

Process-Based Benchmarking: How Voters Learn from Abroad When Policy Outcomes Are Unclear

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To evaluate domestic policies, voters often use the performance of foreign countries as a benchmark. But how do voters benchmark when policy outcomes are hard to observe? In such cases, we argue, voters learn about the feasibility and desirability of a policy by observing the political process by which a similar policy was approved abroad. We test this process-based benchmarking argument by analyzing how three key events in British Brexit politics affected individual attitudes towards the EU in other European countries. Leveraging an “unexpected event during survey” design and a natural experiment that leverages random variation in exposure to Brexit-related information, we find that the ups and downs of the Brexit approval process reverberated abroad, providing evidence for process-based benchmarking.

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Introduction

In recent years, the globalization backlash, support for and electoral success of populist parties, and challenges to democracy seem to have swept across Western democracies like a wave. This raises the question whether and how political developments in one country are perceived and evaluated by the mass public abroad and calls for an improved understanding of the diffusion of ideas and political developments across countries. Understanding whether and how voters learn from observing political developments abroad not only contributes to better distinguishing domestic and international sources of these current political changes, but also helps us better understand the systemic dynamics underlying these changes.

Previous research has shown that voters do indeed look abroad in order to benchmark domestic policy successes and failures. Studies of economic voting show that voters compare the performance of their national economy with the world economy, thus effectively using the performance of other countries as benchmark (Duch and Stevenson 2008; Kayser and Peress 2012; Aytac 2017). They also compare their own country's performance relative to others (e.g., Gärtner 1997; Hobolt and Leblond 2009; 2013), and their own political system relative to their assessment of other systems (Anderson 1998; De Vries 2018; Ecker-Ehrhardt 2012; Rohrschneider 2002; Sánchez-Cuenca 2000) when assessing the merits of EU membership.

Yet, what happens when voters seek to evaluate policies whose outcomes are hard to observe, either because they have not yet been implemented, or because the ultimate outcomes take time to materialize? This is a key question as the current backlash against globalization and the populist wave so far have predominantly come in the form of politics, rather than policy outcomes. We argue that absent information about policy outcomes, voters observe the political process through which policies emerge. Party politics, political maneuvering, and political struggles abroad convey important information about the political pitfalls, difficulties, and opportunities associated with

certain policy proposals (Saideman 2012; Gilardi and Wasserfallen 2019; Gilardi 2010). As Gilardi (2010, 651) suggests in his study of policy diffusion among policy-makers, “the object of learning is the *policy* consequences of policy change” but “the *political* effects are likely to be as important, if not more so.”

In this article, we ask whether this argument holds for voters, too, and examine whether and to which extent voters use information about political processes abroad to benchmark the feasibility and desirability of certain policies. On the one hand, the generally low level of political knowledge about national politics, let alone international affairs (Clark and Hellwig 2012; Carpini and Keeter 1996; Gilens 2001), makes it unlikely that voters directly respond to political developments in other countries. On the other hand, observing other countries’ domestic politics can simplify voters’ decision making by reducing the uncertainty associated with alternative policy choices. When media coverage of the political struggles around the approval of a policy in other countries is high, voters can use this information to update their evaluations and preferences regarding similar policy proposals at home. Political processes fraught with political conflicts and problems then serve as a signal that the policy question may not be so feasible and desirable after all, whereas a smooth and successful political approval of a certain policy sends a positive signal to voters abroad.

We examine this argument in the context of Brexit and investigate how the UK’s domestic political struggles surrounding the country’s withdrawal from the European Union (EU) reverberated in the other EU-27 member states. These struggles conveyed important information to the mass publics in other EU countries about the feasibility and desirability of leaving the EU, a policy choice that euroskeptic politicians and parties across other EU countries have equally been promoting. Moreover, the ups and downs of British Brexit politics were prominently covered by the media in other European countries. In this context, we expect that voters in the remaining EU

member states should update their EU-related policy preferences and attitudes in response to domestic political developments in the UK.

Studies that have so far analyzed the international reverberations of Brexit report mixed findings in this regard. A number of studies point to a deterrence effect of Brexit on support for leaving the EU among voters (De Vries 2017) and political parties (Chopin and Lequesne 2021; Martini and Walter 2020) in remaining member states. Others document both deterrence and encouragement effects among voters in the EU-27 and in third countries such as Switzerland (Walter 2021, Malet and Walter 2022). Finally, results from an EU-wide survey experiment fielded right after the 2019 European elections only find significant encouragement effects of positive Brexit primes (Hobolt et al. 2022). To overcome problems associated with either observational and experimental studies, we present two sets of analyses that exploit the co-occurrence of key events in British politics and the fieldwork of two surveys to causally identify how information about the domestic politics of Brexit affected individuals' EU-related opinions.

Our results show that the politics of the British Brexit process reverberated abroad. Information about Brexit-related struggles and difficulties in British politics deterred voters in other EU countries from pursuing a similar path, resulting in more positive views of the EU. However, we also find that British political events that demonstrated Brexit as a feasible policy option increased support for leaving the EU in the remaining member states. Our analysis thus underscores that process-based benchmarking exists and can result both in deterrence and encouragement of similar policies abroad. To provide evidence on the process-based benchmarking mechanism and to demonstrate the important role of the media and the availability of information, we next use a natural experiment that leverages exogenous variation in news coverage. This analysis shows that domestic political events that are covered by the media and not drowned out by other local events – in our case soccer games by

the local team – lead to an updating of preferences by changing expectations of policy outcomes.

Taken together, we find that information about the politics surrounding certain policy proposals influence how voters abroad assess the merits of these policies, and this in turn affects their policy preferences for similar policy proposals in their own countries. This has implications for benchmarking theories of public opinion formation, as it broadens the scope of voters' comparison to include assessments of political feasibility and desirability, and for theories of policy diffusion, insofar as public opinion operates as independent channel of transmission and with similar mechanisms to those found in research on elites (e.g., Gilardi 2010, Gilardi and Wasserfallen 2019). Our findings also have important implications for the current backlash against political globalization as they shed light on the systemic consequences of one of the most significant events of this backlash, Brexit.

Process-based benchmarking: The role of political events

People tend to judge themselves and the group to whom they belong by means of a comparison with other people and other groups (Easterlin 1995; Festinger 1954; Tajfel 1979). As voters, people evaluate the performance of their local government by comparing policy outcomes with those of other jurisdictions (Besley and Case 1995). In an increasingly interconnected world, people evaluate their own country by comparing their economic and political opportunities to those of citizens of foreign countries (Huang 2015; Kayser and Peress 2012). Studies of economic voting, for example, show that voters compare the performance of their national economy with the world economy, thus effectively using the performance of other countries as benchmark (Duch and Stevenson 2008; Kayser and Peress 2012; Aytac, 2017). However, there is some evidence that people can learn from abroad not just about policy outcomes. In a study of anti-smoking legislation in the US, Pacheco (2012) shows that the mere act of adopting a policy by itself increases public support in

neighboring countries. Likewise, the fact that French voters rejected the plan for an EU Constitution in a 2005 referendum significantly reduced support for the Constitution in other European countries as well (Malet 2022).

We argue that prominent events in other countries' political processes of designing and approving a policy represent an important source of information for voters. Political events are particularly influential because they have a higher potential to break into the news of other countries than reports of policy outcomes, as the "game of politics" tends to be more newsworthy than performance indicators. In a commercialised media system, journalistic practices such as horse-race reporting, personalisation, and infotainment, tend to highlight the political contest at the expense of the substantive content of policies (Esser 2013). Given the limited space that national newspapers can devote to media coverage of foreign countries (Hilgartner and Bosk 1988), citizens are therefore more likely to be aware of foreign political processes rather than policy outcomes.

Yet, how does observing foreign political events affect citizens' policy attitudes? The literature on policy diffusion among political elites highlights three potential mechanisms that may be relevant also for voters: competition, emulation, and learning (Braun et al. 2008; Gilardi 2012; Simmons, Dobbin, and Garrett 2006). First, foreign political events may affect policy preferences abroad when countries compete for resources or in the international arena. For example, the 2016 election of Donald Trump as US president increased support for European integration because its nationalist discourse sparked a rally-round-the flag effect among Europeans (Minkus, Deutschmann, and Delhey 2018). Second, citizen can change their preferences when they observe foreign political events that signal the perceived appropriateness of certain policies. For instance, the 2016 US election increased racist attitudes in Europe as Donald Trump's win signaled a shift in social norms (Giani and Méon 2019). Finally, people can learn from foreign political successes and failures. Previous studies have shown that major "iconic events" such as the 1917 Russian revolution or the

successful protests in Tunisia and Egypt that marked the beginning of the Arab spring increased political contention abroad (Weyland 2010; Hale 2013; Bamert, Gilardi, and Wasserfallen 2015), not just because of a process of emulation, but because citizens learned from other countries' experiences about the feasibility and the likely consequences of a revolt against their regime.

