087	-0.091	-0.003	-0.087	-0.058
Native language	0.048	0.184	0.124	0.249	0.086	0.012	1	0.577	-0.140	-0.022	-0.039	0.045
Language skills	-0.116	0.097	0.194	0.393	0.121	-0.087	0.577	1	-0.112	0.070	0.015	0.185
Cultural difference	-0.166	-0.259	-0.051	-0.119	-0.127	-0.091	-0.140	-0.112	1	0.051	0.093	-0.097
Feel European	-0.237	-0.102	0.020	0.08	-0.168	-0.003	-0.022	0.070	0.051	1	0.034	0.018
GDP per capita	0.059	-0.098	0.022	-0.131	-0.255	-0.087	-0.039	0.015	0.093	0.034	1	-0.022
Population	-0.138	0.026	0.129	0.075	-0.059	-0.058	0.045	0.185	-0.097	0.018	-0.022	1

Notes: As these data are matrices, this table reports QAP correlations. For the corresponding UCINET command, see “UCINET Software,” <http://www.analytictech.com/ucinet/help/1q0rkw5.htm>.

Some prior empirical legal research has also used the MR-QAP method (Paik, Southworth, and Heinz 2007; Peoples and Sutton 2015; Gallelli 2016). However, this is the first article that applies it to data on cross-citations. The results of the subsequent regression analysis are based on cross-sectional data on citations between the twenty-eight courts, and, thus, their possible interpretation as showing causal relationships needs to be treated with caution. However, it should also be noted that none of the explanatory variables are affected by the dependent variable (that is, the frequency of cross-citations); thus, in the current case, there is no problem of reverse causality.

## Results and Interpretation

The baseline model of the MR-QAP regression analysis uses the data of the cross-citation network (as displayed in Figure 1), scaled by the total decisions of the citing courts (see Table 1). However, there is the risk that outliers—that is, the few instances of high proportions of citations in a particular country pair—may drive the results. For example, the proportion of decisions of the Irish court that cite the UK court is 28.0 percent, which is followed by considerably lower numbers (5.8 percent from Austria to Germany; 2.9 percent from Cyprus to the United Kingdom; 2.4 percent from Luxembourg to France; and so on), with many country pairs having values below 1 percent. Table 6 therefore also reports two winsorized versions of the data—namely, with 95 percent and 90 percent winsorization. Across the three models, the goodness of fit ( $R^2$ ) improves from 0.207 to 0.305 and then to 0.338. By contrast, a further winsorization of 80 percent leads to a drop of the goodness of fit ( $R^2$ ) to 0.291; thus, these results are not reproduced here.

The main results are consistent in the three models. The variables that are significant and positive in all or most of the models are “colony,” “native language,” “language skills,” and “Feel European.” The variables “EU membership,” “Eurozone,” and “Population” are significant in some of the models, while “common-civil law,” “legal origin,” “former Comecon,” “cultural difference,” and “GDP per capita” are not significant in any of the models. Finally, comparing the standardized coefficients, it can be seen that “native language” and “language skills” are the explanatory variables with the strongest effect (*ceteris paribus*) followed by “colony.” In the interpretation of these results, first, the non-significance of “common-civil law” and “legal origin” could be regarded as surprising. It has also been checked whether these two variables would be significant without the other one; yet, here too, the results are insignificant. Referring to the table of correlations (Table 2), it is also not the case that some of the other variables (for example, on languages) are strongly correlated with these variables. Thus, it can be concluded that, at least in Europe, it is not simply the case that courts mutually cite each other’s case law because they belong to the same legal family or legal origin (for a possible non-mutual relationship see the next paragraph). As a note of caution, it should be noted, however, that the absence of significance is not evidence of absence; in other words, this finding does not imply that there may not be specific instances in which a court prefers to cite a court from the same legal family.

