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UNCOOPERATIVE SOCIETY, UNCOOPERATIVE POLITICS OR BOTH?

**Polarization and Populism Explain Excess Mortality for COVID-19
across European regions**

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Uncooperative Society, Uncooperative Politics or Both? How Trust, Polarization and Populism Explain Excess Mortality for COVID-19 across European regions

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ABSTRACT

Why have some territories performed better than others in the fight against COVID-19? This paper uses a novel dataset on excess mortality, trust and political polarization for 153 European regions to explore the role of social and political divisions in the remarkable regional differences in excess mortality during the first wave of the COVID-19 pandemic. First, we argue that it is not only levels, but also variations in trust among citizens – in particular, between government supporters and non-supporters – what matters for understanding why people in some regions have adopted more pro-healthy behaviour. Second, we hypothesize that the ideological positioning and polarization of such positioning among political parties is also linked to higher mortality, for it facilitates taking government measures aimed at satisfying core constituencies (e.g. business interests) to the detriment of building wide political consensus to undertake unpopular yet necessary measures. Overall, we find that mass polarization also played a significant role. When the divide in political trust between supporters and opponents of incumbent governments within societies is high, we observe consistently higher COVID-19-related excess mortality deaths during the first wave of the pandemic. We also find that regions with a political elite less supportive of European integration are regions where excess deaths have been significantly higher.

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Why does COVID-19 kill more in some places than in others?

Pasteur stated that “science knows no country because it is the light that illuminates the world”. Yet, if something the COVID-19 pandemic is elucidating that the science light seems to shine brighter in some regions and countries than in others. Expert recommendations to control the spread of the virus – from social distancing or staying at home to adopting novel treatments – have been adopted to a far larger extent by *some governments* than others, and followed more by *some societies* than others. We argue that these differences across otherwise similar territories (countries or subnational regions) are the result of low trust and political polarization and in turn, have had an impact on contagion and, especially, on COVID-19 related deaths. Societies strongly divided and confronted along partisan lines have been less capable to, first, garner the wide cross-party agreements necessary to take tough policies against a pandemic and to clearly communicate them to the population; and, second, to implement those policies effectively, for government supporters and non-supporters may opt for opposite courses of action. Political polarization is, among other factors, behind the refusal of many Republicans in the US to wear facemask (Gallup 2020), or the “patriotic duty” of conservatives to visit pubs in Britain (Owen 2020), and the bullfighting arena in Spain (Minder 2020a).

The impact of divisive politics on the social and political response to COVID-19 has received notable media coverage, but limited scholarly attention to date. Most of the COVID-19 research has focused on epidemiological factors, yet given the unequal spread of the disease across territories, and the different responses by national, regional, and local governments, there are reasons to presume political, societal and psychological factors play also a notable role. For, as long as we lack both effective medicines and vaccines against COVID, the key variable to contain the spread of the pandemic is human behaviour (Van Bavel et al. 2020). In order to understand the devastation of epidemics we need to put them in a large ecological context, considering the social variables that may foster or hinder their spread (Morse 1996). Microbes thrive in “undercurrents of opportunity” made available through social and political decisions, or lack thereof (Krause 1996). This paper presents a pioneering systematic study of these undercurrents of opportunity in the case of COVID-19, and, in particular, of how political polarization may affect the lethality of the pandemic.

The paper builds on previous literature indicating that both social trust and institutional trust are protective factors against epidemics. As it has been noted regarding the COVID-19 pandemics, how people are able to stay at home, to keep physical distance from each other, or to refrain from going

to a bar or restaurant, depends on the trust citizens have both on other people – i.e. social trust – and on their government – i.e. institutional trust – (Oksanen et al. 2020). Our paper makes four contributions to this literature.

First, we do not focus only on *levels of trust*, but also on *variation – or polarization –* of trust among citizens. We argue that in societies where there is a wide gap in institutional trust between those who support the government and those who support the opposition, it will be more difficult to implement measures and recommendations against COVID-19. At the extreme, half of the voters could decide to wear a facemask and keep social distancing, and the other half could decide not only not to take preventive actions, but even to sabotage them, organizing protests and willingly violating the rules.

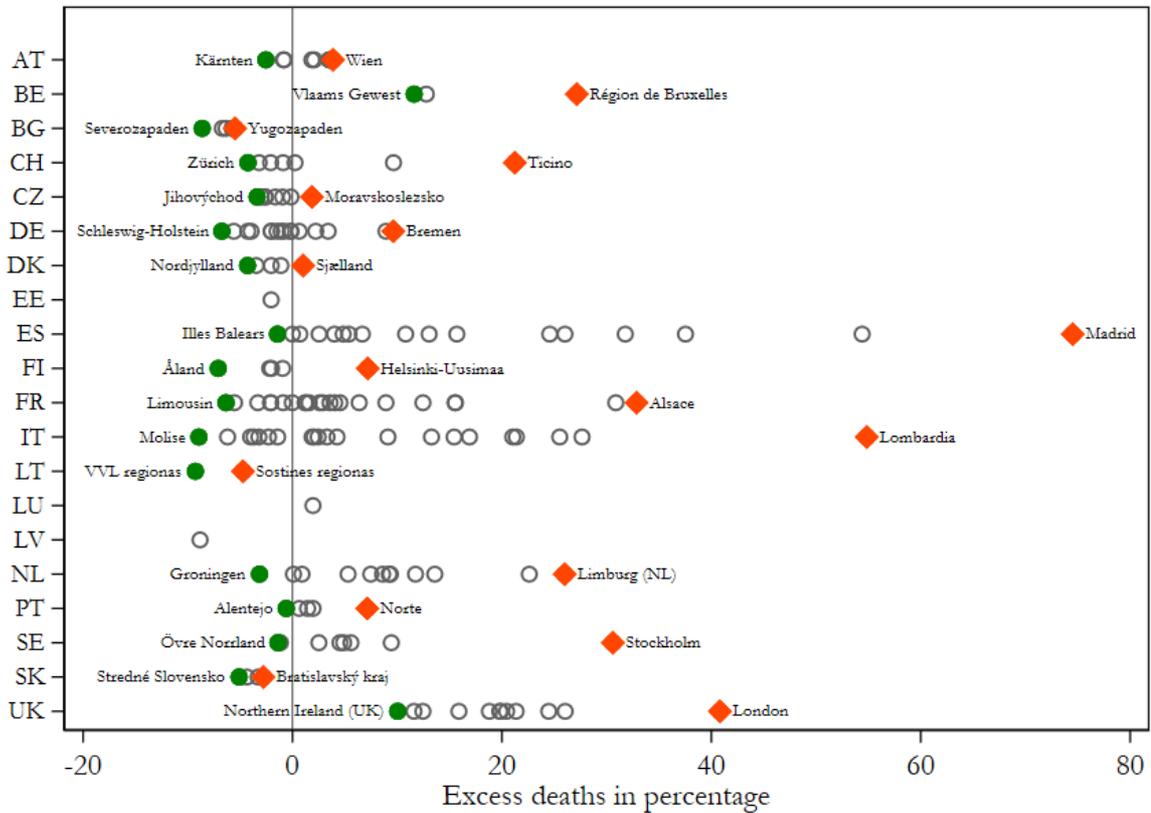
Second, we posit that polarization and greater scepticism of expertise and international cooperation among political elites renders lead to suboptimal policymaking and implementation in the combat against the virus. Using several original measures of elite level polarization and ideology, we test whether the average government partisan positioning and level of polarization along three ideological dimensions – left-right, gal-tan, and European integration – explains our outcome variable.