In this study, we argue that political events that are far less consequential than a revolution can nonetheless signal the success and failure of policy choices and provide information about the political pitfalls and opportunities associated with policy proposals. Learning about the processes that surround the definition and formulation of a policy can affect peoples' assessments of the feasibility of this policy and their expectations about the desirability of its outcome. Policy-making processes that are marked by high levels of disagreements, long and tedious discussions, and repeated failures, signal that policy outcomes could be unfavorable too. Conversely, when policies enjoy a large consensus and come into being through a smooth approval process, such political processes signal that the actual consequences of the policy may be equally positive. Against this backdrop, we argue that by observing domestic political struggles in other countries voters update their assessments of the expected outcome of the policy in that country. They then use these expectations as a benchmark to revise their domestic policy preferences. Of course, such *process-based benchmarking* can only work when voters are aware of what is going on in other countries' politics. We therefore expect such benchmarking effects to be particularly pronounced when the international media coverage of domestic political events is high.

Research Design

We examine our argument about the effect of process-based benchmarking on voters' policy support by focusing on the UK's domestic political struggles during the Brexit process, that is the UK's withdrawal from the EU. After the Brexit referendum vote

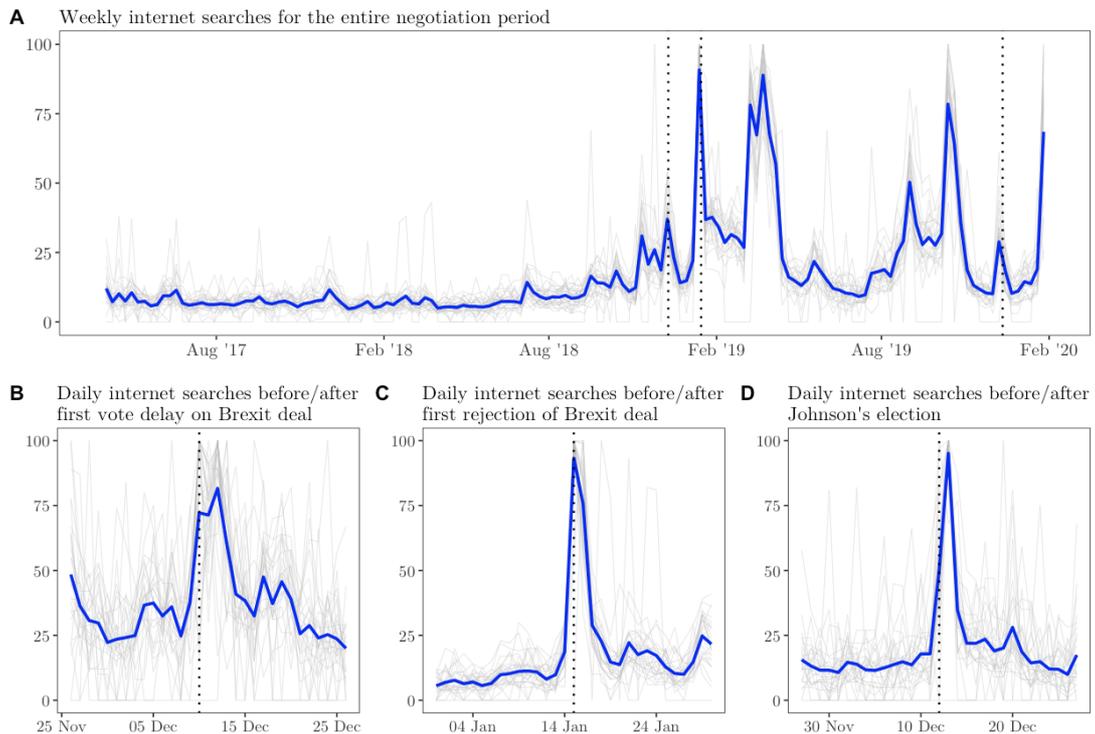
in 2016, British politics entered a new phase of intense political debates over both the concrete implementation of the referendum and the negotiating strategy with the EU. Brexit is a case where the actual consequences of leaving the EU will take time to materialize. At the same time, the fact that several euroskeptic parties called for their countries to follow the British example and to leave the EU as well (e.g. Chopin and Lequesne 2020, Martini and Walter 2020) turned the question on whether to follow the British lead or not into an important question for voters across many European countries. In this context, the political ups and downs of the Brexit process represented a clear source of information for citizens of remaining member states. Coverage of these political struggles produced a sort of EU-wide informational campaign about the political feasibility and desirability of leaving the EU.

To study the effect of the ups and downs of British Brexit politics on citizens' attitudes about the EU we present two sets of analyses. Both exploit the co-occurrence of certain key domestic political events in the Brexit process and the fieldwork of public opinion surveys in certain EU-27 countries. These analyses allow us to estimate how information about these events affected support for European integration and EU exit in the remaining member states. Our analyses cover a time window between December 2018 and December 2019, when the UK's efforts to implement Brexit became a salient and widely-reported topic across the EU in light of the British government's domestic political difficulties of ratifying the EU-UK Withdrawal Agreement and the widely reported election of Boris Johnson as Prime Minister.

The events we study increased the salience of the Brexit debate in other European countries. Figure 1A shows the weekly internet searches for the word 'Brexit' during the UK-EU negotiations in all EU member states, as provided by Google Trends. The data cover the period from 13 March 2017, when PM Theresa May triggered Article 50, thus setting the formal exit process in motion, and 31 January 2020, which marked the official exit of the UK from the European Union. The internet searches show a higher interest for Brexit between the final months on 2018 and the beginning of 2020.

Two peaks in the graph correspond to the fight within the Tory party that led to the postponement of the first parliamentary vote on the Brexit Deal and the challenge to Theresa May’s leadership in December 2018 and the first parliamentary rejection of the Withdrawal Agreement in the following month. Another peak occurs in the week of the national elections that sanctioned the success of Boris Johnson in December 2019. We further corroborate our event choice with a text analysis of four newspapers in one remaining member state, Germany – *Bild*, *Die Welt*, *Süddeutsche Zeitung*, and *Handelsblatt* (see Figure A1 in the online appendix). The sentiment analysis we performed on a subset of titles and leads containing the word “Brexit” shows that the struggles of May’s government were reported with clear negative words, while Johnson’s electoral success was positively reported.

Figure 1 – Internet searches for ‘Brexit’ in EU member states



Note: Internet searches in all EU-27 member states obtained from Google trends. The blue line displays the EU-average. Figure A displays weekly internet searches for the entire negotiation period. Figure B displays daily internet searches two weeks before and after the first postponement of the parliamentary vote on the Brexit deal (10/12/2018). Figure C displays daily internet searches two weeks before and after the first parliamentary rejection of the Brexit deal (15/01/2019). Figure C displays daily internet searches two weeks before and after Johnson’s electoral victory (12/12/2019).

Based on this analysis, our process-based benchmarking argument suggests that the two events that highlighted the difficulties of the British government in implementing Brexit should have increased support for European integration in remaining member states. Conversely, we expect that Johnson’s election win sends a positive signal about the feasibility and desirability of Brexit, thus resulting in a negative impact on the EU attitudes of voters in other EU member states.

Analysis 1: British Brexit-struggles as negative signals

In a first analysis, we examine the effect of two Brexit-related episodes on support for the EU in several EU-27 countries that highlighted the difficulties associated with Brexit. These episodes were domestic political events and did not have an immediate major effect on EU-UK relations or the Brexit negotiations, but were covered intensely in the European media. The first event occurred when the British PM, Theresa May, postponed the first vote in the House of Commons on the Brexit withdrawal agreement negotiated by her government, because she was faced with the prospect of a defeat after massive opposition within her own party (December 10, 2008). Three days later, May survived a no confidence vote in her leadership of the Tory Party, but was forced to promise to step down before the next election. The second episode happened one month later, on January 15, 2019, when the House of Commons indeed rejected the Withdrawal Agreement with 432 votes against the Agreement and only 202 in favor (the largest defeat for a government motion in UK’s history since the introduction of the universal suffrage). The same day, May survived another vote of no confidence in her party leadership. As we show in Figure A1 in the appendix, the two events we study were widely covered by the media in other European countries.

