Uncertainty and Legal Disintegration: Evidence from Brexit

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The enforcement of EU rules and regulations rests on a decentralized system in which national courts act as gatekeepers and compliance partners of the ECJ. Unlike in hierarchical, centralized judiciaries, the ECJ cannot step in to restore compliance by reversing the decisions of reticent national courts. The pure team character of the EU legal order makes it, we argue, highly vulnerable to uncertainty over membership. By undermining the institutional expectations of national courts, uncertainty can precipitate disintegration, even if the country formally remains in the EU. We test this hypothesis by exploiting the Brexit referendum as a quasi-experiment. Using a difference-in-difference design, we find strong evidence that the Brexit vote is adversely affecting the use of EU law. UK judges are referring 22 per cent fewer references after the vote than did prior to it. With the future relationship between the EU and the UK still in limbo, our analysis suggests that the uncertainty arising from the political process has already begun to unravel the fabric of legal integration.

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1 Introduction

The depth of international regimes is said to rest on their ability to engage infra-state actors. Domestic courts are viewed as a crucial parameter of the effectiveness of international regimes and as a key constituency of supranational rulemakers. Indeed, without support from domestic judicial agents, there seems to be little prospect of supranational rules and regulations effectively penetrating domestic legal orders.

Judicial actors, under the leadership of the European Court of Justice (ECJ), have played a major part in making the European Union (EU) the most far-reaching experiment in supranational governance in modern times. Teaming up with national courts, the ECJ has articulated standards and doctrines that have helped EU rules and regulations penetrate the day-to-day operations of national legal systems. As the remit of EU law has expanded to new domains, this judicial dynamic has come to affect an increasingly larger set of economic and social activities, from taxation to food labelling, immigration and social benefits. Its role in furthering legal integration has also made the ECJ the target of Eurosceptic rhetoric. Ending the ECJ's grip over UK laws featured as a prominent theme in the campaign leading up to the 2016 referendum on British membership of the EU (Brexit):

> It is very worrying that the European Court of Justice – Luxembourg, not Strasbourg – should now be freely adjudicating on human rights questions, and whether or not this country has the right to deport people the Home Office believes are a threat to our security; [...] There are plenty of other parts of the world where the free market and competition has been driving down the cost of mobile roaming charges and cut-price airline tickets – without the need for a vast supranational

bureaucracy enforced by a supranational court. (Boris Johnson, 2 May 2016.)

The EU has a long-track record of shifting the goal-posts. Britain thinks it has signed up for one thing, only to find something very different imposed on us. In 40 years, we've lost three-quarters of cases at the Luxembourg Court, when we've tried to resist these incursions. [...] They affect everything from the price of beer to the cost of home insulation, and undermine basic principle of our democracy - that the British people can hold to account those who write the laws of the land. (Justice Minister Dominic Raab, 2 March 2016.)

Rising Euroscepticism, of which the outcome of the Brexit referendum is perceived to be a direct expression, has raised serious questions about the future of the European experiment in supranational governance. In the EU and international relations literature, this existential crisis has spurred efforts to try and theorize disintegration dynamics, a topic hitherto neglected (Fabbrini, 2017; Jones, 2012; Vollaard, 2014; Márton, 2018; Webber, 2014; Turk, 2010; Zielonka, 2014; Eppler et al., 2016; Jones, 2018; Börzel, 2018). Disintegration can be defined in, at least, two ways. In formal terms, it can be equated with a country's formal withdrawal from a supranational organisation. Under this definition the Brexit referendum is not an instance of disintegration, even though it does significantly raise the probability of formal withdrawal. Alternatively though, disintegration can be defined in less formal terms to capture the process whereby the informal norms and institutionalized practices sustaining the effectiveness of the supranational regime are gradually eroded prior to formal withdrawal or simply amid uncertainty over future membership. The UK may postpone withdrawal or ultimately opt to stay

in the supranational club. But the Brexit crisis may have already started to undermine the institutional foundations of the EU's decentralised judiciary.

In this paper we exploit the uncertainty created by the Brexit referendum to investigate the dynamics of disintegration in the latter sense. We characterise the institutional arrangement underpinning the domestic judicial enforcement of EU rules and regulations as reflecting a decentralized, pure team model of adjudication. National courts act as compliance partners but also as gatekeepers of the formal mechanism that governs the activation and intervention of supranational adjudicators. These characteristics, we argue, make the effectiveness of the EU legal system highly vulnerable to uncertainty. Formal and informal institutions rest on the existence of stable, shared expectations. Uncertainty, by definition, works to undermine these collective beliefs. Yet the absence of a centralised mechanism to restore confidence can further accelerate the process of institutional erosion. In the EU context, uncertainty has the effect of lowering the expected benefit domestic courts associate with cooperation. Yet the ECJ, unlike a supreme court in a hierarchical judiciary, cannot rely on litigants to file appeals when inter-court collaboration starts to break down. Accordingly, we derive the hypothesis that uncertainty over continued membership, when high, will discourage domestic judges from using supranational law. We test it by analysing how the participation of British courts in the preliminary ruling system – the referral mechanism permitting domestic judges to pass on cases to the ECJ – has been impacted by the Brexit vote. Using a difference-in-difference design, we construct a synthetic, untreated UK judiciary to which we compare the real-world referral behaviour of British courts post-referendum. Consistent with our theoretical framework, we find strong evidence that the Brexit vote is adversely affecting the use of EU law. UK courts

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are 22 per cent less likely to refer cases to the ECJ after the referendum than they were prior to it. This result is robust to various methods for the construction of the counterfactual as well as to placebo tests. Our findings suggest that British judges and litigants have already started adjusting to a world where they operate outside the EU legal system. Institutional disintegration, in other words, is occurring in the shadow of formal withdrawal.

The remainder of the paper is organised as follows. Section 2 discusses how various strands of literature in political science, law and economics explain inter-court cooperation. We criticize extent explanations of legal integration in both law and political science for overemphasising conflict and empowerment. While offering a more promising account of inter-court interactions in routine cases, the law and economics literature ignores nonhierarchical court systems such as those that have emerged from international treaty regimes. In our view none of these literatures provides a clear basis to explain how uncertainty may affect the enforcement and effectiveness of supranational law. Section 3 sets out our alternative theoretical argument. While contrasting team and agency models of adjudication, we elaborate on the critical role of expectations in nonhierarchical court systems. We link the notion of institution as shared beliefs to the theory of judicial motivation underlying team and labour market theories of judging. We contend that our theoretical framework offers an account of compliance partnerships that is more complete than the one provide by conflict and empowerment-centred perspectives and which is, at the same time, able to explain the effect of uncertainty on inter-court relations. Moving on to the empirical part of our analysis, Section 4 presents our data and identification strategy. We use machine learning techniques to establish the variables associated with treatment assignment and construct our propensity scores. Section 5 reports our results. We show that, while our

setup detects an effect for the real-world treatment, it is insensitive to "placebo" treatments. Finally, we conclude with some thoughts for future research on legal disintegration.

2   Judicial Institutions and the Depth of International Regimes

Engagement with infra-state judicial actors and the penetration of domestic legal systems is viewed as essential to the depth of international regimes. Where this engagement is real and effective, as it has been in the European Union since the end of the 1970s, international regimes are deep. Where it is absent or limited, as with supranational regimes in Africa and Latin America (Alter, 1998), international regimes remain shallow. Yet what induces domestic judicial actors to enter compliance partnerships with supranational rulemakers is a question that is still imperfectly understood. The most prominent explanations in political science and legal scholarship have emphasised bureaucratic conflicts and power struggles. In short, domestic courts embrace supranational law as a strategy to evade the control of domestic principals, legislatures (Weiler, 1991) or higher courts (Alter, 1998). However, these accounts constitute a more convincing explanation of cooperation in controversial, constitutional or human rights cases than in routine ones. In our view, conflicts and empowerment incentives are not what drives judicial behaviour in most, everyday instances of inter-court cooperation in advanced international regimes. Of the hundreds of referrals the ECJ receives every year from national courts, we believe that only few are truly motivated by the desire to circumvent domestic judicial hierarchies or to overturn legislative policies.