Third, while existing research has largely concentrated on *government outputs* (e.g. anti-contagion measures) against the pandemic, we look at *outcomes*: excess mortality during the pandemic. In general, scholars have explored the factors leading to different government responses to the pandemic: the strictness of the preventive measures, such as school and workplace closures, restrictions on mobility, cancellation of public events, or public information campaigns (Cheibug, Hong and Przeworski 2020, Hsiang 2020, Sebhatu et al. 2020). Several works have also examined aggregate indicators of anti-pandemic policies, such as the Oxford COVID-19 Government Response Tracker (OxCGRT) (Cepaluni, Dorsch and Branyiczki 2020). Few studies, however, have analysed health outcomes, such as, official accounts of deaths due to COVID-19 or the daily data on confirmed cases of COVID-19, from the CSSE at Johns Hopkins University (Cronert 2020). Yet both confirmed cases and confirmed deaths could be hiding an opportunistic underreporting of deaths by health authorities. A more realistic measure of the devastation caused by a pandemic is to compare the excess mortality in a given territory during this year vis-à-vis the five previous years. For, from a moral point of view, it is irrelevant whether a death – that could have been avoided – was directly due to COVID-19 or, indirectly, because the patient did not get proper care for his cancer or heart attack. Consequently, our outcome

variable of interest is excess deaths during the first 22 weeks of 2020 compared with the previous five years.

Four, while several studies have explored the influence of political factors on policy responses, public adherence to government regulations, and COVID-related deaths, such studies focus on national-level variation, overlooking significant *within-country* variation. For instance, democracies have reacted slower than autocracies, particularly the most solidly democratic, such as the Nordic countries, the US or the UK (Cheibub, Hong and Przeworski 2020). Authoritarian systems imposed more stringent lockdowns (Frey, Chen, and Presidente 2020). A study of 111 countries found that those with more obedient and collectivist cultural traits experienced larger declines in geographic mobility relative to their more individualistic counterparts (Frey, Chen, and Presidente 2020). Moreover, most studies on institutional trust focus on cross-national differences (Marien and Werner 2019, Van der Meer and Hakhverdian 2017). That is particularly the case for studies on the impact of institutional trust on the (cross-national) divergent reactions to COVID-19 (Oksanen et al 2020). This research rightly notes that institutional trust is typically highest in Nordic countries (Finland, Denmark, Iceland, Norway, Sweden). Yet, as recent studies with EU regions remark, the subnational differences in institutional trust between, for instance, northern and southern regions in nations like Italy or Spain outweigh national differences (Charron and Rothstein 2018). And, when it comes to the COVID-19 pandemic, the regional divergences within the borders of the same country in excess of deaths during the first months of 2020 (in comparison to the 2015-2019 average) are remarkable, as it can be seen in Figure 1. Many country capitals, rich and highly dense regions have suffered significantly more the first wave of the coronavirus pandemic.

FIGURE 1, EXCESS DEATHS IN PERCENTAGE ACROSS EUROPEAN REGIONS



Note: Total deaths by region in 2020 between weeks 1 and 22 (until end of May) in comparison with Average deaths by region (2015-2019) between weeks 1 and 22. Orange diamonds (green circles) represent the region with the highest (lowest) level of excess deaths in a given country. Hollow, grey circles summarize all other regions. Overseas French and Portuguese regions not included.

Figure 1 shows the importance of the sub-national level variation in most countries. For example, in decentralized Belgium, the share of excess deaths during this time in the Brussels region was 27.2%, whereas in Flanders it was limited to 11.6%. In the more centralized Netherlands, excess deaths in Limburg exceed 25% while Groningen had just over 3% fewer deaths. In even more extreme cases, we find remarkable differences between the Italian regions of Lombardy (nearly 55% change in deaths), whereas Molise witnessed close to a 9% decline in the same period. Similarly in Spain, excess mortality in Madrid increased by nearly 75%, compared with a 1.4% decline in the Balearic Islands. These within-country differences are at times far more meaningful than the country-level average differences: the most extreme comparison between Spain (23.5%) and Latvia (-8.8%) is smaller than the within-country gaps in Italy, Spain or France, and nearly equivalent to that in smaller, centralized

countries, such as Sweden or the Netherlands. Moreover, due to the nature of the crisis itself, sub-national governments (regional or local) are highly relevant, as they are responsible for many services directly affected by COVID-19 – such as health care and social services, which renders them at the ‘frontline of crisis management’ (OECD, 2020: 4). These factors motivate our choice of the level of analysis.

In sum, this paper aims to contribute to the literature by examining the effects trust and polarization on excess mortality due to COVID-19 for European regions. We test four hypotheses. Two regard social division or the existence of an “uncooperative society”. We expect higher excess mortality in those regions with lower overall levels of social trust (H1) and lower mass polarization (measured by the difference in institutional trust between government and nongovernment supporters) (H2). Two hypotheses refer to political division or the existence of an “uncooperative politics”. We predict higher excess mortality in those regions with more political division (measured by the ideological polarization among the political parties in a region, and party fragmentation) (H3), and more populism (measured by a higher average score of the political parties in the region in the GAL-TAN and anti-European integration scale) (H4).