We exploit the fact that both of these events happened during the fieldwork of the European Social Survey (ESS). Our identification strategy relies on the quasi-random nature of the events relative to the timing of interviews in the ESS. Hence, our

identifying assumption is that the Brexit negotiations did not interfere with the implementation of the survey (Muñoz, Falcó-Gimeno, and Hernández 2020). The two events occurred during the survey fieldwork of fourteen EU member states.¹

Following previous studies (Depetris-Chauvin, Durante, and Campante 2020; Giani and Méon 2019; Mikulaschek, Pant, and Tesfaye 2020), we base our main analysis on an interval of ± 15 days before and after each of the two episodes: the 10 December 2018 challenge to May’s leadership, and the 15 January 2019 rejection of the Agreement. This bandwidth mitigates the risk that other events confound the estimation of the impact of Brexit events on public attitudes. At the same time, it allows us to retain a large enough number of observations, given that the ESS is based on face-to-face interviews that require long fieldwork periods.² Balance tests for several respondent characteristics that may potentially correlate with the timing of the interview and the outcomes of interest, such as gender, education, age, unemployment status in the previous 12 months, the type of community where the respondent lives, and whether he or she voted in the previous national elections show that differences between the sample of respondents interviewed before and after the two events are relatively small (see Figures A2 and A3 in the appendix). We additionally use a popular matching technique, entropy balancing (Hainmueller 2012), to adjust inequalities in the distributions of the pre-treatment covariates mentioned above.

The domestic political events discussed above are inherently linked to the UK’s policy decision to leave the EU and thus allow respondents in other European countries to benchmark their assessment of a similar policy for their own countries. Our outcome of interest therefore is respondents’ support for European integration. The question

¹ The December event occurred during the fieldwork of Austria, Belgium, Cyprus, Czech Rep., Germany, Denmark, Estonia, Finland, France, Ireland, the Netherlands, Poland, Portugal, and Sweden. The January event covers also the fieldwork of countries mentioned above plus Italy and Slovenia, but without Austria and Denmark. To avoid imbalances, we included only countries where the size of treatment group was bigger than 20% and smaller than 80% of the size of the control group.

² The analyses are replicated in the appendix with different bandwidths (Figures A4 and A5).

asks: “*Now thinking about the European Union, some say European unification should go further. Others say it has already gone too far. Using this card, what number on the scale best describes your position?*”. The card displays an 11-point scale from 0 (“Unification has already gone too far”) to 10 (“Unification should go further”). We replicate the analyses using a second question that asks respondents about their support for their country’s EU membership: “*Imagine there were a referendum in [your country] tomorrow about membership of the European Union. Would you vote for [your country] to remain a member of the European Union or to leave the European Union?*”. Possible answers beyond “leave” and “remain” include “submit a blank ballot,” “spoil the ballot paper,” “would not vote,” and “don’t know”. We regroup all these answers into one category and analyze this question with a multinomial logit model where the absence of a clear opinion on EU membership is the reference category.

Results

How did British domestic political episodes that showcased the difficulties and political problems associated with the Brexit process affect respondents’ support for the EU? To answer this question, we compare respondents interviewed in the two weeks after each event with respondents interviewed in the two weeks before. Results in Table 1 show that the Brexit-related domestic troubles of the British government reverberated in other EU member states and affected respondents’ attitudes about the EU. Both episodes under study have a small but statistically significant positive effect on peoples’ support for European integration: People interviewed in the aftermath of the first postponement of the parliamentary vote on the Brexit Deal were around two percent more likely to think that European integration should be pushed further. We detect a similar effect for people interviewed after the first rejection of May’s Withdrawal Agreement in January 2019.

Table 1 – The effect of Brexit-related domestic political struggles in the UK on support for European integration

	DV: Support for European integration (0-10)			
	Vote delay on Brexit Deal / Challenge to May's leadership		First rejection of the Withdrawal Agreement	
	(1)	(2)	(3)	(4)
Exposure to negative event	0.220*** (0.079)	0.189** (0.086)	0.168** (0.083)	0.222** (0.094)
Constant	4.152*** (0.106)	4.152*** (0.134)	5.541*** (0.174)	5.599*** (0.170)
Observations	4,554	4,539	4,345	4,307
Country FE	✓	✓	✓	✓
Entropy balancing		✓		✓

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$. OLS models with clustered standard errors in parentheses. Design weights apply. Entropy balancing adjusts the distribution of the pre-/post-event samples by age, age squared, gender, education, type of community, unemployment status, and turnout in the previous election.

Table 2 replicates the results presented above using a different dependent variable: people's vote intentions in a hypothetical referendum on their country's EU membership. The results are interesting for two reasons. First, they show that the increase in support for European integration translated into a change in vote intentions in the case of the challenge to May's leadership (models 1-2), but not in the case of the rejection of the Framework Agreement (models 3-4). The absence of a significant effect of the second event may suggest that, as people update their preferences in a cumulative way, successive events may have a weaker informative value than similar previous events.

Second, models 1 and 2 can tell us something about the type of attitude change that the first vote delay on the Brexit deal generated, as the increase in the probability to vote in favor of remaining EU member does not come at the expenses of the probability of voting "leave." Instead, after the event, it is the probability to abstain,

Table 2 – The effect of Brexit-related domestic political struggles in the UK on support for EU membership

	Dependent variable: Support for EU membership (3 categories)							
	Vote delay on Brexit Deal / Challenge to May’s leadership				First rejection of the Withdrawal Agreement			
	(1)		(2)		(3)		(4)	
	Leave	Remain	Leave	Remain	Leave	Remain	Leave	Remain
Exposure to negative event	0.229 (0.160)	0.314** (0.131)	0.303 (0.192)	0.396** (0.156)	-0.030 (0.126)	0.088 (0.099)	-0.030 (0.126)	0.088 (0.099)
Constant	0.445** (0.179)	1.942*** (0.150)	0.417* (0.220)	1.880*** (0.180)	1.168** (0.472)	3.484*** (0.418)	1.168** (0.472)	3.484*** (0.418)
Observations	3665		3629		4425		4342	
Country FE	✓		✓		✓		✓	
Entropy balance			✓				✓	

Note: *p<0.1; **p<0.05; ***p<0.01. Multinomial logit models (reference category: spoilt vote/abstain/don’t know). Design weights apply. Entropy balancing adjusts the distribution of the pre-/post-event samples by age, age squared, gender, education, type of community, unemployment status, and turnout in the previous election.

spoil the ballot, or answering “don’t know” that decreases. In the absence of panel data that would allow a sounder inference about the previous attitudes of those who learned from British Brexit politics, these results suggest that negative events increased support for European integration among people without strong preferences.

Our analysis rests on the assumption that the timing of the survey interview does not affect the outcome through any other channel except for the event of interest (excludability). In the appendix we present some falsification tests to corroborate this assumption. First, we replicate the analyses by varying the bandwidth around the cutoff date (see Figures A4 and A5). Interestingly, when we analyze people interview only within one week before and after both events – thus further limiting the possibility that other events or unobserved confounders may lie behind our findings – we actually detect a stronger effect. When we expand the bandwidth to three and four weeks, we find a slightly smaller and (partially) non-significant effect. Second, we show that the events we study have no effect on other placebo outcomes such as

satisfaction with the economy, left-right placement, immigration attitudes (table A1). These results lend support to our identification strategy as they show that the timing of the survey interview does not affect the outcome through other channels such as simultaneous events or unrelated time trends.

Analysis 2: Johnson’s electoral success as a positive signal

In a second analysis, we study the effect of the electoral victory of the Conservative Party in December 2019. As the 2017 election had resulted in a minority government, after the replacement of Theresa May, the new PM Boris Johnson called a snap election to increase the parliamentary support for his Brexit strategy. The campaign mainly centered around the new withdrawal agreement he had negotiated with the EU, and for which he was now asking the British electorate a parliamentary majority. We leverage the fact that the election results came out during the fieldwork of the Eurobarometer survey 92.4. The British elections took place on December 12, exactly in the middle of the fieldwork that lasted from December 6 to December 19. The analysis of the Eurobarometer thus covers all 27 EU member states.

Although the EB 92.4 was devoted to investigate people’s environmental concerns, the questionnaire also asked a couple of questions about the EU. The first question asks respondents to rank their perception of the EU from 1 (a very negative image) to 5 (a very positive image). The second question asks: “*At the present time, would you say that, in general, things are going in the right direction or in the wrong direction, in the European Union?*”.³ This question follows an identically worded question that asks about how things are going at the national level. We can thus compare answers to these two questions. The results presented in Table 3 show no significant effects of Johnson’s victory on people’s perceived image of the EU. However, people were two percent less likely to say that things were going in the right direction in the EU after

³ Spontaneous answers that said “neither of the two” were also coded. In a robustness test, these are treated as middle option and modelled in an ordinal logistic regression (see Table B1 in the appendix).

Table 3 – The effect of Johnson’s victory on people’s perceived EU image and evaluations of the EU’s current direction

	<i>Dependent variable:</i>					
	Image of the EU (1-5)		EU in the right direction (0-1)		Own country in the right direction (0-1)	
	(1)	(2)	(3)	(4)	(5)	(6)
Exposure to positive event	0.016 (0.011)	0.009 (0.012)	-0.013* (0.006)	-0.018** (0.008)	0.001 (0.006)	-0.0001 (0.007)
Constant	3.281*** (0.027)	3.270*** (0.033)	0.385*** (0.016)	0.378*** (0.017)	0.525*** (0.015)	0.517*** (0.018)
Observations	26,085	25,204	22,948	22,303	24,428	23,667
Country FE	✓	✓	✓	✓	✓	✓
Entropy balancing		✓		✓		✓
AIC	67,303.80	66,877.35	32,939.20	34,473.71	34,047.76	35,357.19

Note: *p<0.1; **p<0.05; ***p<0.01. Entropy balancing adjusts the distribution of the pre-/post-event samples by age, age squared, gender, education, type of community, social status, and profession.

the British elections. No effect is found on people’s rating of the current direction of their own country.