De-emphasising the role of institutional conflicts, Alec Stone Sweet and Thomas Brunell offered a more promising, albeit undertheorised, explanation of legal integration in the EU

context:

> [W]e believe that the logic of judicial empowerment, as it relates to national judges, has been overemphasized. (We do not claim that this logic does not operate, only that it supplements other forces.) We wish to propose a more banal interpretation of national judicial behavior, one that we suspect may explain better the variance we find in the relationship between the ECJ, on the one hand, and different sets of national judges, on the other. Congruent with our theory, we expect that judges who handle relatively more litigation in which EC law is material (such as disputes that arise out of transnational activity) will be more active consumers of EC law, and of preliminary rulings, than judges who are asked to resolve such disputes less frequently. We assume that national judges strongly prefer to dispose of their cases efficiently, that is, they would like to go home at the end of the day having disposed of more, rather than fewer, work-related problems. (Sweet and Brunell, Sweet and Brunell, 73)

The notion that domestic judges are generally more preoccupied with efficient dispute resolution than with power struggles is, we believe, basically correct. As a theory of inter-court cooperation, however, the intuition is incomplete. What does "efficiency" amount to in the context of adjudication and how does it affect inter-judicial relations? One must turn to the law and economics literature to find a more systematic theoretical articulation of this basic insight. Lewis Kornhauser has developed an analysis of adjudication that emphasises the desire of resource-constrained judges to maximize the number of "correct" case outcomes, whereby "correct" can be understood in terms of a shared policy goal or, equally, in terms of conformity

to legal rules and doctrines (Kornhauser, 1994). Judicial work consists of three main tasks: fact-finding, law-finding and law-creation. These tasks are typically divided among the higher and lower echelons of the judicial hierarchy. Lower courts specialise in fact-finding but rely on the guidance of higher courts for law-finding and law creation. Also, appeals and reversals are viewed as expression of informational asymmetry rather than treated as manifestations of ideological divergence (Kornhauser, 1994; Kastellec, 2016; Kornhauser et al., 1999). Yet while it offers a more convincing account of judicial conduct in routine cases, this conception of adjudication overlooks the specificities of nonhierarchical court systems. Romeu (2006) is a valuable attempt to apply this theoretical framework to the reception of EU law by national courts. But it does not address the limitations that a nonhierarchical referral regime places on the ability of the referral court, in that case the ECJ, to restore cooperation when incentives for collaboration start weakening.

The theoretical framework we set out in the next Section draws on the team perspective but also underlines the design characteristics that make nonhierarchical referral regimes more vulnerable to uncertainty.

3 Uncertainty and Inter-Court Cooperation in Supranational Legal Regimes

Our basic argument is that the institutional arrangement governing the operation of supranational legal regimes make them highly vulnerable to uncertainty. Unlike with national judiciaries, interactions between domestic and supranational courts take place within a nonhierarchical

setting. Domestic courts self select to cooperate, weighting the expected costs and benefits of cooperation. Because the time horizon of dispute resolution is relatively long, informational shocks altering institutional expectations, such as the expectation that the supranational organization will still exist or the country will still be part of it, can have an immediate effect on the perceived benefit of cooperation even if institutional change only occurs in the medium term. This effect is what precipitates legal disintegration in the short run.

3.1 Team and Agency Concerns in the Design of Court Systems

Legal systems are habitually designed in a way that implies both team and agency concerns. The division of labour that underpins most national judiciaries, with lower courts concentrating on fact-finding and appellate courts on law-finding and law creation, is viewed as reflecting a team conception of adjudication (Kornhauser, 1994). But mechanisms such as docket discretion (Cameron, Segal, and Songer, Cameron et al.; Lax, 2003) and the appellate review of factual determinations in civil law jurisdictions (Kornhauser, 1994) seem to owe their existence to the desire to mitigate agency problems. The power of reversal afforded to higher courts, meanwhile, can serve both to tackle agency costs and to facilitate efficient team cooperation (Kastellec, 2016; Kornhauser et al., 1999; Shavell, 1995). Court systems possessing most or all of these institutional attributes thus can be characterised as having a hybrid, agency-team nature.

3.2 Nonhierarchical Referral Regimes as Pure Team Design

Looking at the architecture of supranational legal regimes, we find that these institutional features to be absent. Litigants cannot appeal the decisions of national courts to international

adjudicators. Nor do supranational judges have the power to reverse domestic courts' decisions. What the EU Treaties have put in place is not a hierarchical judiciary but an interlocutory procedure. Specifically, a referral mechanism.[1] It is largely through this procedure that the ECJ has developed EU law. National courts have been submitting references at increasing rates, referring more than 9,000 cases between 1961 and 2017. Yet the language of the provision ("may") indicates that even when EU law is material to the case, the decision to refer a case is a discretionary one for first instance and intermediate courts. Only apex courts are under a duty ("shall") to request a preliminary ruling from the ECJ in such circumstances. The Treaties do not provide for any mechanism to reverse the decision of an apex court failing to uphold its obligation to request a preliminary ruling.[2]

Because domestic judges function as gatekeepers of the procedure, nonhierarchical referral systems are not designed to deal with agency issues when the preferences or expectations of domestic and supranational judges are misaligned. In hierarchical judiciaries, losing litigants, not judges, decide whether or not to file an appeal; they have the strongest incentive to target the decisions they expect the appellate court to reverse. In addition, the resulting litigant selection effect gives lower courts an incentive to anticipate reversal by conforming to the expected position of the appellate court (see Cameron and Kornhauser, 2006). In contrast, expected divergence works as a disincentive to refer cases under a referral regime. Referrals in a nonhierarchical setting presuppose that judges share–or, at least, believe that they share–a common goal. In that sense, nonhierarchical referral regimes do not have a hybrid agency-

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[1]The procedure is spelled out in Article 267 of the Treaty on the Functioning of the European Union.

[2]While infringement proceedings and the ECJ's doctrine of liability developed in *Köbler* could in theory be used to enforce the obligation to request ECJ rulings, their application in practice is extremely rare. As an illustration, the ECJ's decision against France in October 2018 for failure of the Conseil d'Etat to request a preliminary ruling was the first ever case of this kind.

team nature. Rather, their institutional design reflects a pure team model of adjudication (Kornhauser, 1994; Kastellec, 2016).

An examination of the issues referred to the Court of Justice by national courts and referral rates across higher and lower courts reveal patterns consistent with the team model. While some supranational courts – such as the European Court of Human Rights and the International Criminal Court – do engage in fact-finding, referral regimes like the preliminary ruling system in the EU pertain solely to law-finding and law creation. Only questions on points of law are considered by the ECJ. Factual determinations remain the sole responsibility of domestic judges.The team model suggests that in such a regime national courts will cooperate when they expect to benefit from the supranational court's contribution to law-finding and/or law creation. When this is the case, the supranational court's determinations help domestic courts save resources that can then be redirected to other cases. Consistent with the team theory of adjudication, EU referral data shows that courts specializing in law-finding and law creation – i.e. intermediate appellate courts and supreme courts – exhibit a higher referral propensity than courts focusing on fact-finding (Dyevre et al., 2017; Dyevre and Lampach, 2018b). Most UK references have originated in intermediate appellate courts, with the Queen's Bench Division of the High Court of Justice of England and Wales accounting alone for 30 per cent of the total.

In the same way, an inspection of the issues addressed in preliminary references indicate that they rarely relate to controversial constitutional questions. Instead, what dominates the agenda of judicial cooperation are less exciting matters such as VAT exemptions, tariff nomenclatures, corporate taxation, the recognition of foreign judgements and the EU common agricultural policy. Illustrated in Figure 1 is a topic model mapping issue prevalence in the entire set of

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cases passed on to the ECJ by national courts since the accession of the UK in 1973.[3] (The detailed specifications of our topic model are provided in the Appendix A.) These cases and the trajectory of European integration since 1950s suggest that even within a nonhierarchical referral regime institutional incentives can be strong enough to sustain a high level of judicial cooperation.
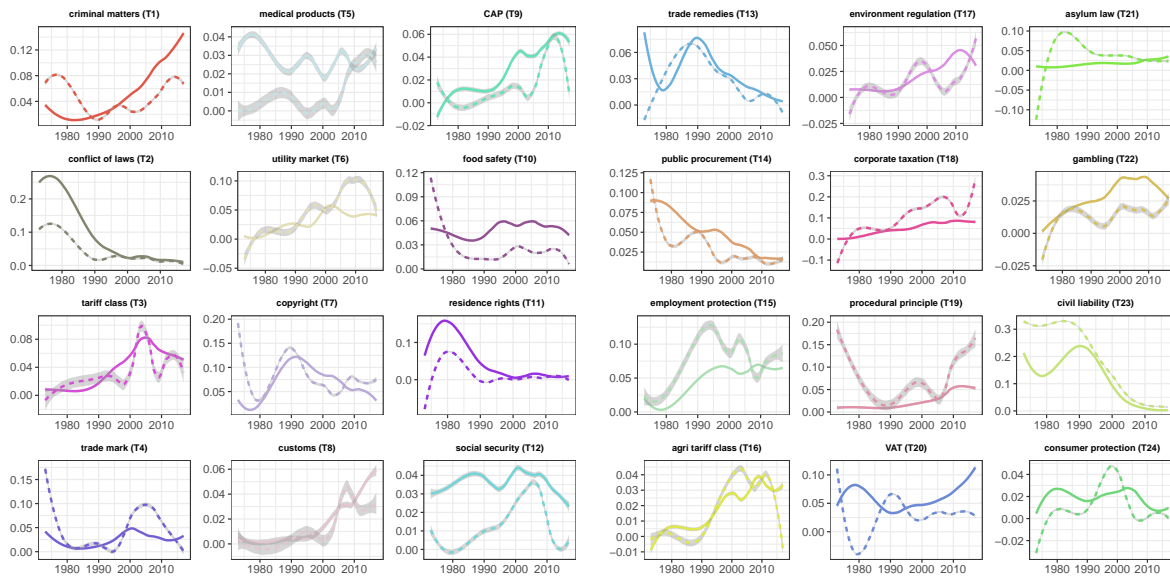

Figure 1: Dynamic topic model of cases referred to the ECJ by national courts between 1973 and 2017

Note. Dashed line indicates topic proportion for UK courts. Solid line shows topic prevalence for the courts of the other EU member states. Grey band denotes 95 per cent confidence interval. The topic model is constructed from the texts of the preliminary rulings, not from the texts of the references.