Our next section develops the theoretical arguments, and the subsequent ones explain the data and methods, and present the empirical results.

Theory: Trust, Polarization and Pandemics

Governments around the world have responded to the COVID-19 in different ways (Moon 2020, Hale and Webster 2020) because they face conflicting considerations (Cheibub, Hong and Przeworski 2020). Our central message is that, in dealing with the pandemic, some governments, national and regional (which are particularly involved in health care policies in many European countries), have been constrained by socio-political divisions. When taking and implementing the inherently high-risk decisions on how to fight the virus, governments have pondered whether they enjoyed sufficient support of opposition forces and the trust of their populations. Likewise, when deciding whether to follow governments’ rules and recommendations, citizens have been affected by the level of polarization.

Why have some regions and countries performed better than others in the fight against COVID-19? The pandemic has forced governments all over the world to intervene in the health, social and business life of their citizens on a scale not seen since WWII (Cepaluni, Dorsch and Branyiczki 2020). The general goal was to flatten the epidemiological curve and avoid the collapse of health care systems (Anderson et al. 2020). To start with, the virus hit first (and hardest) some territories and not others. Although Alpine ski resorts, notably in Austria, seem to have played an important part in the rapid diffusion of the pandemic, northern Italy is generally regarded as ground zero of COVID-19 in Europe. The havoc it wreaked in cities like Bergamo and Milan sent a strong warning to the rest of Europe, but it could not prevent its expansion to other hotspots, such as Madrid, London, Paris, Brussels, or Stockholm. The higher initial exposure to the virus of some regions and countries may account for a good deal of its excess of deaths due to COVID. Yet we argue that other sources of variation stem from socio-political divisions elucidated below.

Social Trust

To understand those differences, existing research has highlighted the importance of both social trust (also known as generalized or interpersonal trust) and institutional trust. We have known for long that trust is a cornerstone of healthcare, from an effective doctor-patient relationship to an efficient use of health services and adoption of pro-healthy behaviour (Rowe and Calnan 2006). Additionally, trust is regarded as essential for an effective response to disasters (Norris et al. 2008).

In principle, the relationship between social trust and containment is complex: high-social-trust areas are economically more vibrant, and thus the virus could have spread there more quickly. Yet in high-social-trust areas, citizens are more willing to contribute to the common good, and more conscious of the social consequences of their individual behaviour (Ostrom 1999, Putnam 1993). In essence, when enacting orders and recommendations against a pandemic, governments must rely on the social responsibility of their citizens (Bartscher et al. 2020). Good behaviour by each individual citizen is dramatically required for the success of a strategy against the virus (Bargain and Aminjonov 2020). If social trust is high, governments can rely on first-best solutions that have low enforcement costs – such as recommending social distancing and hand washing, and asking citizens not to visit the elderly, and limit their travel – but that, as a downside, have a large risk of defection. (Harring, Jagers, and Löfgren 2021). Yet, if people do not follow the recommendations not to socialize or to keep physical distance, as happened in Italy and Spain during the first week of the pandemic, governments needed to take very tough measures, such as curfews (Oksanen et al. 2020). If citizens do not trust each other,

governments cannot take their optimal response – recommendations that allow citizens some freedom to implement them to their personal circumstances – and will have to resort to a suboptimal hard monitoring and enforcement of regulations, like curfews enforced by the police or even the armed forces.

High levels of social trust may explain Sweden’s “light approach” to the fight against coronavirus and the fact that, at some stages of the pandemic, it achieved very similar results to some other European countries despite not undergoing a lockdown (Born et al. 2020). In contrast, low social trust may be behind some of the hardest policy measures against COVID-19 in European regions with a poor record in terms of controlling the pandemic. As Spain’s chief epidemiologist Fernando Simón openly admitted when justifying the closure of children parks in the region of Madrid, a measure that attracted extensive criticism by experts in mental health and education, low trust in citizens’ behaviour was the main reason behind it: we need to close parks because “we do not have enough police officers as to put one in each corner of each park” (*El Español* 2020).

Other factors closely linked with social trust – such as social capital or levels of civil duty – have also been found to activate pro-public health behaviour during this pandemic. Using mobile phone and survey data for US individuals, Barrios et al. (2020) show that voluntary social distancing in Europe during the early phases of COVID-19 was higher where individuals exhibited a higher sense of civic duty. Additionally, social distancing prevailed in US counties with high civic capital, even after US states started to re-open. A within-country study of Austria, Germany, Italy, the Netherlands, Sweden, Switzerland and the UK showed that one standard deviation increase in social capital led to 12% and 32% fewer COVID-19 cases per capita (Bartscher et. Al 2020). And, focusing on Italy, areas with high social capital exhibit both lower excess mortality and lower mobility (ibid.). Likewise, there seems to be a strong association between social capital and the early reduction of mobility across US counties (Borgonovi and Andrieu 2020).

Institutional Trust

In order to comply effectively with government recommendations, citizens must trust that the recommendations they receive from the public authorities are correct and in their best interest (Harring, Jagers and Löfgren 2021). Evidence from previous pandemics points out in that direction. In 2014-16 Liberia and Congo citizens who distrusted government took fewer precautions against Ebola and were also less compliant with Ebola control policies (Blair, Morse and Tsai 2017).

Similarly, a lack of trust in government may lead to bad health outcomes. For instance, the historic low levels of trust in government in 1990s-Britain were linked to the increasing hesitancy towards the measles-mumps-rubella (MMR) vaccine in large sectors of society (Larson and Heymann 2010). Equally, the outbreak of measles in 2015 in Orange County has been associated to parents' low trust in American public health agencies (Salmon et al. 2015).

Regarding COVID-19, influential observers noted early on that the major dividing line in the effectiveness of the crisis response was not the one between autocracies and democracies, but the one between high and low trust in government (Fukuyama 2020). Moreover, institutional trust has been associated with lower COVID-19 mortality in early studies. Countries, such as France, Spain or Italy, with lower levels of institutional trust than other European peers experienced higher deaths rates in the first weeks of the pandemic (Oksanen et al. 2020).