Analysis 3: Testing the benchmarking mechanism

In a third analysis, we investigate the role of the media in conveying information about foreign domestic politics in more detail, and its effect on people’s ability to use this information as a benchmark for their EU support. For this purpose, we exploit the fact that we had a public opinion survey in the field just after Theresa May’s decision to postpone the vote on the Withdrawal Agreement and her promise to step down before the following elections (10-13 December 2018). The survey was part of a tracking survey by which we surveyed respondents in all EU-27 countries on Brexit- and EU-related issues in six-month intervals throughout the Brexit withdrawal negotiations (July 2017- December 2019, for details, see Walter 2021). The December 2018 wave was fielded between 14 and 21 December 2018.

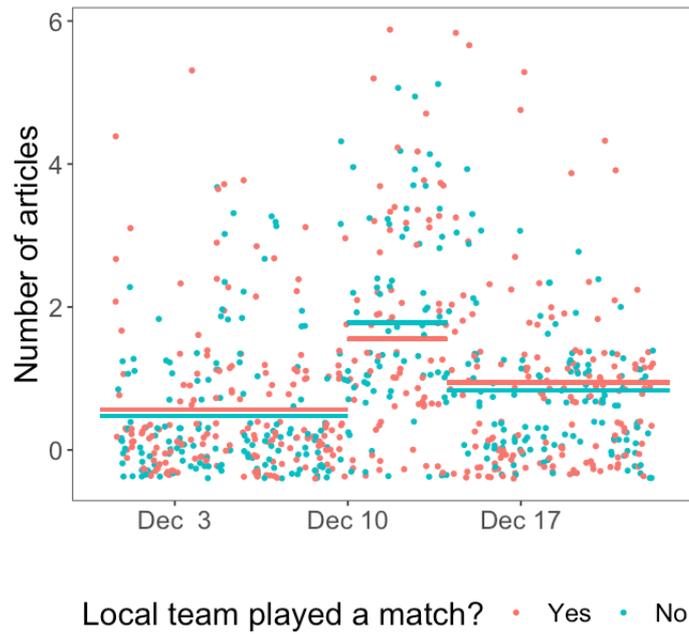
We leverage that the first postponement of the parliamentary vote on the Withdrawal agreement and the confidence vote on Theresa Mays' party leadership (10-13 December 2018) happened at the same time of the final round of the group stage of the two main Europe-wide football championships (11-13 December 2018). We assume that in regions where the local team played a match of either the Champions League or the Europa League, soccer coverage dominated the news, giving less space to coverage of other countries' political struggles. This allows us to explore the quasi-random variation in news coverage of Brexit difficulties in the European media and its effect on support for EU exit. Following Eisensee and Strömberg (2007), who show that countries that experience a natural disaster during the Olympic games receive less attention and thus less financial support, we argue that respondents with local soccer teams in the championships have received less information about Brexit. We focus on Germany where support for football teams has a clear regional pattern.⁴

To corroborate our research design, we collected data about the local coverage of Brexit. We selected all the 36 German local newspaper archived in the database of Factiva and we downloaded all the articles mentioning the word 'Brexit' that appeared between ten days before and ten days after the period we study, i.e. between 30 November and 23 December 2018.⁵ The data presented in Figure 3 show that, compared to outlets in region where the local team was participating to one of the two European Leagues, local newspapers in regions where no soccer team was playing covered more extensively the events that happened between 10 and 13 December 2018 in British politics.

⁴ The following teams were playing a match: Bayern, Dortmund, Eintracht-Frankfurt, Hoffenheim, Leverkusen, Leipzig, Schalke 04. Therefore the regions involved are Baden-Württemberg, Bayern, Hessen, Nordrhein-Westfalen, and Sachsen.

⁵ Our dataset includes the following journals: Aachener Nachrichten, Aachener Zeitung, Abendzeitung München, B.Z., Berliner Kurier, Berliner Morgenpost, Berliner Zeitung, Express, Frankenpost, Freies Wort, General Anzeiger, Hamburger Abendblatt, Hamburger Morgenpost, Hannoversche Allgemeine Zeitung, Kieler Nachrichten, Kölner Stadt-Anzeiger, Kölnische Rundschau, Lübecker Nachrichten, Märkische Allgemeine Zeitung, Neue Westfälische, Nordwest-Zeitung, Nürnberger Nachrichten, Ostsee-Zeitung, Passauer Neue Presse, Reutlinger Nachrichten, Rheinische Post, Sächsische Zeitung, Stuttgarter Nachrichten, Stuttgarter Zeitung, Südwest Presse, Thüringer Allgemeine, Weser Kurier. Although the number of readers has declined over the last decades, local newspapers still reached 55.8% of all German adults in 2011, and are considered more credible and trustworthy than other media (Ellger et al. 2021)

Figure 3 –Coverage of Brexit in local German newspapers



Regression models that include journal fixed-effects confirm the visual finding. Models 2 and 4 in Table C3 in the Appendix show that, in the period between the 10 and 13 December, local newspapers in regions where a local team was playing were 25% more likely to report on Brexit, and published on average 0.7 articles more than usual. Journals in regions with no soccer game were 37% more likely to report on Brexit, and published on average one additional article compared to the 10 days before and after the Brexit events. We do not find a statistically significant effect in the length of the articles mentioning Brexit (see model 6 in Table C3).

We construct a binary treatment indicator, called *Higher Exposure (no game)*, that measures whether (one of) the region's local football teams played in the Champions League or Europa League's group stage. This variable takes the value of 0 if the local team played in a match, meaning that media coverage was pre-occupied with soccer-related news, and 1 if the local did not play, leaving more space for coverage of the UK's internal Brexit struggles.

Two outcomes are of interest. First, we analyze respondents' evaluation of the effect of Brexit on the UK. The question asks: "*Five years from now on, do you think Brexit will make the UK much better off, somewhat better off, neither better nor worse off, somewhat worse off, or much worse off?*". Responses are marked on a five-point scale ranging from (1) much worse off to (5) much better off. Second, we analyze respondents' support for their own country's exit from the EU. The question asks: "*If Germany were to hold a referendum on leaving the EU today, how would you vote?*". Respondents could choose four options from (1) "I would definitely vote to remain the EU" to (4) "I would definitely vote to leave the EU".

We use the participation of the local team to one of the two football competition as a random source of regional variation in exposure to Brexit-related information and investigate the effect of exposure to Brexit-related news in a difference-in-differences setting by comparing respondents answers in the December 2018 and July 2018 survey waves.⁶ We include wave and region fixed effects and a number of pre-treatment covariates (gender, age, age squared, education, and whether the respondent lives in an urban or rural community). We estimate OLS models both with and without covariates. We expect evaluations of Brexit to become more negative between July and December for all respondents, but especially for those in regions where the local team did not play a football match as these respondents were more exposed to negative information about Brexit. Accordingly, we also expect people in these regions to become less supportive of Germany's exit from the EU.

Results

Results in Table 4 show that in regions that were more exposed to new information because their local soccer team was not playing in the final round of the European championships, voters updated their attitudes three times more compared to people in regions where the local team played in the round of European football leagues. The

⁶ The third wave was fielded between June 22 and July 2, 2018.

higher exposure brought voters to evaluate the effects of Brexit on the UK more negatively, and to become less supportive of a German exit from the EU. The effect size is substantial. The decline in Brexit evaluations is equal to -0.14 for less exposed respondents, and -0.34 for more exposed respondents. This means that people that received more information were 9 percent more likely to have negative evaluations of the effect of Brexit on the UK compared to people interview six months earlier in the same regions, while the effect for respondents which were less exposed to new information is reduced to a 3-percentage point change. These results confirm that the British struggles over Brexit provided new information to people in other European countries about the political consequences of leaving the EU. Those who were more exposed to this information were more likely to update their evaluations of Brexit and their support for leaving the EU.