The strong significance of the variable “colony” raises the question which countries may drive these results. Based on the CEPII data (see Table 3), twelve relationships fall

**TABLE 6.**  
**MR-QAP regression results for determinants of cross-citations (data for twenty-eight courts, scaled by the total decisions of the citing courts), showing standardized coefficients and p-values**

	Model (1)	Model (2) (95% winsorized)	Model (3) (90% winsorized)
Common-civil law	0.031 (0.376)	-0.023 (0.569)	-0.047 (0.345)
Legal origin	-0.011 (0.771)	-0.014 (0.731)	-0.013 (0.713)
Colony	0.260*** (0.007)	0.131*** (0.002)	0.082** (0.023)
EU membership	-0.006 (0.863)	0.121** (0.013)	0.167*** (0.002)
Eurozone	-0.049 (0.252)	-0.103* (0.065)	-0.125** (0.035)
Former Comecon	-0.025 (0.412)	-0.022 (0.596)	-0.031 (0.476)
Native language	0.203*** (0.008)	0.245*** (0.001)	0.310*** (0.001)
Language skills	0.162** (0.013)	0.196*** (0.001)	0.191*** (0.002)
Cultural difference	-0.022 (0.500)	-0.040 (0.257)	-0.031 (0.372)
Feel European	0.064** (0.044)	0.108** (0.026)	0.086* (0.065)
GDP per capita	-0.046 (0.176)	-0.065 (0.201)	-0.084 (0.141)
Population	-0.004 (0.870)	0.145** (0.013)	0.084* (0.087)
R <sup>2</sup>	0.207	0.305	0.338
Observations	756	756	756

Note: \*\*\*, \*\* and \* denote significance at the 1, 5, and 10 percent levels.

under this variable.<sup>29</sup> While it may sometimes not be clear how exactly “colony” is defined, it was decided not to modify this variable as the CEPII data are well established and supported by other research (Rose 2004; Head, Mayer, and Ries 2010). Specifically, among these relationships, the citations from Cyprus, Ireland, and Malta to the United Kingdom mainly drive the significance of this variable. This may be seen as overlapping with the belonging to the same legal family, yet “colony” captures this specific link better as it only expects citations from these three countries to the United Kingdom (and, thus, it can account for the lack of many citations from the United Kingdom to Cyprus, Ireland, and Malta).

29. These are Croatia, the Czech Republic, and Slovenia to Austria; Poland to Germany; Cyprus to Greece; Slovakia to Hungary; Luxembourg to the Netherlands; Estonia and Finland to Sweden; Cyprus, Ireland, and Malta to the United Kingdom.

The variable on the similarities in terms of “EU membership” is also significant with a positive sign in two of the models. This may therefore capture the legal harmonization process, while it is also possible that it reflects other similarities of countries that have joined the EU (EEC/EC) in its early phases. While the variable “Eurozone” is also (weakly) significant in two of the models, the sign is negative in this case. Apparently, this is due to the fact that many of the cross-citations concern country pairs outside this group—notably, the citations from and to the United Kingdom by other countries. It may also point toward a normative deficit—namely, that the Eurozone countries are fairly diverse not only in terms of their economic policies (as was apparent in the European debt crisis of 2009) but also in their lack of enhanced cooperation in the judicial sphere.

With respect to the variable concerning countries of the former Comecon, the lack of significant results may also have some plausibility. It has been argued that, in regard to legal reform and legal thought, “the neighbouring eastern peripheries never communicate horizontally with each other, but always vertically with the center, to which they constantly aspire” (Giara 2011, 23). With few exceptions (notably, the specific relationship between the Czech Republic and Slovakia), this is indeed the case here as courts from former Comecon countries have a preference to cite, for instance, the German supreme court rather than the supreme courts of other former Comecon countries.

The next two variables on “native language” and “language skills” are significant in all models with a high effect compared to the other variables. It is indeed plausible that both of these variables play a role at the same time. While knowing a particular foreign language means that a judge can understand a foreign judgment, it is still easier to understand a judgment published in one’s native language. It is also likely that the relevance of languages is a reflection of cultural affinity. With respect to countries that share the same native language, there is often a general exchange of ideas as the population of one country is familiar with books, newspapers, television programs, and so on from the other one. With respect to language skills, it leads us to the follow-up question why the population of a particular country has certain language skills. For example, the frequency of citations of the German court by courts from some of the Central and Eastern European (CEE) countries may be due to the fact that, in some of these countries, there is a relatively high proportion of the population that reads German. Yet, as these good German language skills may be a reflection of other cultural ties between Germany and the CEE countries, it is also possible that language skills matter because they function as a proxy for cultural affinity.