Institutional trust is may also be conducive to a higher adoption of health and prosocial behaviours. Citizens are more prone to act in favour of the collective if they perceive that governments are well organized, that they disseminate clear messages and knowledge on COVID-19, and that government interventions are fair (Han et al 2020). With regards to European regions, it has been found that those with higher institutional trust experienced a sharper decrease in mobility, related to non-necessary activities, than low-trust-in-government regions (Bargain and Aminjonov 2020). Nevertheless, other studies have concluded that institutional trust is of relatively little importance for predicting whether people follow government recommendations or take health precautions, such as using face-masks, social distancing, or handwashing (Clark et al. 2020). Or that trust needs to be paired with high state capacity for producing desired outcomes (Christensen and Laegrid 2020).

Polarization and Populism

Our concept of polarization is in line with the notion of 'partisan polarization', whereby attitudes of elites and citizens are clustered around their partisan affiliation (Drukerman et al 2013). Partisan polarization can take two broad forms. The first, 'ideological polarization', refers to partisan voters or elites holding more extreme positions on policy issues. The second, 'affective polarization' (Iyengar et al 2019), captures the idea that partisans distrust (or even dislike) those from opposing parties. In our framework, we apply the former type of polarization to the elite level (party positions in parliament), while the latter refer to what we could refer to as mass polarization. We argue that both

ideological (or elite) polarization as well as affective (or mass) polarization matter for understanding the results in the fight against the pandemic. If a large part of the population – those who vote for opposition parties – do not trust their institutions, the implementation of effective policies against the pandemic becomes difficult. If the fight against COVID-19 is filtered through ideological lenses, supporters of a given party may find a duty in not following recommendations and health precautions suggested by institutions perceived as dominated by an opposing party. Given that face-to-face contact has been significantly reduced during the pandemic, the polarizing effects from self-selected social media or partisan ‘echo chambers’ may enhance the effects of partisan polarization (Tucker et al 2018).

On the issue of mass-level polarization, a noteworthy example is the Republicans in the US. To start with, social distancing policies were taken more slowly in those states with Republic governors and more Trump supporters (Adolph et al 2020). At county level, the effect of restriction orders has been stronger in Democratic-leaning counties (Engle et al. 2020). And, at individual level, it has been shown, tracking data from smartphones, that Republicans practice less social distancing (Barrios and Hochberg 2020).

The situation may not be much different in Europe. In April, Italy’s opposition leader Matteo Salvini, together with 74 MPs occupied the Italian parliament in protest at the ongoing lockdown in Italy (Roberts 2020). In October, supporters of Spain’s far-right VOX organized protests against government restrictions (Rodriguez-Guillermo 2020), and in several Italian cities, including Turin, Rome and Palermo, right-wing demonstrations ended up with violent clashes with the police, including the throwing of petrol bombs at officers (BBC 2020a).

Yet what motivates protests is not necessarily a right-wing ideology, but the ideological distance with the institution that imposes (or is perceived as imposing) the anti-COVID measures. For instance, in May, right-wing voters of upscale districts in Madrid demonstrated against the left-wing national government for allegedly curtailing their freedoms with the anti-COVID measures imposed in Spain (Viejo and Ramos 2020). While, in September, it was the turn of left-wing supporters in poorer districts in Madrid to organize protests against the partial lockdowns decided by the conservative local and regional governments for allegedly being “racist” and “classist” (Jones 2020).

This political polarization of a society is associated (as cause and/or effect) with polarization of the political elite (Hetherington, 2001). We argue the exacerbated ideological differences among political

parties lead to worse outcomes in the fight against the pandemic through three mechanisms: first, it is more difficult for governments to build policy consensus with opposition parties; second, government parties give priority to core constituencies' (e.g. business owners) demands over public health concerns; and, third, because with polarization, policies become more populist and less based on experts' criteria (see Drukerman et al 2013).

First, if political parties are ideologically distant from each other, governments will lack the support of opposition parties to take the necessary measures. To take extraordinary policies, governments need to build extraordinary consensus with other relevant political actors. Governments have to avoid taking erratic decisions once panic strikes following the onset of a pandemic and build consensus around expertise-based solutions that may yield to better results at long-term, even if they impose short-term concerns. Building consensus is easier when, to start with, there is low polarization among the political elite. If opposition forces and the mass media that support them are ideologically very distant from the government, agreement about the adequate response to a crisis is unlikely.

To take costly measures, like wide-scale testing and tracing measures, governments require the support of large parliamentary majorities that are improbable in highly polarized and fragmented party systems. One of the reasons of Spain's poor performance against the pandemic in summer is that, after having had Europe's strictest lockdown in spring, the minority coalition in government headed by the social democratic PSOE did not get parliamentary support to renew the state of emergency that allowed it to continue implementing tough measures (*The Economist* 2020). The conservative PP and the Catalan and Basque nationalists refused to back the PSOE in a highly tense political climate amidst accusations of lying and hiding the real number of deaths due to COVID-19. Rebuffed, the Spanish national government handed control of the pandemic to the regions. As indicated by *The Economist* "Spain's poisonous politics have worsened the pandemic and the economy" (ibid., 23)

Secondly, in highly polarized settings, governments may give priority to core constituencies' short-sighted interests over long-term social benefits. To start with, governments fear reputational costs for both underreacting as overreacting. During the early stages of COVID-19 many governments were accused of overlooking the threat. The opposite happened during the 2008 swine-flu epidemic, when governments were blamed for overreacting. For instance, the French government spent 1.5 billion euros on swine-flu vaccines and, since swine-flu never reached a pandemic stage, the Minister

of Health was accused of misspending (Cheibub, Hong and Przeworski 2020). In all crisis governments face unavoidable trade-offs, and, during pandemics, governments are forced to weigh in whether the health benefits of draconian anti-contagion policies are worth their social and economic costs, such as sharp increases in unemployment and the worsening of educational outcomes (Hsiang et al. 2020).

In relatively low-polarized party systems, governments may need to signal to its citizens that the high-risk decisions they take serve public interests and not special interests (Cairney 2016). Yet in highly polarized ones, parties in government may prefer to secure the support of their core constituencies, knowing that their actions will not get the legitimacy from a hostile rest of society. For example, the conservative Madrid region government decided to reopen the interior of bars and restaurants against scientific advice, “given the importance of bars and restaurants to the Spanish economy” (Dombey, Chaffin and Burn-Murdoch 2020, 1). For the president of the region, the tough measures recommended by experts would amount to “the death to our community” (ibid.). As a result of these pro-business policies, the Madrid hospitality association declared itself “very satisfied” (ibid.). Quite the opposite, the Partnership for New York City, which collects the views of business, severely criticized governor Cuomo and mayor de Blasio for having “erred in the direction of favouring the health over the economic side of the crisis” (ibid.), for they ignored business pressures and kept the restrictions on indoor dining. The result is that two large metropolises, Madrid and New York, which suffered almost an identically devastating first wave of COVID-19 in the spring, entered the autumn with almost opposite patterns: the worst regional data in the early stages of the second wave in Europe (Madrid), and a relatively controlled situation (New York).