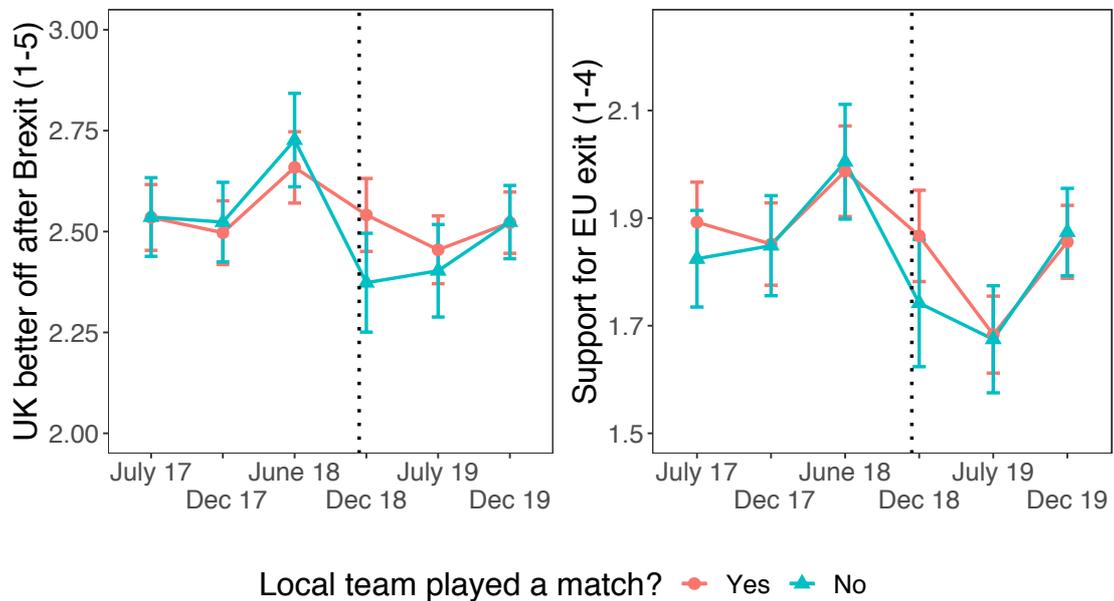
Table 4 – Difference-in-differences models: Germany

	<i>Dependent variable:</i>			
	Positive evaluation of post-Brexit UK (1-5)		Support for EU exit (1-4)	
	(1)	(2)	(3)	(4)
Higher exposure (no game)	-0.240** (0.106)	-0.208** (0.105)	-0.186* (0.100)	-0.205** (0.099)
December wave	-0.117* (0.064)	-0.136** (0.066)	-0.118* (0.061)	-0.094 (0.062)
Constant	2.503*** (0.258)	2.929*** (0.305)	1.621*** (0.253)	1.361*** (0.341)
Observations	3,016	2,960	3,002	2,950
Adjusted R ²	0.014	0.044	0.017	0.053
Region FE	✓	✓	✓	✓
Demographic controls		✓		✓

Note: *p<0.1; **p<0.05; ***p<0.01. Clustered standard errors in parentheses. Post-stratification weights apply. Demographic controls include age, age squared, gender, education, rural/urban community.

To probe the plausibility of our identification assumption, Figure 4 shows the trends in Brexit evaluations and support for EU exit from July 2017 and December 2019 for German regions where the local team played a European football match in December 2018 and for regions where no football team participated. Before the December 2018 wave, there is no significant difference in Brexit evaluations and in support for EU exit between the two groups of regions identified by the participation of their football team to the round of European championship. Interestingly, there is also no significant difference between the two groups in the following waves. The effect that we identify is necessarily short-lived as people that were less exposed to the new information in December are likely to have received additional information from following Brexit-related events (including the 15 January rejection of the Brexit deal analyzed above), either directly as we have shown in our case study, or mediated by the discourse of German political elites.

Figure 4 – Parallel trends in Brexit evaluations and support for EU exit



To further check whether public opinion in regions with and without a football team in one of the two European championships followed similar trends prior to the event, we conduct a falsification test and estimate a placebo difference-in-differences regression with a similar specification for the previous waves of our survey (see Table C1 in the SI). We also estimate the same models presented in Table 4 with two placebo outcomes such as respondents' satisfaction with the position of the German government in the Brexit negotiations, and their evaluations of Brexit effects on Germany (Table C2 in the SI). The absence of significant treatment effects on these two placebo outcomes lend support to our identification strategy, by excluding the possibility the other unrelated events affected our outcome of interest.

We next explore the causal mechanism in a mediation analysis. The identification of a causal mechanism requires the specification of an intermediate variable that lies on the causal pathway between the treatment and the outcome variable. In our case, we test whether and to what extent the change in Brexit evaluations mediate the decline in support for exit produce by the higher exposure to Brexit-related information. The results in Table 5 confirm that a higher exposure to Brexit information has no significant direct effect on support for EU exit, while the average causal mediation effect is equal to -0.037. The decline in Brexit evaluations account for 53 percent of the total effect of higher exposure on decline in support for EU exit.⁷

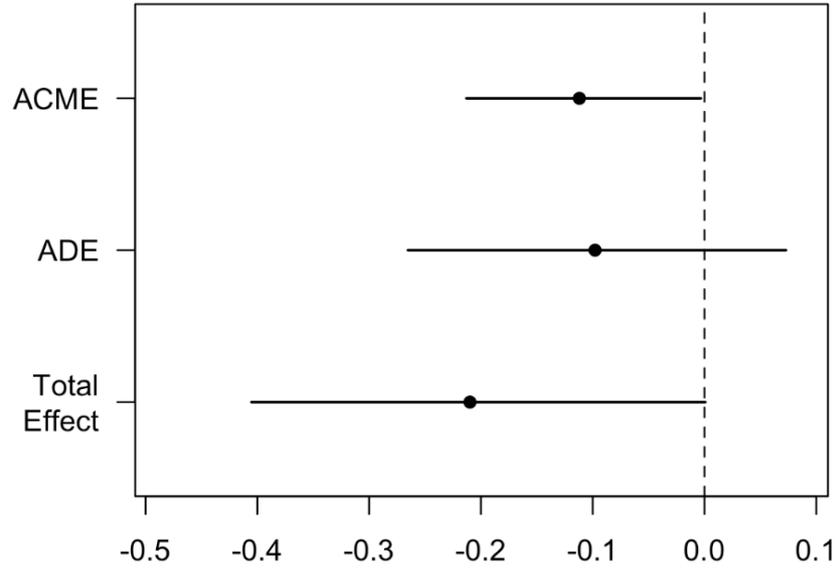
Table 5 – Mediation analysis

	Estimate	95% CI Lower	95% CI Upper	p-value
ACME	-0.112	-0.213	0.00	0.044**
ADE	-0.098	-0.265	0.07	0.258
Total effect	-0.210	-0.405	0.00	0.051*
Prop. mediated	0.533	-0.297	2.00	0.078*

Note: * $p < 0.1$; ** $p < 0.05$. Nonparametric Bootstrap Confidence Intervals based on 10'000 simulations. Sample size used: 2769.

⁷ Figure C1 in the SI shows the results of a sensitivity analysis.

Figure 5 – Direct and indirect effects



Note: ACME is the average causal mediation effect, ADE is the average direct effect.

Conclusions

This paper has analyzed the effect of information about British domestic politics during the Brexit negotiations on EU-related preferences of voters in remaining EU member countries. The results show that two events that signaled the demise of the Brexit aspirations – the first postponement of the parliamentary vote on the Withdrawal Agreement, and its first parliamentary rejection – increased public support for European integration abroad, while a positive event – Johnson’s electoral success – made people’s evaluations of the current direction of the EU more negative. Even in the absence of observable policy outcomes that could inform citizens in remaining member states about the actual effects of leaving the EU, people learned from domestic events of British politics about the political consequences of Brexit. Based on a diff-in-diff design that exploits random variation in exposure to information among German voters, we have provided evidence of the existence of this specific type of cross-national learning. We further tested the process-based benchmarking mechanism via a mediation analysis. When the difficulty of the

approval process became evident abroad, German voters started to have more negative views of the consequences of Brexit for the UK, and in turn this brought them to update their preferences for a German exit.

Not only do these findings confirm previous arguments about both a deterrence and encouragement effect of Brexit (de Vries 2017, Hobolt et al. 2022, Walter 2020, Walter 2021), they also highlight the mechanisms of such effects, thus contributing to our understanding of the systemic reverberations of the backlash against international institutions. At the same time, the fact that voters are able to gather information about the domestic politics of foreign countries and to apply it in their own political evaluations has important normative implications. On the one hand, cross-country comparisons may provide a corrective for people's strong status quo bias (Kahneman and Tversky 1979) by reducing the uncertainty associated with alternative policy choices. On the other hand, the possibility to learn from other countries' successes and failures could help voters to hold politicians accountable for policy pledges and outcomes. Foreign countries' policy failures could warn voters against ill-conceived policies, while the success of a policy in another country could enable voters to distinguish potential flaws in their own country's policy design. This suggests that a higher coverage of international news may improve citizens' political decisions.