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[3]Because the text of references is often missing from the online record, we construct our topic model from the texts of the preliminary rulings rather than from the references. However, since the preliminary rulings must address the questions raised in the references, this choice is largely innocuous.

3.3 Institutions and Expectations

Institutions are closely associated with beliefs and expectations. They are sometimes described as "beliefs in equilibrium" (). In any case, it is widely recognised that coordinated expectations are essential to the sustained effectiveness of formal and informal institutions. Changes with regard to beliefs, as much as changes with regard to preferences, can bring about the collapse of hitherto stable institutional arrangements. This holds for judicial institutions as well as for any other institution. The legal order that has developed around the preliminary ruling mechanism since the inception of the integration process rests on a set of coordinated beliefs, which, if altered, can endanger its existence.

From the standpoint of a referring court, collaborating with supranational courts does not only hold out potential benefits but also comes with costs. One cost is the opportunity cost of submitting references. The time and effort invested in preparing and writing a reference are resources that cannot be expended on the resolution of other cases.[4] For courts with large workloads and limited resources, these costs can be non-trivial. Moreover, once a reference has been submitted, the referring court must hold the proceedings in abeyance while awaiting the supranational court's ruling. Only after the preliminary ruling has been announced can the referring court resume the proceedings and come to a final resolution of the legal dispute. National judges will cooperate when the expected benefit of "teaming up" outweighs these costs. The expected reward of cooperation, however, is a function of the magnitude of the reward and of the subjective probability attached to it. Other things being equal, cooperation will look less desirable when this probability is lower and more desirable when it is higher.

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[4]These costs are perceived to be non-negligible, see the discussion in Jaremba (2012).

3.4   The Effect of Exogenous Shocks on Judicial Expectations

Political shocks exogenous to the legal process, such as the accession to power of a party opposed to membership or a referendum vote, may induce domestic judges to revise their beliefs about judicial cooperation. Even if formal withdrawal from the supranational regime does not occur immediately or ultimately fails to materialize, uncertainty may have an immediate impact on judicial actions. The duration of judicial proceedings can span months to years. In the EU, there is an average of 18 months between the submission of a reference and the ECJ's preliminary rulings, with a standard deviation of 6 months. Hence a plausible chance that withdrawal may occur within the time horizon of case resolution lowers the expected benefit of cooperation. Indeed, once a country is formally out, supranational law loses its formal authority. Supranational judges may even decline to issue the requested preliminary ruling, rendering referrals useless. Moreover, the endogeneity of litigation to judicial decision making is likely to amplify this disintegration dynamic. As litigants anticipate the judges' reticence to rely on supranational law, fewer cases relating to supranational law will be brought to the courts while litigants will privilege the legal arguments which they believe are more likely to get traction in the courtroom.

Owing to the nonhierarchical character of the supranational legal system, there is little that the supranational court can do to stem the collapse of cooperation once this dynamic is unleashed. In particular, it cannot restore confidence in the authority of the supranational regime by reversing domestic rulings that should have upheld supranational law, as a supreme court in a hierarchical judiciary would be able to do by relying on litigant selection via appeals. In such a situation, the confidence crisis experienced by the nonhierarchical legal order is similar

to an interbank lending market facing a credit freeze as a result of distrust among private banks (as occurred during the 2007 financial crisis), except that there is no central bank to re-inject confidence in the system.

Our empirical analysis concentrates on the effect of such an exogenous shock on inter-court cooperation. We hypothesise that uncertainty over future membership will stifle collaboration with supranational adjudicators and precipitate (informal) disintegration.

4   Brexit as Natural Experiment

To test our theory of legal disintegration, we use Brexit referendum as a quasi-natural experiment.[5] We compare the referral behaviour of UK courts before and after the referendum to a synthetic counterfactual constructed from a weighted average of other member state judiciaries. The Brexit referendum provides a unique natural experiment to evaluate our theoretical argument. For UK litigants and judges involved in the application of EU law the referendum represents an unprecedented shock bringing an equally unprecedented amount of uncertainty. This is, in part, due to he tension between the strong democratic mandate for a formal withdrawal produced by the vote and the technocratic challenges inherent in undoing more than 40 years of far-reaching legal and economic integration. But uncertainty is also a consequence of the far-reaching polarization, within the public as well as within the country's political, exposed and, possibly, exacerbated by the vote. At the time of writing, three years after the referendum, uncertainty still hovers over the terms of the UK's future relationship with the EU. No variant of 'hard' or 'soft' Brexit can be entirely ruled out, while uncertainty persists

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[5]In that regard our work can be related to the burgeoning economic literature assessing the impact of the Brexit vote on UK(Crowley et al., 2018; Breinlich et al., 2017; Born et al., 2018).

over the question of whether and in what form ECJ jurisdiction over the UK may subsist after withdrawal. Although less likely, a second referendum effectively asking voters to reconsider their view on EU membership is not inconceivable. Meanwhile, the UK is still formally in the EU.

4.1 Treatment: Brexit Referendum

The Brexit vote is a unique event in EU history for two reasons. First, with the possible exception of the vote that took Greenland, then a Danish territory of 50,000 people, out of the European Economic Community in 1985, the Brexit referendum is the first public vote that has produced a majority in favour of withdrawal. Second, the government led by Theresa May that formed in the wake of the vote is the first national government to be officially committed to an EU exit. Although various government coalitions have included Eurosceptic parties and EU-critics, all have stopped short of making an official commitment to leave the EU. This holds even for countries like Poland and Hungary whose governments have overtly defied basic democratic and rule of law commitments enshrined in EU Treaties.

What gave the referendum the character of a political shock is its economic significance and the fact the outcome itself was unexpected. Following the 2015 general elections, the UK Parliament passed the European Union Referendum Act to honour the Conservative Party manifesto commitment to hold a referendum on EU membership (see the timeline in Figure 2). On 22 February 2016, Prime Minister David Cameron announced that the referendum would be held on 23 June 2016. Most business leaders, along with PM Cameron's government, the opposition Labour Party and the Scottish National Party campaigned to remain in the

EU. Polls showed a narrow lead for Remain while prediction markets gave the pro-EU camp a 70 per cent probability of victory. On the day of the referendum, however, the Leave side emerged victorious carrying 52 per cent of the vote. Stock markets plunged and the pound sterling dropped to its lowest level against the US dollar in thirty years. EU leaders and prominent politicians, including Martin Schulz, Donald Tusk, Mark Rutte, and Jean-Claude Juncker urged swift action to implement the Brexit vote as "any delay would unnecessarily prolong uncertainty." Political divisions within the governing Conservative coalition newly led by Theresa May (who had herself campaigned for staying in the EU) combined with the challenge of unstitching the UK from forty years of economic and legal integration combined to create unprecedented uncertainty over the UK's future association with the EU.
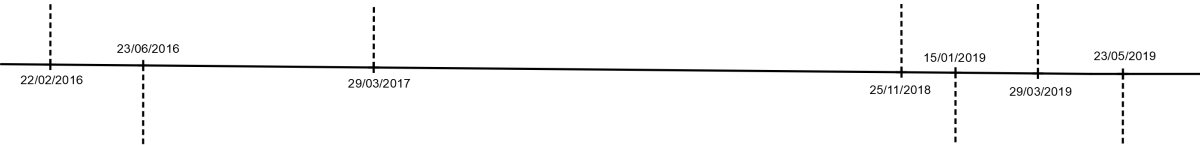

Figure 2: Timeline of the Brexit process.

The referendum result immediately raised the question of timing–how quickly should the British government implement the freshly minted "will of the people'? On the EU's side, the process of exiting the Union is broadly outlined in Article 50 of the Treaty on European Union (TEU). This provision, binding on the UK as long as it formally remains in the EU, stipulates a two-year deadline for working out the terms of withdrawal once the intention to exit is notified. Article 50 TEU, however, does not specify when notification is supposed to occur. On 2 October 2016, PM May announced that Article 50 would be triggered "no later" than the end of March of the following year. The decision to trigger Article 50 was eventually carried out on 29 March 2017 amid a constitutional challenge over parliamentary control over the Brexit process.

Both during and after the initial stage of the Brexit process, uncertainty has hovered over several crucial modalities of the UK's future relationship with the European bloc. The decision to leave the EU did not carry a vision of a future replacement arrangement. Among the possible scenarios was a hard Brexit, whereby the UK would return to its pre-accession, third country status on 29 March 2019. Also envisioned were many variants of a soft Brexit, whereby the UK would retain some access to the internal market while remaining subject to important EU policies. Some options involved either a short or a long transition period during which most EU rules and regulations would continue to apply in the UK. Importantly, options excluding the ECJ's jurisdiction coexisted with options contemplating its continued authority over a post-Brexit agreement. EU and UK negotiators eventually produced a Withdrawal Agreement (WA) which was adopted by UK and EU-27 heads of state on 25 November 2018. The WA, however, was rejected by the British Parliament on 11 January 2019.