Likewise, in highly polarized settings, governments may be unable to take short-term unpopular policy decisions, even if they are more effective in the long-run. For instance, the Spanish government preferred not to cancel the massive demonstrations on March 8th across the country to commemorate International Women’s Day, despite the existence of reports warning on the health dangers. As a matter of fact, three Spanish ministers leading the women’s rally in Madrid – as well as the PM’s wife – later tested positive for coronavirus (Minder 2020b). Yet banning the demonstrations would have infuriated core left-leaning supporters of the coalition parties: as one of the popular banners in the protest stated, the demonstration was more important than stopping the pandemic for “*machismo* kills more than coronavirus.”

In third place, highly polarized settings are a fertile soil for populist policies instead of sound expert-based ones. An active participation of experts is needed to resist short-sighted political pressures during a pandemic. If civil servants are autonomous from their political superiors, they can speak truth to power, expressing their views based on their professional criteria, instead of trying to please their political bosses (Dahlström and Lapuente 2017). Expert autonomy and independence lead to decisions more guided by long-term considerations rather than short-sighted political pressures (Cronert 2020). This is, for instance, what happened during the 2009 H1N1 influenza outbreak in California, where local health department officials prioritized proportionality considerations over short-term panic reactions (Kayman et al. 2015). Countries like South Korea, or Denmark, contained the spread of COVID-19 through an adaptive approach, thanks to the preparedness, professionalism and technological capacity of those experts.

The canonical example of political interference with experts would be the US under President Trump. Trump tried to politicize neutral, scientific-based bureaucratic agencies fighting against the pandemic. At the F.D.A officials were “forced” to authorize unproven coronavirus treatments that the then president championed but that scientists advised against, such as the malaria drug hydroxychloroquine or convalescent plasma (Interlandi 2020). At the C.D.C. political appointments by the Trump administration prevented scientists from publishing clear guidelines on what Americans should do against the virus. As a result, “decisions across the country about school openings and closings, testing and mask-wearing have been muddy and confused, too often determined by political calculus instead of evidence” (ibid.). Likewise, the conservative Madrid region government, in its effort to minimize the importance of the pandemic, dismissed or forced the resign of a dozen of high-rank officials in health care, including the general director of public health, the manager of primary care, and the responsible for the Madrid hospitals, mostly in favour of tougher measures (Caballero 2020).

Hypotheses

From the above discussion, we derive four hypotheses to be tested. First, in relation to the existence of social division or an ‘uncooperative society’:

Hypothesis 1, on social and institutional trust: The lower the level of social and/or institutional trust, the higher the excess mortality in the region.

Hypothesis 2, on mass polarization: The bigger the chasm in trust between government and nongovernment supporters in a region, the higher the excess mortality in the region.

In relation to the existence of political division or ‘uncooperative politics’:

Hypothesis 3, on elite polarization: The higher the degree of ideological polarization among the political parties in a region, the higher the excess mortality in the region.

Hypothesis 4, on populism: The higher the level of populism/anti-experts politics in a region, the higher the excess mortality in the region.

Sample, Data and Design

Our sample includes up to 158 regions in 19 European countries.¹ The regions in question are largely at the NUTS 2 level, with the exception of Germany, Belgium and the UK, which are taken at the NUTS 1 level.² The selection of cases was determined largely by data availability on key variables and on our aim to present a valid comparison of cases from a common region that was stricken by the pandemic at approximately the same time. The analysis therefore relies on a comparative, observational cross-sectional research design, as randomization of trust and polarization are not feasible. While this feature renders estimating valid causal effects challenging, our estimation is not subject to critiques of ‘reverse causality’ common in cross-sectional research, as the COVID-19 pandemic in this case is exogenous from our temporally prior regional-level, explanatory characteristics. This implies that given our analysis accounts for possible confounding factors, our findings can be quite elucidating, yet should be still treated with caution.

Our outcome of interest is the relative performance of regions in response to COVID-19. Recent empirical studies have relied on a host of various COVID-19 outcome measures to evaluate government performance across countries. These include, *inter alia*, government response strategies (Yan et al, 2020), citizen compliance with government guidelines (Cheibug, Hong and Przeworski 2020; Becher et al 2020), economic outcomes (Ashraf 2020), or the spread of overall cases (Glibert et al 2020), hospitalizations and case-fatality rates (Huber and Langen 2020; Oksanen et al 2020; OECD 2020). While such studies have provided keen insights into governments’ performance in handling COVID-19, our outcome of focus is total death in (European) regions in 2020 between weeks 1 and 22 (until end of May) in comparison with the average deaths by region for the same weeks during

¹ See appendix 1 for full sample details.

² ‘NUTS’ stands for ‘*Nomenclature of Territorial Units for Statistics*’, designed for statistical purposes by the EU Commission. For more see: <https://ec.europa.eu/eurostat/web/nuts/background>.

2015-2019.³ Our primary measure is the percentage increase (or decrease) in 2020 deaths during this time relative to the previous five years ('excess deaths').

The main argument in employing this measure is two-fold. One, we are most concerned with how trust and polarization explain outcomes resulting from the COVID-19, as opposed to government measures taken or compliance with guidelines. Two, as many governments (national or regional) employ different testing regimes and differ in terms of counting COVID-19 deaths (BBC, 2020b), we argue that our measure of excess deaths allows for the most valid, cross-regional comparison across numerous countries simultaneously. The assumption of the measure is therefore that excess deaths in this period during 2020 compared to the same period in the previous five years can be attributed, directly or indirectly, to COVID-19. As we are unaware of any other systematically confounding events, such as alternative diseases or conflicts, which are germane to certain regions or countries, we do not have any valid reason to question this assumption. As demonstrated in Figure 1, the measure provides remarkable variation within and across countries. The sample mean is a 6.4% increase in deaths, with a high of 74.5 (Madrid, Spain) and a low of -9.3, in the Central and Western Lithuania region.