Bibliography

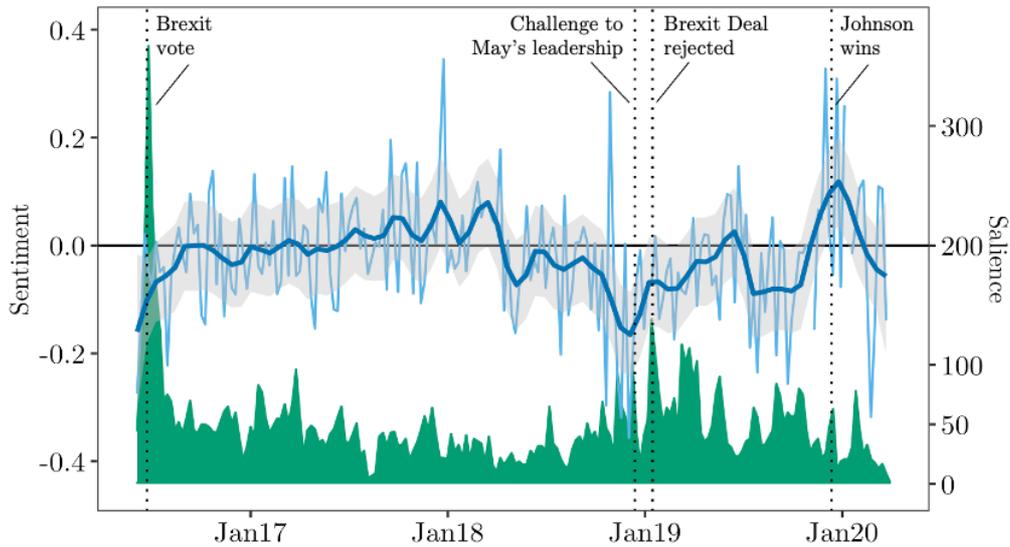
- Anderson, Christopher J. 1998. "When in Doubt, Use Proxies Attitudes toward Domestic Politics and Support for European Integration." *Comparative Political Studies* 31 (5): 569–601.
- Bamert, Justus, Fabrizio Gilardi, and Fabio Wasserfallen. 2015. "Learning and the Diffusion of Regime Contention in the Arab Spring." *Research & Politics* 2 (3): 2053168015593306.
- Braun, Dietmar, Fabrizio Gilardi, Frank Dobbin, Beth Simmons, Geoffrey Garrett, Charles R Shipan, and Craig Volden. 2008. "Taking 'Galton's Problem' Seriously: Towards a Theory of Policy Diffusion." *American Journal of Political Science* 18 (4): 840–57.
- Carpini, Michael X Delli, and Scott Keeter. 1996. *What Americans Know about Politics and Why It Matters*. Yale University Press.
- Chopin, Thierry, and Christian Lequesne. 2021. "Disintegration Reversed: Brexit and the Cohesiveness of the EU27." *Journal of Contemporary European Studies* 29 (3): 419–31.
- Clark, Nicholas, and Timothy Hellwig. 2012. "Information Effects and Mass Support for EU Policy Control." *European Union Politics* 13 (4): 535–57. <https://doi.org/10.1177/1465116512441506>.
- Depetris-Chauvin, Emilio, Ruben Durante, and Filipe Campante. 2020. "Building Nations through Shared Experiences: Evidence from African Football." *American Economic Review* 110 (5): 1572–1602.
- Ecker-Ehrhardt, Matthias. 2012. "Cosmopolitan Politicization: How Perceptions of Interdependence Foster Citizens' Expectations in International Institutions." *European Journal of International Relations* 18 (3): 481–508.
- Eisensee, Thomas, and David Strömberg. 2007. "News Droughts, News Floods, and US Disaster Relief." *The Quarterly Journal of Economics* 122 (2): 693–728.
- Ellger, Fabio, Hanno Hilbig, Sascha Riaz, and Philipp Tillmann. 2021. "Local Newspaper Decline and Political Polarization."
- Gärtner, Manfred. 1997. "Who Wants the Euro—and Why? Economic Explanations of Public Attitudes towards a Single European Currency." *Public Choice* 93 (3): 487–510.
- Giani, Marco, and Pierre-Guillaume Méon. 2019. "Global Racist Contagion Following Donald Trump's Election." *British Journal of Political Science*, 1–8.
- Gilardi, Fabrizio. 2010. "Who Learns from What in Policy Diffusion Processes?" *American Journal of Political Science* 54 (3): 650–66. <https://doi.org/10.1111/j.1540-5907.2010.00452.x>.
- . 2012. "Transnational Diffusion: Norms, Ideas, and Policies." *Handbook of International Relations* 2: 453–77.
- Gilardi, Fabrizio, and Fabio Wasserfallen. 2019. "The Politics of Policy Diffusion." *European Journal of Political Research* 58 (4): 1245–56.
- Gilens, Martin. 2001. "Political Ignorance and Collective Policy Preferences." *American Political Science Review*, 379–96.
- Hainmueller, Jens. 2012. "Entropy Balancing for Causal Effects: A Multivariate Reweighting Method to Produce Balanced Samples in Observational Studies." *Political Analysis* 20 (1): 25–46.
- Hale, Henry E. 2013. "Regime Change Cascades: What We Have Learned from the 1848 Revolutions to the 2011 Arab Uprisings." *Annual Review of Political Science* 16: 331–53.
- Hilgartner, Stephen, and Charles L. Bosk. 1988. "The Rise and Fall of Social Problems: A Public Arenas Model." *American Journal of Sociology* 94 (1): 53–78.

- <https://doi.org/10.1086/228951>.
- Hobolt, Sara B, Sebastian Adrian Popa, Wouter Van der Brug, and Hermann Schmitt. 2022. "The Brexit Deterrent? How Member State Exit Shapes Public Support for the European Union." *European Union Politics*, 14651165211032766.
- Hobolt, Sara, and Patrick Leblond. 2009. "Is My Crown Better than Your Euro? Exchange Rates and Public Opinion on the Single European Currency." *European Union Politics* 10 (2): 202–25.
- . 2013. "Economic Insecurity and Public Support for the Euro." In *Mass Politics in Tough Times: Opinions, Votes, and Protest in the Great Recession*, edited by Larry Bartels and Nancy Bermeo, 128–47. New York: Oxford University Press.
- Kahneman, Daniel, and Amos Tversky. 1979. "Prospect Theory: An Analysis of Decision under Risk." *Econometrica* 47 (2): 263–91.
- Martini, Marco, and Stefanie Walter. 2020. "Learning from Precedent: How the British Brexit Experience Counteracts Populism Outside the UK." In *Paper Presented at the 2020 APSA Annual Meeting*.
- Mikulaschek, Christoph, Saurabh Pant, and Beza Tesfaye. 2020. "Winning Hearts and Minds in Civil Wars: Governance, Leadership Change, and Support for Violent Groups in Iraq." *American Journal of Political Science* 64 (4): 773–90.
- Minkus, Lara, Emanuel Deutschmann, and Jan Delhey. 2018. "A Trump Effect on the EU's Popularity? The US Presidential Election as a Natural Experiment." *Perspectives on Politics*, 1–18.
- Muñoz, Jordi, Albert Falcó-Gimeno, and Enrique Hernández. 2020. "Unexpected Event during Survey Design: Promise and Pitfalls for Causal Inference." *Political Analysis* 28 (2): 186–206. <https://doi.org/DOI: 10.1017/pan.2019.27>.
- Rohrschneider, Robert. 2002. "The Democracy Deficit and Mass Support for an EU-Wide Government." *American Journal of Political Science*, 463–75.
- Saideman, Stephen M. 2012. "When Conflict Spreads: Arab Spring and the Limits of Diffusion." *International Interactions* 38 (5): 713–22. <https://doi.org/10.1080/03050629.2012.726186>.
- Sánchez-Cuenca, Ignacio. 2000. "The Political Basis of Support for European Integration." *European Union Politics* 1 (2): 147–71. <https://doi.org/10.1177/1465116500001002001>.
- Simmons, Beth A, Frank Dobbin, and Geoffrey Garrett. 2006. "Introduction: The International Diffusion of Liberalism." *International Organization*, 781–810.
- Walter, Stefanie. 2021. "Brexit Domino? The Political Contagion Effects of Voter-Endorsed Withdrawals from International Institutions." *Comparative Political Studies*, 2021.
- Weyland, Kurt. 2010. "The Diffusion of Regime Contention in European Democratization, 1830-1940." *Comparative Political Studies* 43 (8–9): 1148–76.

Supplementary Information

Figure A1 – Media coverage of Brexit in Germany

Sentiment and salience of UK's withdrawal from the EU on BILD, Die Welt, Süddeutsche Zeitung and Handelsblatt



Note: Salience is measured as the weekly number of articles that mention the word 'Brexit'. Sentiment is the polarity of the words used in a subsample of 5100 titles and leads.

The green area shows the weekly number of articles that mention the word “Brexit”, our indicator for the salience of the issue. After a high peak in the week of the referendum vote, reporting of Brexit followed an average of around 30 articles per week during the first phase of the negotiations. However, the number of articles devoted of started to increase at the end of 2018 as complications started to emerge over the parliamentary approval of the first deal on the divorce settlement. The sentiment analysis (blue line) shows that the three events we analyze are marked by a distinctive polarity of the words used in the reporting.