In this environment, British judges could neither be certain that the ECJ would lose jurisdiction over the UK nor that its jurisdiction would persist over the timeframe of dispute resolution. Throughout the post-referendum period, both scenarios were highly plausible.[6] In our empirical setup, all post-referendum observations of the UK judiciary are regarded as treated in the sense that UK judges have been exposed to exceptional uncertainty. UK judges are compared to a weighted average of other member state judiciaries who were not exposed to this uncertainty and can thus serve to construct our control.

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[6]To put a number on these subjective probabilities, we might say that the probability p of discontinued ECJ jurisdiction and the probability q of continued ECJ jurisdiction (with $q = 1 - p$) were both generally perceived to be closer to 0.5 than to 0.

4.2 Data and Covariates

We assembled a dataset of preliminary references covering the entire period of UK membership up to June 2018. The information collected from the Eur-Lex database[7] includes, for each reference, the date it was filed[8] and the country of origin. Our dependent variable is measured as the number of preliminary references submitted by UK courts on a quarterly basis. We construct two dummy variables, one to compare the domestic courts' propensity to submit preliminary references across groups, subject and not subject to the Brexit treatment, and one across time, pre- and post-treatment. Table 1 summarizes the definition and operationalization ofthe variables used in the subsequent empirical analysis.

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[7]i.e https://eur-lex.europa.eu

[8]This date is not the same as the day the reference was issued by the domestic court. However, in practice, filing follows issuance by two or three workdays.

Table 1: List of variables

Variable name	Explanation	Type of data	Source
	Dependent variable		
Referrals$_{itq}$	number of Article 267 TFEU references in member state i in year t and quarter q	discrete	Own data based on Eur-Lex
	Explanatory variables		
Brexit Vote$_{tq}$	dummy variable taking value 1 for post-Referendum (23/06/2016) period and 0 otherwise	categorical	NA
Treatment$_i$	dummy variable taking value 1 if observation is treated (Brexit vote) and 0 otherwise	categorical	NA
	Control variables		
Bond$_{itq}$	long term government bond yields in member state i in year t ad quarter q	continuous	Eurostat (2018)
Constitutional Court$_i$	dummy variable coded 1 if member state has adopted Kelsenian (i.e. centralized) model of constitutional review and 0 otherwise	categorical	Elkins and Ginsburg (2007)
Common Law$_i$	dummy variable taking value 1 if common law and 0 otherwise	categorical	NA
EU Support$_{it}$	aggregated net percentage difference between respondents saying EU membership is a good thing and respondents saying it is a bad thing per member state i in year t	continuous	Schmitt et al. (2008)
GDP$_{itq}$	Gross Domestic Product in EUR million per member state i in year t and quarter q	continuous	Eurostat (2018)
Intra-EU trade$_{it}$	annual volume of intra EU-trade (export plus import) per member state i in year t	continuous	European Commission (2018)
Judicial Review$_i$	the stage at which laws are reviewed for constitutionality (CHALSTAG). 0 if no review; 1 before adoption; 2 after adoption; 3 both 1 and 2; 4 review left to non-constitutional law	ordinal	Elkins and Ginsburg (2007)
Membership$_{it}$	number of years elapsed since accession to the European Union	continuous	NA
Migration$_{it}$	net migration in 1000 persons per member state i in year t	continuous	Eurostat (2018)
Monism$_i$	dummy variable taking value 1 if treaties are granted superiority over domestic legislation and 0 otherwise in country i	categorical	Hornuf and Voigt (2015); Elkins and Ginsburg (2007)
Population$_{it}$	total population in 1000 persons per member state i in year t	continuous	Eurostat (2018)
Trademark$_{i,t,q}$	number of trade mark registered at European Intellectual Property Office (EUIPO) by country i in year t and quarter q	continuous	EUIPO (2019)

Note. NA means that no data source is necessary to compile the variable

Following the Article 267 literature, our analysis includes covariates that have been associated with referral activity: population (Hornuf and Voigt, 2015; Vink et al., 2009; Wind et al., 2009), intra-EU trade (Carrubba and Murrah, 2005; Sweet and Brunell, 1998; Dyevre and Lampach, 2018a), public support for EU membership (Carrubba and Murrah, 2005), years of membership (Dyevre and Lampach, 2017), constitutional review (Hornuf and Voigt, 2015; Vink

et al., 2009); monism ((Hornuf and Voigt, 2015; Carrubba and Murrah, 2005) and EU trademark registrations (Dyevre and Lampach, 2018b). Including support for EU membership, in particular, helps us rule out the possibility that a post-referendum change in judicial behaviour may result from judges responding to a change in public attitudes towards EU membership (Vanberg, Vanberg; Gibson et al., 1998).

To these set of covariates, we add migration, government bond yields and a dummy variable for legal origin (coded 1 if common law and 0 if other). Immigration and the right to free movement guaranteed by the Treaties have featured prominently in both pre- and post-referendum debates (Goodwin and Milazzo, 2017). Research has shown that anti-immigration sentiment can be explained by immigration patterns (Goodwin and Milazzo, 2017; Hopkins, 2010) and it is strongly associated with negative attitudes towards EU membership (Boomgaarden et al., 2011; Garry and Tilley, 2009). Bond yields are included as a proxy for political shocks (Huang et al., 2015). The indicator for legal origin is designed to capture institutional features specific to common law judiciaries, such as lateral judicial appointments and the rule of *stare decisis*, which are absent in civilian judiciaries.

Our analysis for the period 1973 Q1 until 2017 Q4 includes all these covariates. At the time of writing, no information was available for the covariate Migration and EU Support for the year 2018. In consequence, these two covariates were dropped from the estimations conducted for the period 1973 Q1 to 2018 Q2.

4.3   Difference-in-Difference Design

Difference-in-Difference (DID) estimation represents a common approach to evaluate the causal effect of a treatment in a quasi-natural experiment like Brexit (DiNardo, 2016). The basic idea

is to mimic the conditions of a randomized experiment–which is regarded as the gold standard for causal inference (Athey et al., 2017; Rubin, 2006)–by comparing post-intervention change in the dependent variable (here referral activity) in the treated group (British courts) to a control group (courts in the rest of the EU). Typically, outcomes are observed across two groups and two periods. The treatment group is exposed to the event or policy intervention in the second period while the control group is not. The average change over time in the control group is then subtracted from the average change over time in the treated group. The double difference removes the bias that exists in the post-intervention period between the treatment and control group because of permanent differences between these groups. It also removes the bias that would otherwise distort comparisons over time due to the effect of temporal trends unrelated to the treatment.

In a panel setting, the general form of a parametric DID model can be expressed as:

$$log(Y_{itq}) = \beta_0 + \beta_1 \mathrm{E}_i + \beta_2 \mathrm{P}_{tq} + \delta \mathrm{E}_i * \mathrm{P}_{tq} + \epsilon_{itq} \tag{1}$$

where Y_{itq} is the variable to be explained. E_i is an indicator of country i being in the treatment group and P_{tq} denotes the the time period (pre vs. post). δ reflects the DID estimator capturing the the difference in the changes over time between both groups and ϵ_{itq} is the error term.

This estimation strategy rests on the key assumption that, in the absence of treatment, the unobserved differences between the treatment and control group will remain constant over time. This assumption is violated if, as with our Article 267 data, referral trends in the pre-intervention period diverge over time. Some fixes have been proposed to minimize this

selection bias in DID models (Stuart et al., 2014; Imbens and Wooldridge, 2009). One is propensity score matching. Propensity score matching makes treatment and control groups more similar by assigning greater weights to observations that resemble each other except for the treatment (Rosenbaum and Rubin, 1983). A propensity score is a predicted probability of treatment assignment conditional on a set of observed characteristics (Caliendo and Kopeinig, 2008; Stuart, 2010; Morgan and Winship, 2015). It can be used to construct a synthetic sample from the control group that resembles the treatment group in that it possesses a similar propensity to receive the treatment, save for the fact that it has not received it. Whereas propensity score matching forms matched sets of treated and control units sharing a similar propensity score, inverse probability of treatment weighting (IPTW) assigns greater weights to units in the control group which resembles those in the treatment group (Austin, 2011). Stuart et al. (2014) recommend an alternative propensity score strategy, whereby the four groups–i.e pre-treatment, post-treatment, pre-comparison, post-comparison–are balanced using observable covariates. This addresses the problem arising from potential changes in group composition across time, which may result in inaccurate estimates. Weighting each group removes biases stemming from disparities in the distribution of covariates among the four groups.
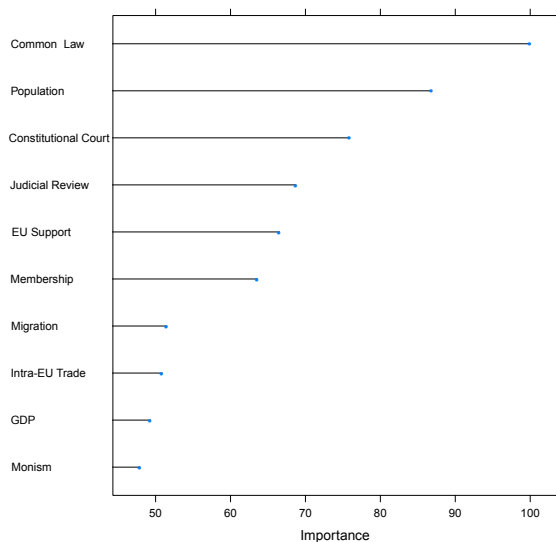
(a) Pre-Intervention (1973Q1 - 2016Q1)
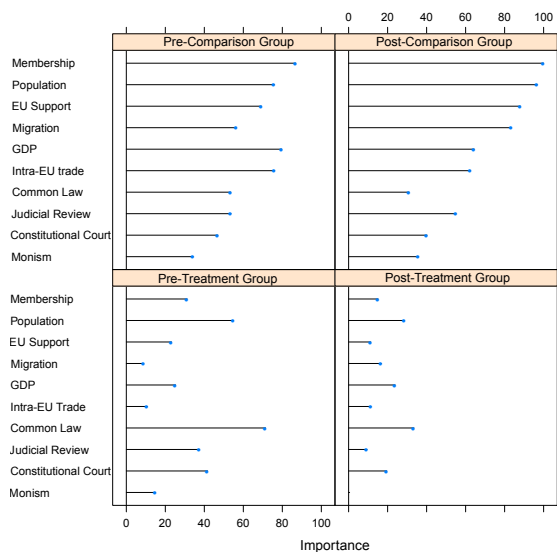
(b) Full Dataset (1973Q1 - 2017Q4)