Concerning our main explanatory variables, we proxy institutional and social trust with data from the *European Quality of Government Index* survey ('EQI', Charron et al 2017). Data are taken from this source due to the unique sampling design that targets the regional level and provides between 450-500 individual respondents per region. This far exceeds the regional sample size which alternative sources, such as the European Social Survey (ESS) or World Values Survey (WVS) could provide at the sub-national level. The questions are scaled from 1-10, with higher scores indicating greater degrees of trust in one's country's parliament (institutional trust) and other people in their area (social trust). We aggregate the individual responses using post-stratification weights for age, gender and education by region to account for over/under representation of people with certain characteristics. Further details on question formulation and summary statistics are found in Appendix 1.

Second, as polarization is a contested concept and its operationalization is without a universally accepted measure (DiMaggio et al. 1996), we construct and rely on several proxies in this analysis. Our first set of measures intends to capture our concept of mass (or 'affective') polarization to test H2,

³ Due to data availability, German and Dutch regions are compared with the averages of 2016-2019.

which is mainly focused on partisan polarization among the citizenry. In this vein, we build on a number of studies that measure the ‘winner-loser’ gap in democratic countries by taking the difference in trust or democratic satisfaction between supporters of the sitting government versus supporters of opposition parties (for example Anderson & Tverdova, 2001; Curini et al 2012; Bauhr and Charron 2018). Where this gap is low, we argue that there is a general consensus about the performance of national institutions (whether of high or low quality), whereas when this gap is large, there are clearer partisan divisions and less mass-consensus in society. Using a question on the EQI survey about respondents’ partisan support, we then take the mean difference between government and non-government supporters by region, to proxy for mass polarization. Specifically, we capture mass polarization (P) in region ‘j’ via the mean of political trust among supporters of the sitting government party (or parties) in relation to voters of opposition parties:

$$MP_j = \overline{Gov.supporter\ trust}_j - \overline{non_Gov.supporter\ trust}_j$$

To test H3 and H4, we proxy for elite (or ‘attitudinal’) polarization with several measures, relying on polarization of political parties in regional parliaments. We construct three measures. The first two rely on ideological partisan polarization, while the third is non-ideological. First, following several studies of parliamentary polarization on the left-right dimension (ex. Dalton 2008, Ezrow 2008), we take the standard deviation of parties on a given ideological dimension, where elite polarization (EP) is a function of the number of parties (N), their party position (p_i) compared with the mean party position in the regional parliament (\bar{p})⁴ and their relative vote share (v).

$$EP = \sqrt{\sum_{i=1}^N v_i (p_i - \bar{p})^2}$$

This measure thus captures the average distance of parties from the ‘ideological centre’ (\bar{p}), yet not necessarily the relevant ideologically based conflict in a party system. It tends to rate two-party systems more polarized than multiparty systems with a large range of ideological representation (see Evans 2002). It will also make skewed multiparty systems seem less polarized due to the weighted centre of gravity (Klingemann 2005). As an alternative, we calculate the max ideological distance

⁴ Where (\bar{p}) is calculated via a sum-totalled weighted mean based on party seat share ($\sum(v_i * p_i)$)

between parties (see Mair 2001; Best and Dow 2015). This more pragmatic measure captures the full ideological range of party system in a given regional parliament:

$$EP = \max(p) - \min(p)$$

There are clear issues with this measure as well, as small, irrelevant parties can alter the results quite drastically and it does not capture any distributional dynamics within the min-max range. However, if both measures produce similar results, this provides stronger evidence for our claims.

In constructing both ideological, partisan polarization measures, the overwhelming majority of studies rely on a measure on the left-right scale, usually via expert opinion data or party manifestos. Given that the economic left-right spectrum plays a lesser role in Central/Eastern European polities (Bértoa, 2014), we construct separate polarization measures based on three different possible ideological dimensions provided by the Chapel Hill expert survey data from 2019 (Bakker et al 2020). One, the standard economic left-right cleavage, which captures preferences for state-led distributive and regulatory policies versus a more market-centred approach. Two, to proxy for alternative dimensions of relevant polarization as well as H4 regarding anti-elite, populist politics, we take the so-called ‘GAL-TAN’ dimension which captures social conflicts around issues such as religion, marriage and national identity that range from libertarian to authoritarian/traditional. Third, we also add pro- versus anti-European integration stances, as this is a key dimension of competition in many countries, which can as gal-tan, signal division over international cooperation and trust in technocratic and expert policy-making versus a more nativist, populist set of preferences (Dijkstra et al., 2020). We generate both the standard deviation and min-max distance polarization measures for each of these three dimensions.

In addition to the ideological polarization measures, we construct a standard measure of party-system *fractionalization* via 1-the Herfindahl index (Powell 1982; Wang 2014). The measure captures the amount of party competition in a given parliament (similar to measures of firm competition in a market.), where v_i^2 is the squared seat-share of party ‘i’, which is summed and then subtracted from 1 so that higher values equal more fractionalization (or less concentration). The measure ranges between ‘0’ and ‘1’ where ‘0’ indicates that a single party controls all seats in parliament and ‘1’ equals perfectly equal dispersion of seats among different parties.

$$P = 1 - \sum_{i=1}^N v_i^2$$

Finally, we include several control variables that have been considered to influence variations in incidence of the pandemic. First is age. The mortality of older citizens from COVID-19 is far greater than that of younger ones. We control for age, by including the average life expectancy, measured in years (from Eurostat). Next, it has been argued that the virus spreads easier in more densely populated areas, thus increasing risk for more deaths. We therefore account for a region's population density per square kilometre (logged, from Eurostat). Third, many studies point to the benefit of institutional capacity in handling the pandemic (Hartley and Jarvis, 2020; Christensen and Laegrid 2020; Rodríguez-Pose and Burlina, 2020). We account for a region's institutional capacity with the European Quality of Government Index (EQI, Charron, Dijkstra and Lapuente, 2015), which measures the degree of perceived and experienced corruption, as well as the quality and level of impartiality of public services across EU regions. Fourth, we include a measure of overall economic capacity via its GDP per capita (measured in purchasing power parity (PPP, logged)), from Eurostat. Finally, the mean values of a parliament's left-right, gal-tan and pro/anti-European integration positions in several models are also considered. Summary statistics and further information about all variables are included in Appendix, section 1, while more on the sample is found in Appendix 2.