Figure A2 – Balance plot (December window)

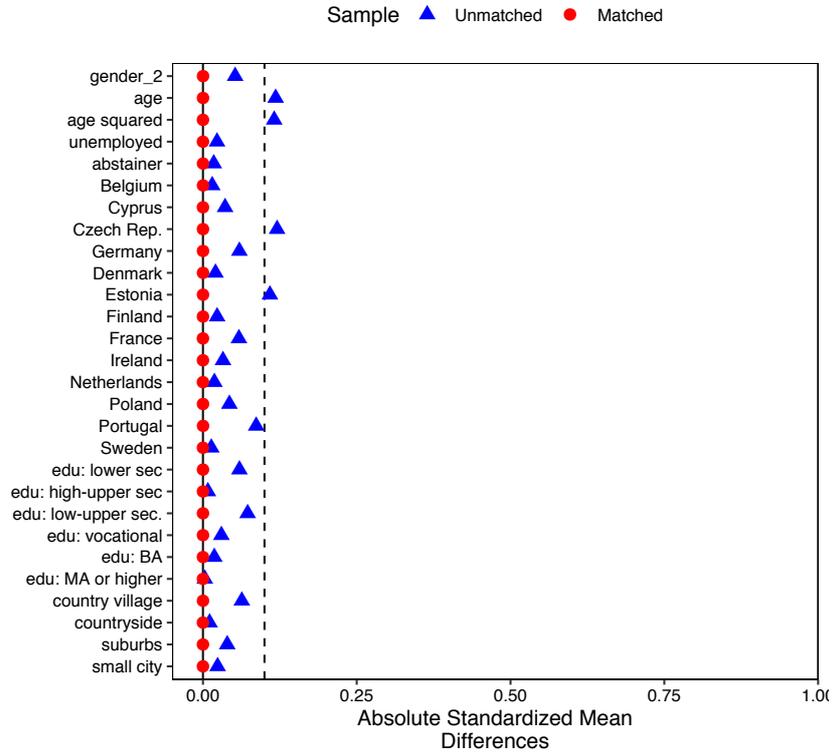


Figure A3 – Balance plot (January window)

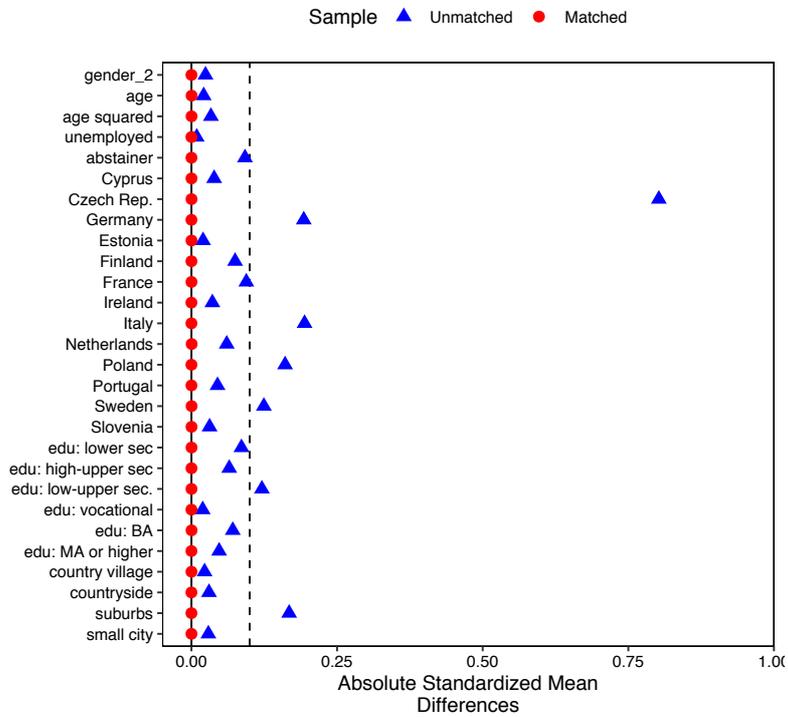


Figure A4 – Models with varying bandwidths (December window)

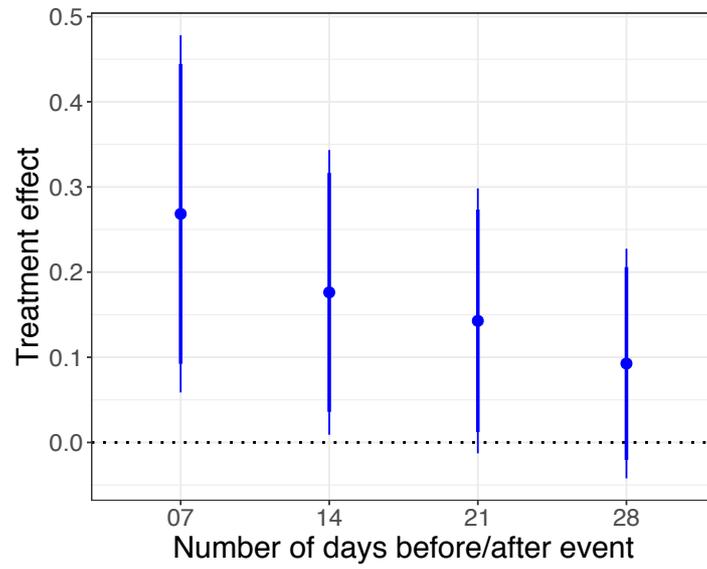


Figure A5 – Models with varying bandwidths (January window)

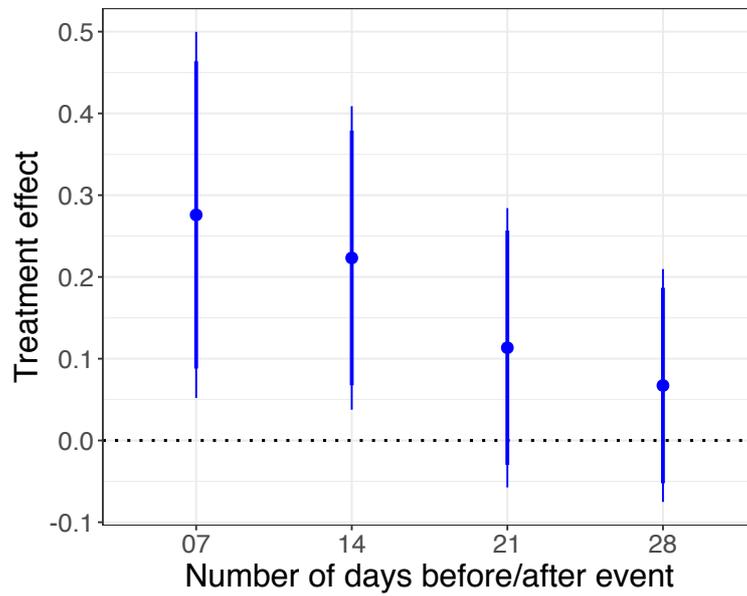


Table A1 – Falsification test ESS: placebo outcomes

	<i>Dependent variable:</i>					
	Economic satisfaction		Left-right		Immigration (culture)	
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment 1	0.022		-0.007		0.086	
(post 10.12.18)	(0.078)		(0.090)		(0.101)	
Treatment 2		0.089		-0.053		0.106
(post 15.01.19)		(0.073)		(0.081)		(0.087)
Constant	6.894***	5.382***	4.746***	4.818***	5.030***	6.065***
	(0.087)	(0.112)	(0.103)	(0.143)	(0.134)	(0.141)
Observations	4,100	4,450	3,784	3,947	4,068	4,442
Country FE	✓	✓	✓	✓	✓	✓
Entropy balancing	✓	✓	✓	✓	✓	✓
Log Likelihood	-8,993.428	-9,890.425	-8,506.759	-8,927.307	-9,806.792	-10,748.040
Akaike Inf. Crit.	18,018.860	19,810.850	17,045.520	17,884.610	19,645.580	21,526.090