Figure 3: Relative Importance of Covariates from Random Forest

Propensity scores are typically estimated using logistic regression. Machine learning and predictive modelling tools, though, have emerged as a powerful alternative to create propensity scores. Aside from operating with fewer assumptions, machine learning methods have also demonstrated greater accuracy(Lee et al., 2010; Westreich et al., 2010). We apply random forest to predict the probability of treatment assignment given all available covariates and implement inverse probability treatment weighting to the difference-in-difference regression.[9]

Plotted in Figure 3 is the relative importance of covariates in the treatment assignment using random forest. Restricting the data to pre-intervention period, panel (3a) reveals that common law, population, constitutional court, judicial review and EU Support are strong predictors of

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[9]In the single group case, the inverse propensity score weighting can be expressed as: $w_i = \frac{1}{ps_i}E_i + \frac{1}{(1-ps_i)}(1-E_i)$. In the case of using multiple groups the weight for a country i can be written: $w_i = \frac{ps_1(X_i)}{ps_g(X_i)}$ where $ps_1(X_i)$ is the probability of being in pre-treatment group and g denotes the group that country i was actually in. As a robustness check, we are applying nearest neighbour matching. The main drawback of this method compared to inverse probability weighting is that solely matched treatment and control units are used for the difference-in-difference regression. The reduction in sample size might lead to overestimating the causal effect.

the treatment assignment. We see more pronounced variability in the ranking of covariates using multiple treatment groups (panel 3b). While common law, population and constitutional court are key predictors in pre- and post-treatment group, membership, population, EU support and migration constitutes the strongest predictors in the pre- and post-comparison group. We use these insights to construct our propensity scores but we implement the inverse probability treatment weights in the DID regression (1).

5 Results and Discussion

5.1 Effect of Brexit Referendum

All our estimations include year, quarter and country fixed effects, which help control for various, unobserved sources of variance across country and time. Applying standard difference-in-difference specifications, Figure 4 illustrates the effect of the Brexit referendum on the referral activity of British judges. Consistent with our hypothesis, we see a decline in the number of references submitted by UK courts to the ECJ after the treatment. The result is robust to different statistical models and most recent data (1973 Q1- 2018 Q2). Our counterfactual gives the highest weight to Ireland, Denmark, Spain, France and Germany.
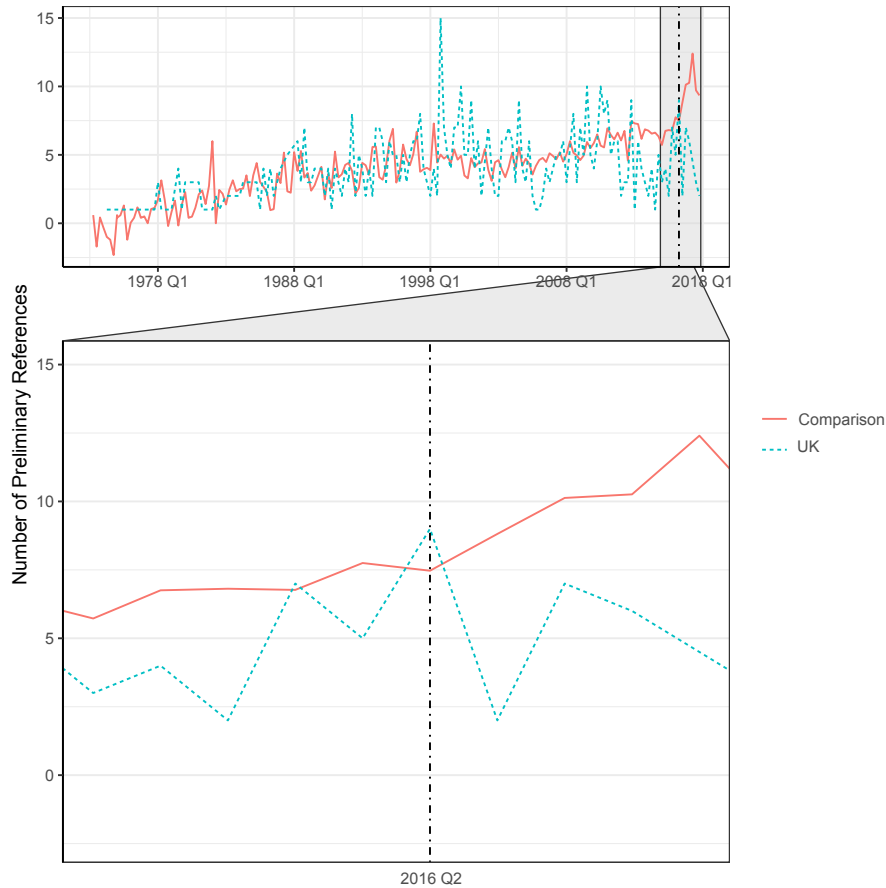
Figure 4: Average Treatment Effect of the Brexit Vote on Referral Activity using Difference-in-Difference (1973 Q1 - 2017 Q4)

In the standard DID model, the Brexit treatment yields a coefficient of -2.28 which translates into an average post-treatment effect of -22.57 per cent compared to our synthetic control. In other words, averaging the quarterly data on referrals after the referendum, British judges submitted nearly 23 per cent fewer references.

Applying the propensity score weighting strategy, the average treatment effect shows a small increase to, respectively, 23.17 per cent and 22.76 per cent compared to the synthetic counterfactual constructed from single (5a) and multiple treatment group (5b).[10] Average

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[10]The 5-nearest neighbour matching method yields comparable results.

treatment effect increases further to 30.38 per cent when we include the most recent data from the first two quarters of 2018.[11] They show that the difference-in-difference estimator δ is significant at 95 per cent confidence interval across all model specifications and matching methods.
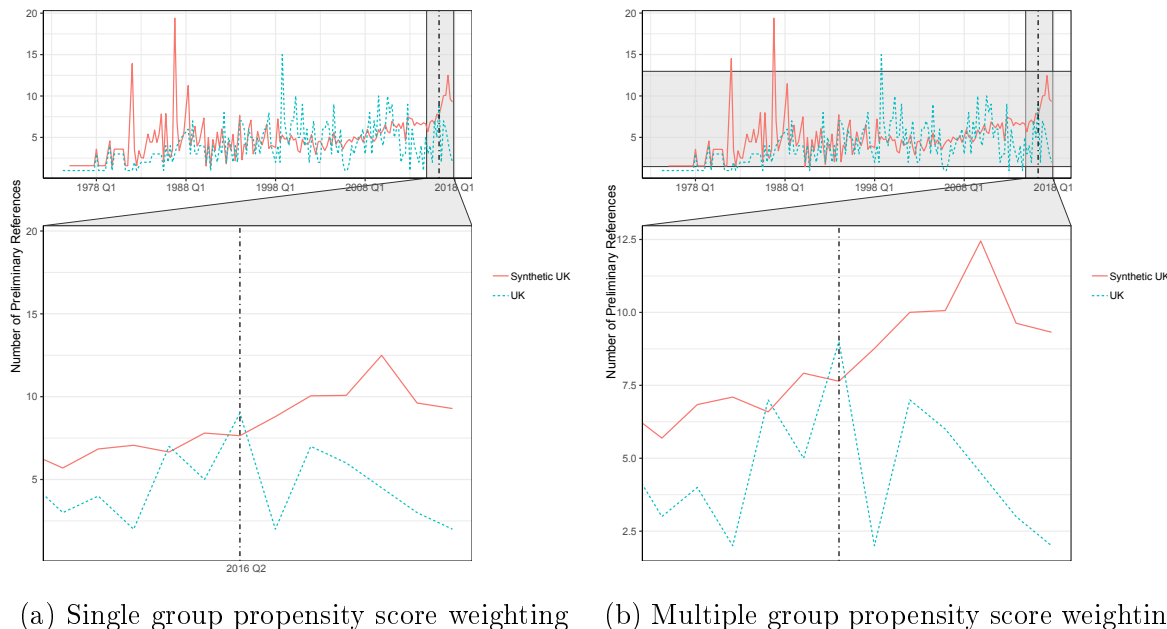