Estimation

As our dependent variable is continuous, we use linear regression to estimate our models. Several diagnostic tests reveal several issues of concern that could violate the assumptions of OLS and thus affect our estimates. One, several of our explanatory variables show high levels of multicollinearity, thus we approach our estimation using several step-wise models, avoiding the inclusion of too many explanatory variables that co-vary significantly. Two, we find strong heteroscedasticity (Brasch-Pagen test, $p < 0.001$). Third, even though many countries in Europe and elsewhere have taken a regionally-focused approach in response to COVID-19, allowing much regional policy flexibility based on regional disparities in cases, the regional observations are not independent, but nested in countries. For example, an empty hierarchical model reveals that 75% of the variation is in fact at the regional level, yet a significant percentage (25%, $p = 0.000$) lies at the country level. To address the issue of nested observations – region within countries – there are several approaches commonly used in the literature, such as country-level clustering, country-fixed effects or hierarchical models that estimate random country-level intercepts (Bryan and Jenkins 2016). As our data include only 19 second-level

observations, hierarchical modelling produces fewer stable estimates (Stegmueller 2013), while country-level fixed effects provide less flexibility with respect to degrees of freedom. We therefore elect to account the country-level context via country-clustered standard errors.

Empirical Results

We begin with a test of H1 and H2 – anticipating that higher levels of institutional and social trust will yield lower excess deaths on average, while greater mass polarization on these measures between supporters and non-supporters of the government will result in higher rates of excess deaths due to COVID-19. Model 1 tests the baseline effects of our control variables. We find that excess mortality during the first wave of COVID-19 at a regional level in Europe is connected, as expected, to factors such as ageing and population density at a regional level, but seems unrelated to the size of the economy and the regional quality of government, all things being equal.

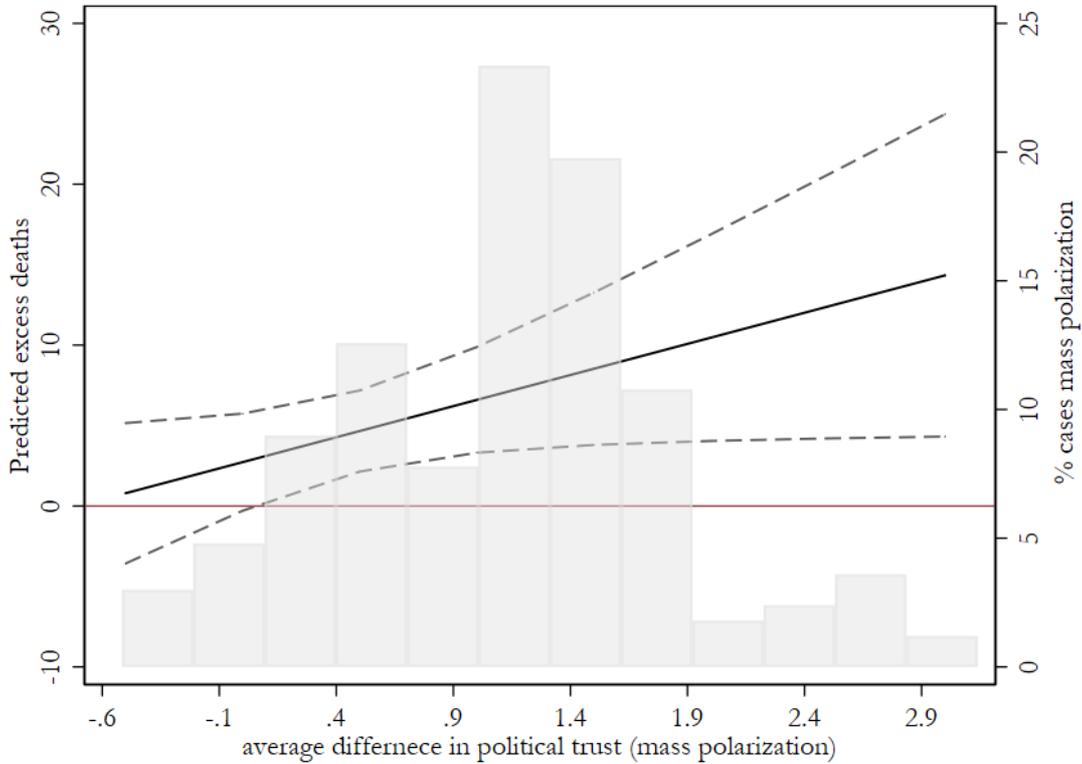
TABLE 1, TEST OF H1 AND H2

VARIABLES	(1) baseline	(2) Social trust	(3) Institutional Trust
Ave. life Exp.	2.418*** (0.786)	1.907** (0.866)	2.388*** (0.725)
GDP (log, PPP)	-1.133 (5.050)	1.757 (6.852)	0.978 (6.512)
Pop. Dens. (log)	2.905* (1.394)	2.786* (1.566)	3.029** (1.361)
EQI 2013	-0.465 (1.800)	1.366 (1.740)	0.491 (2.727)
Institutional trust mean			-1.947 (3.607)
Institutional trust diff			3.869** (1.718)
Social trust mean		-4.101** (1.777)	
Social trust diff		0.672 (1.397)	
Observations	158	153	153
R ²	0.263	0.266	0.288
Adjusted R ²	0.244	0.236	0.258
F test	10.18	13.94	12.57

Note: Marginal effects presented from OLS regression with standard errors, clustered at the national level, in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

In models 2 and 3, we test H1 and H2. Beginning with social trust in model 2, we observe partial corroborating evidence for H1, that higher levels of social trust are associated with lower mortality. All things being equal, a one-unit increase in social trust results in 4.1% fewer excess deaths in 2020 compared with the previous five years. However, we do not find that social trust polarization is a significant predictor in rates of mortality. In terms of institutional trust, model 3 shows that while the coefficient for the level of trust is in the expected direction, the effect is not statistically significant. However, we do find support for H2 with respect to polarization of institutional trust – in this case, we find a significant link between higher levels of institutional polarization and excess mortality. Figure 2 elucidates these effects visually. We observe that at low levels of mass polarization, the variable is statistically negligible, whereas we observe that greater levels of polarization predict significantly higher deaths. For example, the predicted difference in excess deaths between two regions – one with no mass polarization (2.7%) and one with max levels (14.4%) - is more than five-fold.