Note: * p<0.1; ** p<0.05; *** p<0.01

Figure B1 – Study 2: Balance plot

Covariate balance - Eurobarometer December 2019

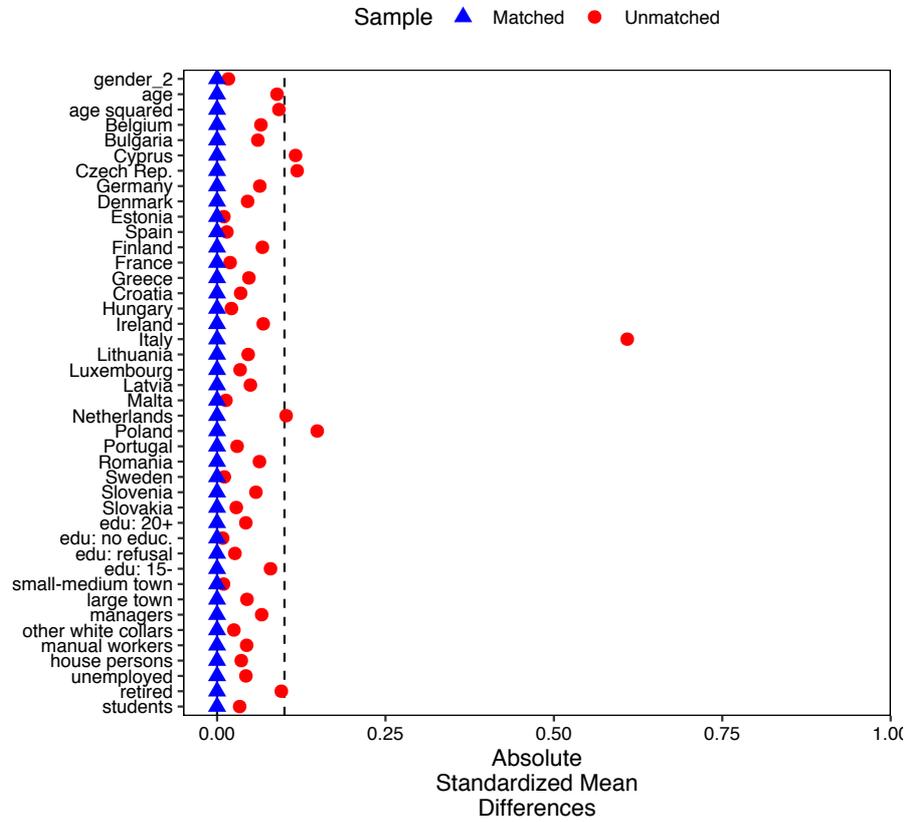


Table B1 – Robustness tests for study 2: Johnson’s election victory

	<i>Dependent variable:</i>					
	EU in the right direction (0-1) ± 3 days		EU in the right direction (1-3) – Ordered logit		Placebo outcome: left right (1-10)	
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment	-0.024*** (0.008)	-0.024** (0.010)	-0.046* (0.027)	-0.050** (0.020)	-0.037 (0.030)	-0.016 (0.035)
Constant	0.372*** (0.019)	0.368*** (0.021)			5.015*** (0.069)	4.980*** (0.080)
Intercept 1 2			-0.232*** (0.061)	-0.215*** (0.045)		
Intercept 2 3			0.353*** (0.061)	0.370*** (0.045)		
Observations	14,158	13,737	22,948	22,303	21,702	21,222
Country FE	✓	✓	✓	✓	✓	✓
Entropy balancing		✓		✓		✓
AIC	20,194.85	21,513.50	44,029.87	77,379.84	96,077.76	96,512.65
<i>Note:</i>	*p<0.1; **p<0.05; ***p<0.01					

Table C1 - Falsification test of the diff-in-diff design (Germany)

	<i>Dependent variable:</i>			
	Positive evaluation of post-Brexit UK (1-5)		Support for EU exit (1-4)	
	July 2017– Dec. 2017	Dec. 2017 – July 2018	July 2017 – Dec. 2017	Dec. 2017 – July2018
No game	0.053 (0.091)	0.043 (0.097)	0.058 (0.084)	0.059 (0.091)
Wave (Dec. 2017)	-0.063 (0.058)		-0.045 (0.053)	
Wave (July 2018)		0.183*** (0.060)		0.127** (0.058)
Constant	1.709*** (0.226)	1.995*** (0.240)	0.505** (0.201)	1.078*** (0.235)
Observations	2,749	2,738	2,797	2,764
Adjusted R ²	0.019	0.037	0.048	0.042
Region FE	✓	✓	✓	✓
Dem. controls	✓	✓	✓	✓

Note: *p<0.1; **p<0.05; ***p<0.01

Table C2 - Diff-in-diff design (Germany): Placebo outcomes

	<i>Dependent variable:</i>			
	Support government's Brexit strategy		Evaluation of Brexit effects on Germany	
	(1)	(2)	(3)	(4)
Higher exposure	0.099 (0.094)	0.049 (0.094)	0.065 (0.081)	0.056 (0.082)
Wave (Dec. 2018)	-0.011 (0.056)	0.0002 (0.057)	0.142*** (0.052)	0.144*** (0.054)
Constant	3.121*** (0.191)	2.598*** (0.275)	2.806*** (0.111)	3.009*** (0.242)
Observations	3,007	2,950	3,050	2,990
Adjusted R ²	0.004	0.030	0.011	0.016
Region FE	✓	✓	✓	✓
Dem. controls		✓		✓

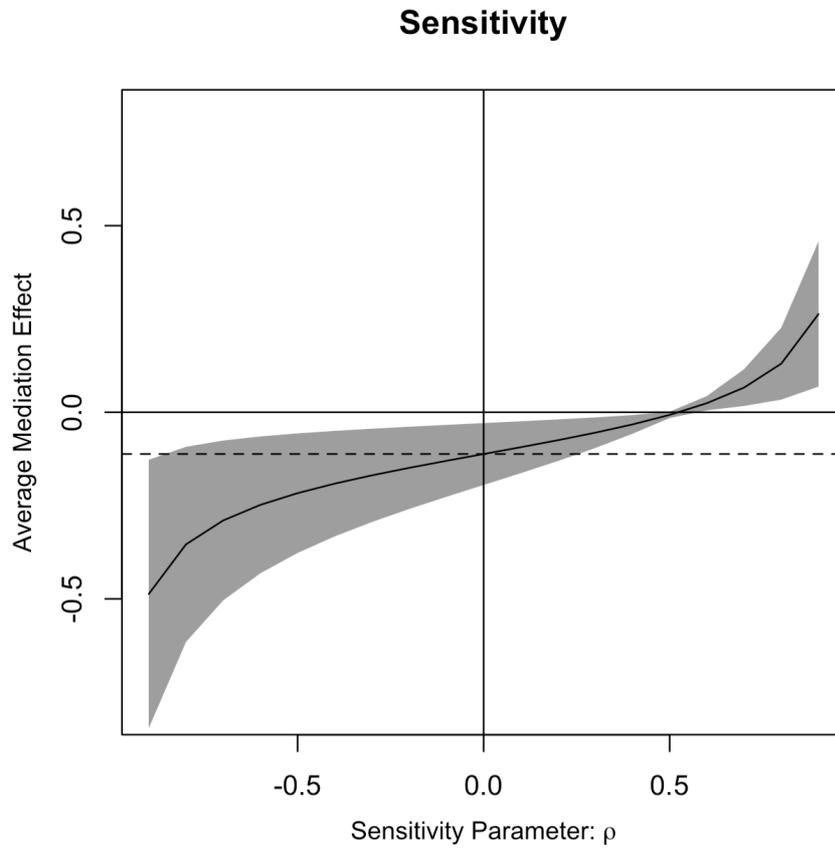
Note: *p<0.1; **p<0.05; ***p<0.01

Table C3 – Reporting of Brexit in German local newspapers

	<i>Dependent variable:</i>					
	Reporting (0-1)		No. of articles		No. of words	
	(1)	(2)	(3)	(4)	(5)	(6)
10-13 December w/out soccer game	0.125** (0.059)	0.125** (0.059)	0.339* (0.183)	0.339* (0.184)	103.764 (98.916)	103.764 (99.300)
10-13 December	0.317*** (0.033)	0.246*** (0.042)	0.807*** (0.130)	0.734*** (0.140)	425.612*** (82.436)	404.346*** (80.308)
Monday		-0.129** (0.058)		-0.452*** (0.142)		-199.735*** (62.631)
Saturday		0.037 (0.045)		-0.088 (0.097)		-15.904 (40.739)
Sunday		-0.400*** (0.054)		-0.792*** (0.135)		-326.088*** (58.281)
Thursday		0.077 (0.063)		0.009 (0.106)		69.696 (59.051)
Tuesday		-0.021 (0.059)		-0.295** (0.140)		-131.931** (58.873)
Wednesday		0.175*** (0.061)		0.254* (0.134)		30.029 (58.313)
Observations	782	782	782	782	782	782
R ²	0.164	0.269	0.252	0.323	0.222	0.274
Journal FE	YES	YES	YES	YES	YES	YES

Note: *p<0.1; **p<0.05; ***p<0.01. Standard errors (in parentheses) are clustered at the journal level.

Figure C1 - Mediation sensitivity analysis



We choose as the sensitivity parameter the correlation ρ between the residuals of the mediator and outcome regressions. If there exist unobserved pre-treatment confounders which affect both the mediator and the outcome, we expect that the sequential ignorability assumption is violated and ρ is no longer zero. The sensitivity analysis is conducted by varying the value of ρ and examining how the estimated ACME changes. The results show that for the point estimate of the ACME to be 0 the correlation between the residuals of the mediator and outcome regressions must be approximately 0.5.