(a) Single group propensity score weighting   (b) Multiple group propensity score weighting

Figure 5: Average Treatment Effect of the Brexit Vote on Referral Activity using Difference-in-Difference with IPTW (1973Q1 - 2017Q4)

These results strongly support our hypothesis that uncertainty is undermining legal integration, despite the UK still being formally part of the EU. Uncertainty is lowering the benefit that UK judges associate with inter-court cooperation in context of the preliminary ruling system. As a consequence, they are less likely to turn to the ECJ for help. While we cannot test this hypothesis, it could also be that the judges' reticence to use EU law has been "priced in" by litigants, who may already be bringing less EU law cases or may have cut down on the use of EU law arguments. That referral rates have not fallen to zero suggests that some in some cases

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[11]See Figure 9 and 11 in the Appendix B. All estimation results are reported in Table 2 in the Appendix B.

inter-court cooperation is still valued sufficiently to offset the lower probability that its benefits will materialize. Thus, when driven by uncertainty, informal disintegration appears to be a gradual process. The expectations that constitute the fabric of supranational institutions are not dismantled over night. Instead, they experience a steady erosion. (Fabbrini, 2017; Jones, 2012; Vollaard, 2014; Márton, 2018; Webber, 2014; Turk, 2010; Zielonka, 2014; Eppler et al., 2016; Jones, 2018; Börzel, 2018).

5.2   Robustness Checks

To check the validity of our identification strategy, including the assumption of parallel trends, we report the results of two placebo tests. First, we compare changes in outcomes for the UK and our synthetic counterfactual using the third quarter of 2008 as placebo intervention (all post-referendum observations are excluded from the estimation). The plot in Figure 6 reveals that the parallel trends are not influenced by the placebo intervention. The difference-in-difference estimate is positive and non-significant.

We perform a second placebo test where we treat France with the placebo intervention. French courts display referral patterns very similar to UK courts (see distribution in Figure 12 in Supplementary Materials) and thus constitute a good point of comparison. We use the same date as the real-world Brexit referendum for the placebo intervention but we exclude the UK from the analysis. Again, Figure 7 demonstrates that the placebo treatment has no effect on the parallel trend.
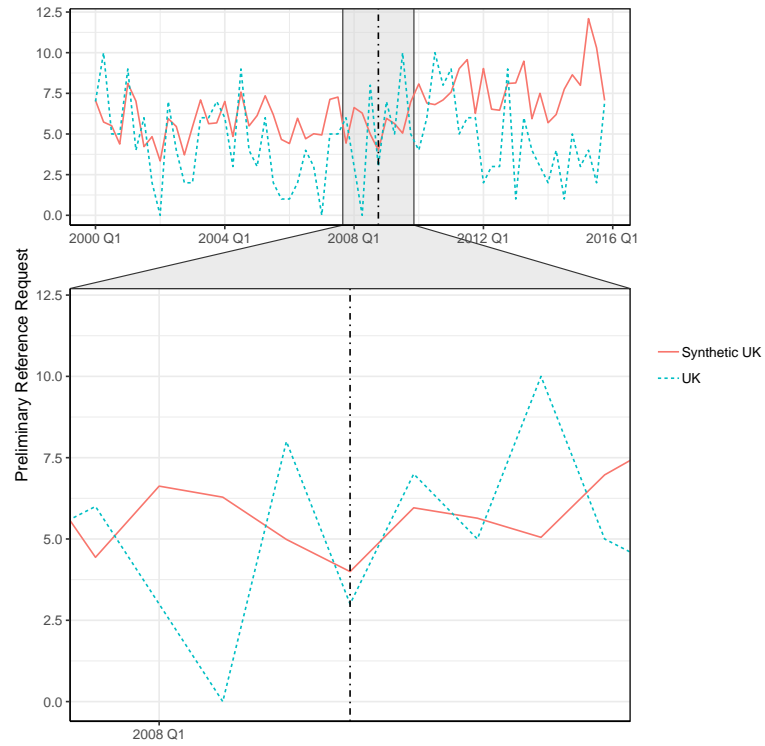
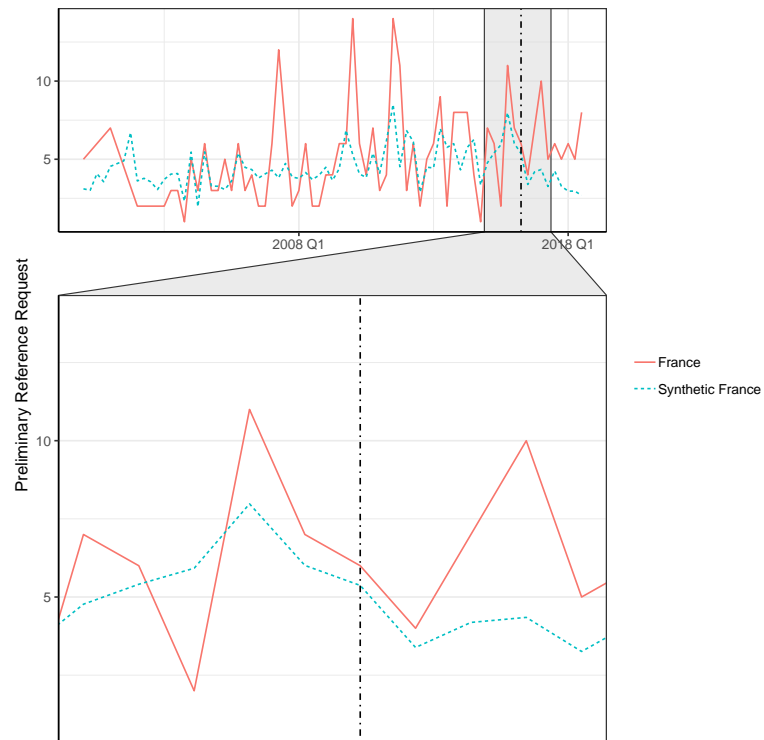Figure 6: Placebo test using time period 2000Q1-2015Q4

Figure 7: Placebo test using France as treatment group (2000Q1-2018Q3). UK is excluded from the analysis.

The results of these placebo tests suggest that our estimation procedure is really capturing the effect of the Brexit referendum rather than statistical noise generated by unobserved events.

6   Conclusion

Because international regimes do not possess their own administrative and judicial apparatus, their ability to influence policy outcomes at the national level depends on the support of domestic institutions. The EU has been more successful than other international legal regimes in mustering and nurturing the support of infra-state institutions, notably domestic courts. However, we argue that the institutional architecture of the legal order that developed around the preliminary ruling system makes is eminently vulnerable to uncertainty. Political events like the Brexit referendum affect the beliefs of domestic judicial actors and, in so doing, the expected reward of inter-judicial collaboration. Our empirical analysis demonstrates that the uncertainty created by the June 2016 referendum has had an adverse effect on the British judges' willingness to submit preliminary references to the European Court of Justice, despite continued formal EU membership.

Our findings directly contribute to the emerging literature on disintegration (Fabbrini, 2017; Jones, 2012; Vollaard, 2014; Márton, 2018; Webber, 2014; Turk, 2010; Zielonka, 2014; Eppler et al., 2016; Jones, 2018; Börzel, 2018) as well as to the literature on court systems (Kornhauser, 1994; Kastellec, 2016; Cameron and Kornhauser, 2006). With anti-EU parties riding the populist wave, it is fairly possible that political shocks similar to the Brexit referendum may occur in other member states the near future. Even if they do not result in formal exit, uncertainty over membership would further erode the authority of supranational rulemaking.

Going forward, our theoretical framework argument also suggests how the denouement of the political crisis may influence the prospect for judicial cooperation. Were the Brexit process to drag on for more years, we would expect further decline in the referral activity of British. But if Brexit plans were to be explicitly abandoned, for example after a second referendum, coordination between British and EU courts could be quickly restored to its pre-crisis level.

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A Structural Topic Model

The structural topic model developed by Roberts et al. (2016) and implemented in the **stm** package for R assumes a logistic normal prior instead of a Dirichlet prior for topic proportion. To construct our topic model, UK/EU-27 and year aree interacted with topic prevalence to define the document-generating process.

$$\theta_{1:D}|t_{1:D}\gamma, \Sigma \sim LogisticNormal(\mu = t_{1:D}\gamma, \Sigma). \tag{2}$$

where t_d is the treatment specifying from which group the document d was issued; γ is a $p \times (K-1)$ matrix of coefficients for topic proportion and Σ is a $(K-1) \times (K-1)$ covariance matrix. As implemented in the **stm** package, the posterior distribution for this dynamic topic model is computed via variational Expectation Maximization.

For preliminary rulings, the number of topics $K = 25$ was found to strike a good balance between interpretability and specificity. The topics generated by the topic models were labelled manually by the research team. Labels were chosen after looking both at the words most characteristic of the topic and at the decision displaying the highest prevalence of the topic according to the treatment-topic model.