By contrast, the variable on “cultural difference,” based on the Hofstede data, is not significant in any of the models. Possibly, this is due to the fact that, in today’s Europe, there has been a convergence of such broad cultural values (Akaliyski 2019; see also Kaasa and Minkov 2020). Yet it is also interesting that the more specific variable on “Feel European” is (weakly) significant with the expected sign. The country with the lowest value in this survey is the United Kingdom, and Ireland and Cyprus also have relatively low values (as does Greece). Regarding country pairs with a relatively high number of cross-citations, Sweden and Denmark have similar values, but Germany has a slightly higher value than Austria, and Slovakia has a slightly higher value than the Czech Republic. As with the category of language skills, it may also

be the case that the responses to this question are a more general reflection of cultural affinity and thus explain its significance.

Concerning the final two variables, the ratio of “GDP per capita” is insignificant as some countries with high GDP per capita are rarely cited (for example, Luxembourg, Sweden, Denmark, and Finland). With respect to the ratio of “population,” there is some evidence that larger countries are more frequently cited by smaller countries than is the case the other way around. This latter finding can also be seen in the central position of some of the populous member states in the network (Germany, France, and the United Kingdom) (see [Figure 1](#)), yet the fact that other countries with large populations (Italy, Spain, Poland) are rarely cited also shows the limited role of this variable.

Overall, it is mainly the nonlegal factors that determine the frequency of cross-citations—in particular, the linguistic-cultural variables such as “native language,” “language skills,” and “Feel European.” The main legal variables on legal families (or legal origins) were not found to be significant. In regard to the significance of “colony” and “EU membership,” it is also possible that these variables capture nonlegal factors. Thus, while legal factors are bound to be relevant for a particular citation in a particular case, this article finds that the frequency of cross-citations between country pairs is often a reflection of nonlegal factors.

## CONCLUSION

Lawrence Friedman (1969, 42) described the twentieth century as “an age of cross-cultural influence, of wholesale diffusion of laws and borrowing of legal institutions.” Yet it may not be clear how far, in the twenty-first century, domestic courts are already in the position to take part in this growing interconnectedness between legal systems. This article has presented original data that form a network of 2,967 citations between twenty-eight supreme courts in Europe. In a further visualization of the data, it has displayed a dendrogram of hierarchical clustering, showing close links between certain country pairs. Subsequently, it has used the method of a MR-QAP in order to understand what explains this cross-citation network (that is, the 756 observations represented in this network). This is the first article that uses MR-QAP for the analysis of citations between courts in order to address the dependency of observations in a network.

The main finding is that nonlegal factors play a decisive role (notably, the language variables). This challenges the view that law is a largely autonomous subsection of society and that judicial behavior is mostly independent of the sociocultural context of a particular country. It also shows that the role of the nonlegal context is crucial in order to understand variations in cross-citations. In particular, this article has found that both the variables on a common native language and overlapping language skills matter while also suggesting that these variables can be interpreted as proxies for general cultural affinity. It is also worth restating the context of this article—namely, private law supreme courts in Europe. On the one hand, the common-civil law divide originates from European legal systems, particularly in the field of private law. Thus, it is striking that, as such, legal families were not shown to be significant. On the other hand, the external validity of this article’s findings is likely to be influenced by the fact that European private law harmonization has been successful in tempering the common-civil

law divide. By contrast, it is likely to be more difficult to address the continuing role of linguistic differences between European countries.

Finally, the scope of the article is delimited by the use of countries as units of analysis. Thus, to borrow a distinction from economics, this research has provided an analysis at the “macro-level,” while future research could explore the “micro-level” of cross-citations in further detail. Some of this research has been provided in another paper of this project (de Witte et al. 2022). Moreover, this project’s website will publish the list of all of the cross-citations between the twenty-eight courts, and, thus, other researchers will be able to not only validate the findings of this article but also conduct further research on the judicial cross-citations identified in this project.

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