B   Supplementary Materials
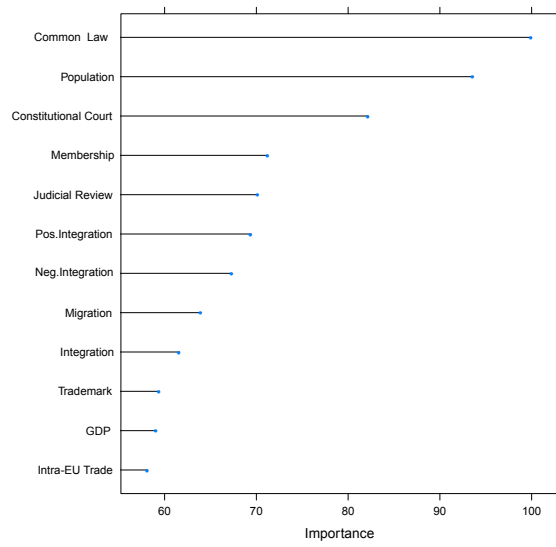
(a) Pre-Treatment Data (1973Q1 - 2018Q3)
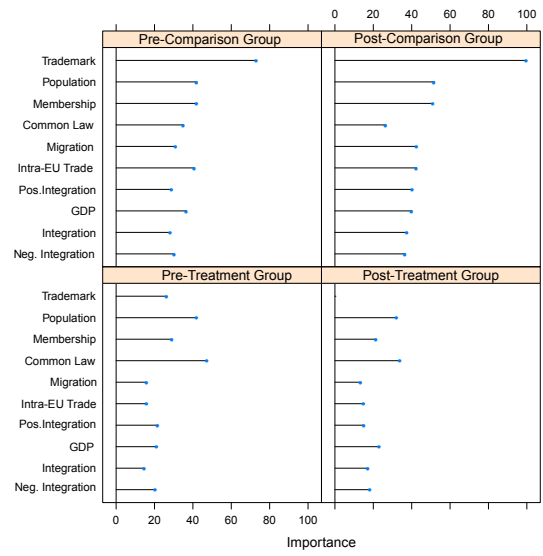
(b) All Data (1973Q1 - 2018Q3)

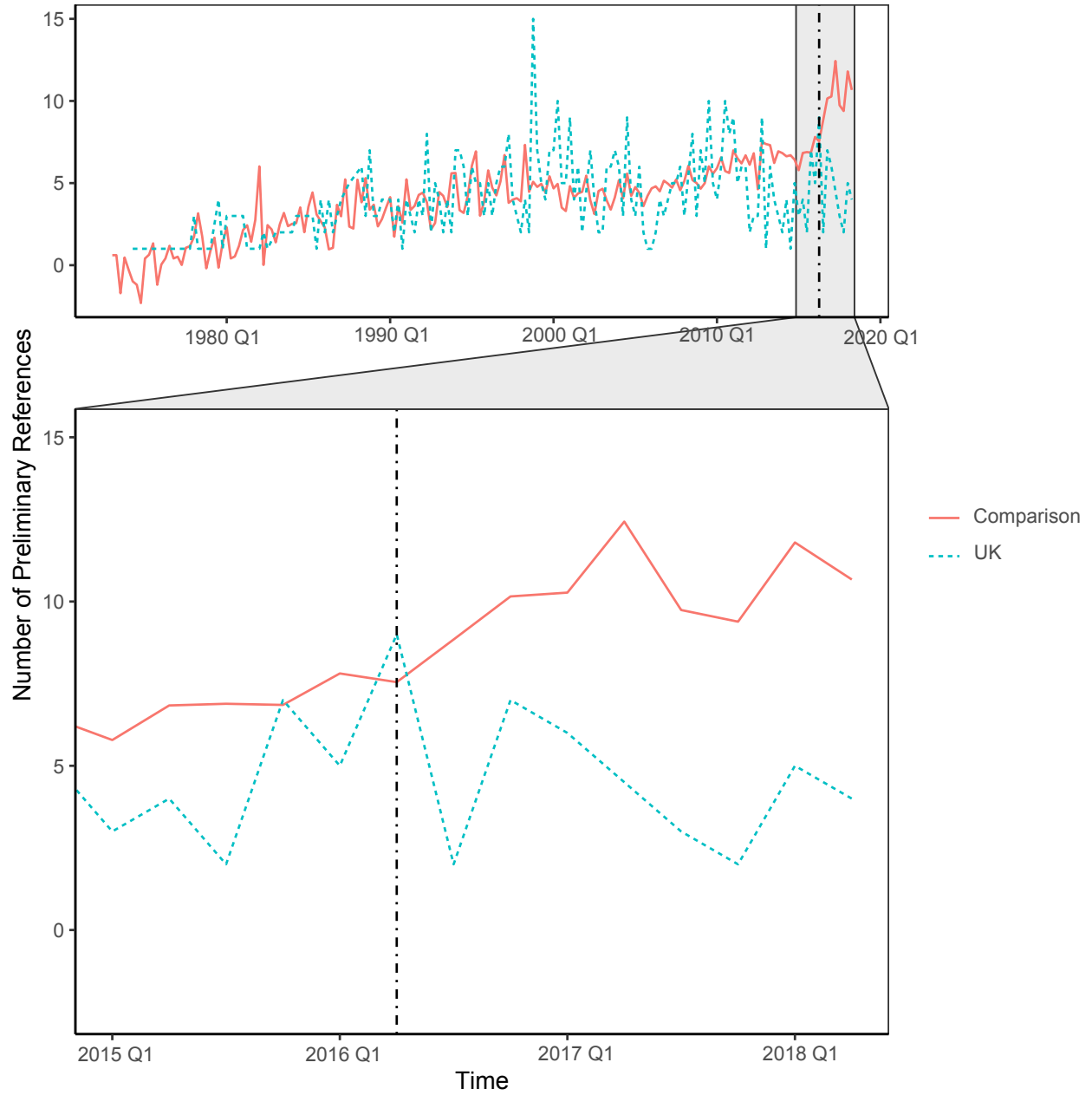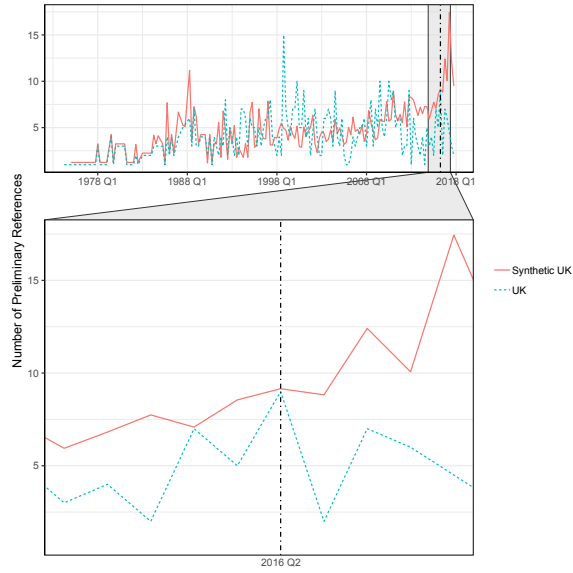Figure 8: Relative Importance of Covariates from Random Forest
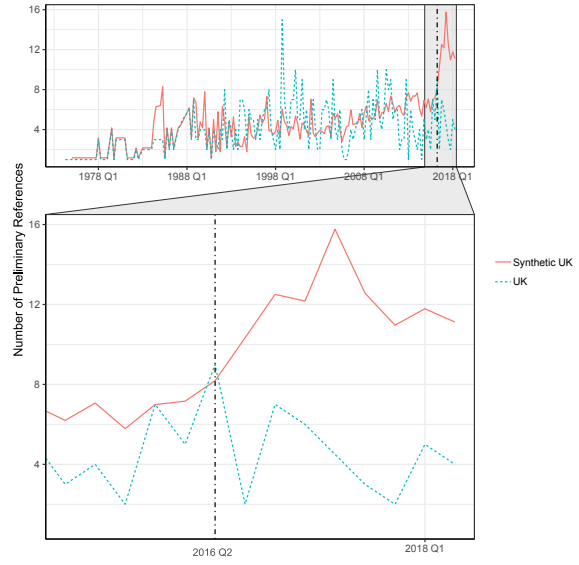
Figure 9: Average Treatment Effect of the Brexit Vote on Referral Activity using Difference-in-Difference (1973Q1 - 2018Q2)
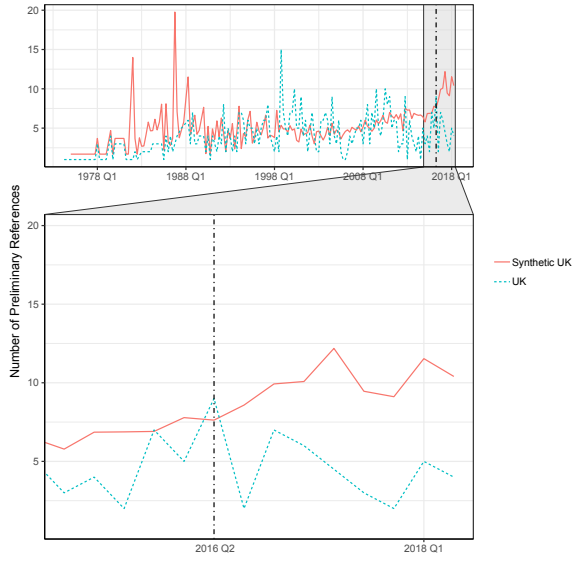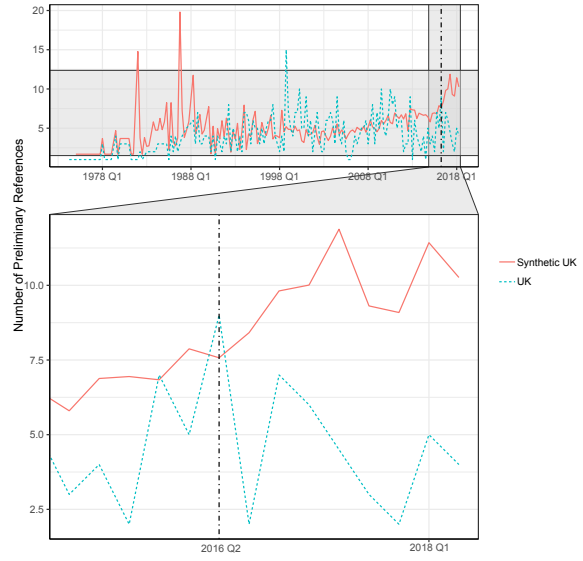
(a) 1973Q1 - 2017Q4   (b) 1973Q1 - 2018Q2

Figure 10: Average Treatment Effect of the Brexit Vote on Referral Activity using Difference-in-Difference with 5-Nearest Neighbour Matching

(a) Single Group PSW

(b) Multiple Group PSW

Figure 11: Average Treatment Effect of the Brexit Vote on Referral Activity using Difference-in-Difference with four groups IPTW (1973Q1 - 2018Q2)

Table 2: Difference-in-Difference Estimation Results applying Distinct Model Specification

| | *Period 1973 Q1 - 2017 Q4* | | | |
| | *Dependent variable: Referral Activity (Y_{itq})* | | | |
	(Diff-in-Diff)	(Single Group PSW)	(Multiple Group PSW)	(5-Nearest Neighbour)
Constant	1.600***	1.584***	1.558***	1.247*
	(0.684, 2.516)	(0.673, 2.495)	(0.638, 2.478)	(−0.116, 2.609)
Treatment Group (E_i)	−0.600	−0.584	−0.558	−0.247
	(−1.516, 0.316)	(−1.495, 0.327)	(−1.478, 0.362)	(−1.609, 1.116)
Pre-Post Brexit Vote (P_{tq})	−2.649***	−2.691***	−2.726**	−2.671
	(−4.615, −0.684)	(−4.644, −0.739)	(−4.821, −0.632)	(−6.351, 1.009)
Diff-in-Diff Estimator (δ)	−2.282**	−2.333***	−2.285**	−3.660***
	(−4.028, −0.536)	(−4.022, −0.644)	(−4.022, −0.547)	(−5.922, −1.398)
	Control for Year, Quarter and Country Fixed Effects			
Observations	2,036	1,542	1,542	894
R^2	0.535	0.605	0.609	0.661
Adjusted R^2	0.482	0.549	0.553	0.574
Residual Std. Error	3.480 (df = 1827)	3.512 (df = 1351)	3.531 (df = 1351)	3.935 (df = 710)
F Statistic	10.112*** (df = 208; 1827)	10.875*** (df = 190; 1351)	11.054*** (df = 190; 1351)	7.578*** (df = 183; 710)

| | *Period 1973 Q1 - 2018 Q2* | | | |
| | *Dependent variable: Referral Activity (Y_{itq})* | | | |
	(Diff-in-Diff)	(Single Group PSW)	(Multiple Group PSW)	(5-Nearest Neighbour)
Constant	0.609	1.694***	1.678***	0.340
	(−0.814, 2.033)	(0.797, 2.591)	(0.771, 2.585)	(−1.138, 1.819)
Treatment Group (E_i)	−0.056	−0.694	−0.678	0.660
	(−0.890, 0.777)	(−1.591, 0.203)	(−1.585, 0.229)	(−0.819, 2.138)
Pre-Post Brexit Vote (P_{tq})	−2.767**	−2.517***	−2.534**	−2.466**
	(−4.966, −0.569)	(−4.367, −0.668)	(−4.467, −0.601)	(−4.396, −0.537)
Diff-in-Diff Estimator (δ)	−3.157***	−2.586***	−2.467***	−3.091***
	(−4.531, −1.783)	(−3.929, −1.244)	(−3.862, −1.073)	(−4.543, −1.639)
	Control for Year, Quarter and Country Fixed Effects			
Observations	2,082	1,608	1,608	906
R^2	0.533	0.597	0.600	0.658
Adjusted R^2	0.480	0.542	0.546	0.568
Residual Std. Error	3.531 (df = 1871)	3.570 (df = 1415)	3.585 (df = 1415)	3.973 (df = 717)
F Statistic	10.152*** (df = 210; 1871)	10.896*** (df = 192; 1415)	11.075*** (df = 192; 1415)	7.334*** (df = 188; 717)

Note. *$p<0.1$; **$p<0.05$; ***$p<0.01$

Confidence intervals are computed from robust standard errors to account for autocorrelation between pre/post period
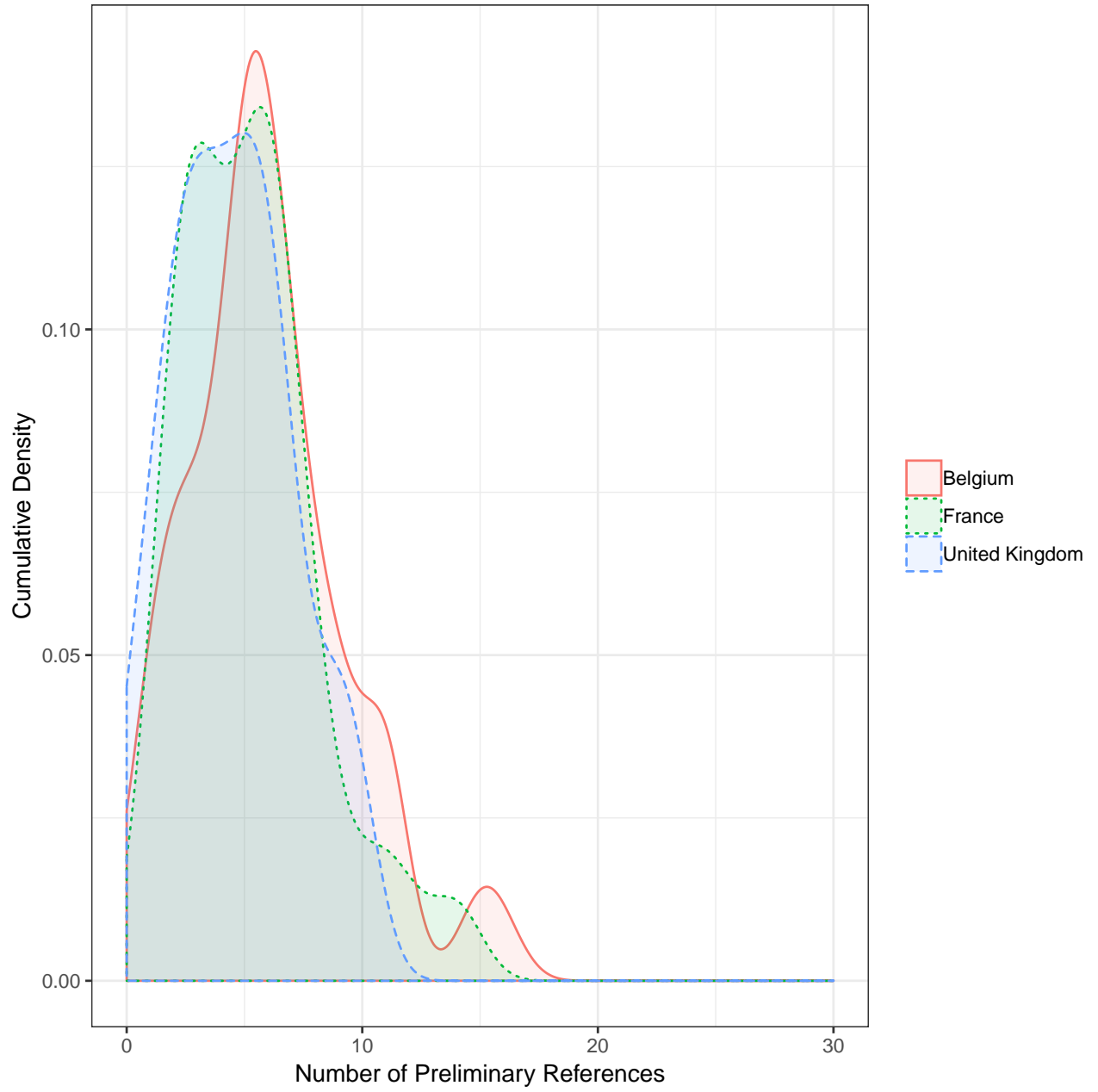
Figure 12: Density distribution of selected Member States' referral behaviour (2000Q1-2018Q3)