FIGURE 2, THE EFFECT OF MASS POLARIZATION ON EXCESS DEATHS



Note: The black line shows the predicted level of excess deaths as a function of mass polarization with a 95% confidence interval (dashed lines). The histogram shows the sample-wide distribution of mass polarization (e.g. the difference in political trust between government supporters and non-government supporters). Effects from model 3, Table 1.

Table 2 reports the results for H3 and H4 – that elite level polarization is related with higher mortality on average. As noted in the previous section, we present several different proxy measures of elite polarization. The first measure is the non-ideological measure of party fractionalization, which captures the concentration of political power in a given parliament. Model 4 shows no evidence that fractionalization is related with mortality due to COVID-19.

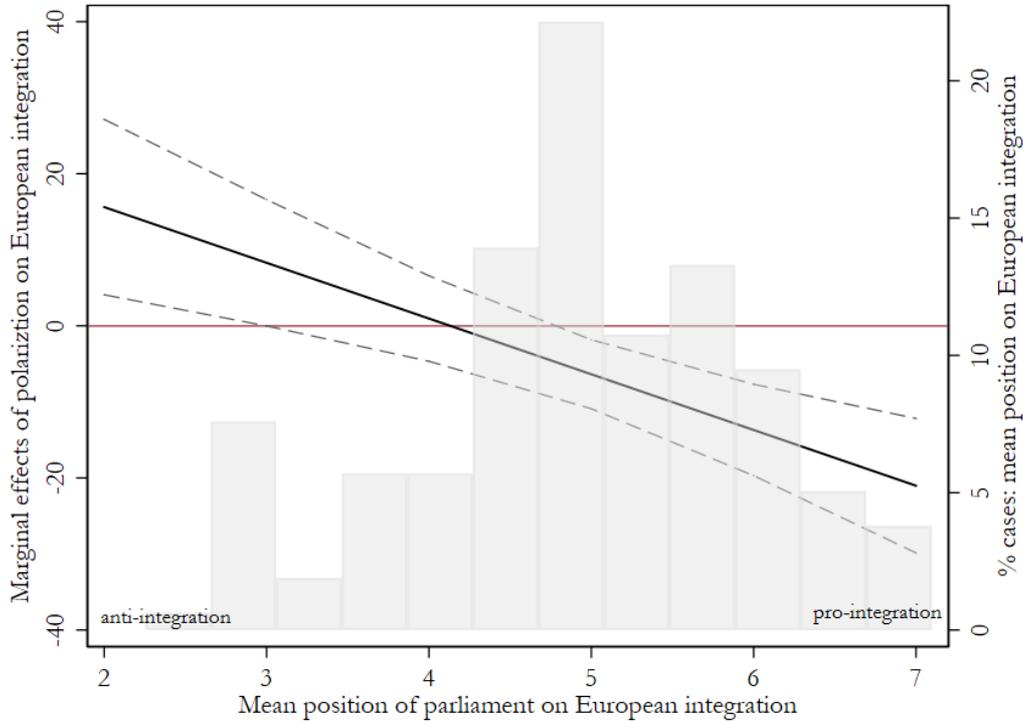
TABLE 2, TEST OF H3 AND H4

VARIABLES	(4) Party fractionaliza- tion	(5) Ideology & polariza- tion (min-max)	(6) Ideology & polarization (st. dev.)	(7) Interactions: polariza- tion & mean levels
Ave. life Exp.	2.641*** (0.877)	2.919*** (0.875)	3.041*** (0.840)	2.491*** (0.667)
GDP (log, PPP)	1.218 (5.460)	-0.670 (5.744)	3.823 (6.341)	6.742 (6.734)
Pop. Dens. (log)	2.743* (1.401)	3.480*** (1.185)	2.694** (1.064)	2.244** (0.973)
EQI 2013	-0.202 (1.780)	1.273 (2.436)	-0.650 (2.141)	-1.280 (1.851)
Party fractionalization	-6.316 (11.292)			
EI max diff		-2.267** (0.932)		
LR max diff		0.278 (1.446)		
GT max diff		0.669 (1.037)		
European Int. mean		-2.563** (1.103)	-3.051** (1.079)	9.070*** (2.551)
Left-right mean		-1.110 (2.089)	-0.509 (2.018)	-4.870 (3.964)
Gal-tan mean		2.000 (2.444)	1.893 (2.459)	3.424 (4.169)
EI st. dev.			-9.733*** (3.112)	31.552*** (9.050)
LR st. dev.			5.649* (2.731)	-7.469 (11.511)
GT st. dev.			-3.344 (2.193)	-1.678 (8.727)
EI pol * EI mean				-7.564*** (1.821)
LR pol * LR mean				2.201 (2.049)
GT pol * GT mean				-0.780 (1.782)
Observations	148	152	152	152
R ²	0.241	0.292	0.343	0.404
Adjusted R ²	0.215	0.242	0.297	0.347
F test	8.889	10.78	7.818	15.58

Note: Marginal effects presented from OLS regression with standard errors, clustered at the national level, in parentheses. ***
 $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

In models 5 and 6, we present the two different proxies of ideological polarization. As the dimensions are related, we include all three simultaneously to estimate the effect of each holding constant the other dimensions and to avoid omitted variable bias. Model 5 reports the measure of min-max difference on the three ideological dimensions, whereas model 6 reveals the results of average standard deviation difference from the parliament's mean position. We test these under control for the mean position of each ideological dimension. As per model 4, the results do not corroborate H3. We find that neither model 5 nor model 6 demonstrate support that polarization on the left-right dimension explains systematic variation in excess mortalities. However, polarization on the European integration dimension (which we argue proxies for expert-populist tensions) does in fact explain mortality, as indicated in H4. Both the min-max (model 5) and the standard deviation (model 6) measures for elite polarization on the European integration axis shows lower excess deaths on average, while the left-right measure significantly explains excess deaths in model 6. We see moreover that parliaments that are on average more inclined toward EU integration also show significantly lower excess mortality in 2020. Interestingly, the gal-tan dimension does not explain significant variation in our outcome variable for either polarization measure or the mean level. Model 7 tests whether polarization's effect on mortality varies at different mean levels of the three ideological dimensions. We find again that the left-right and gal-tan dimensions are not relevant predictors of the outcome, yet divisions on European integration are highly relevant. In sum, the interaction term reveals that elite polarization on this axis is associated with higher mortality in parliaments that are more anti-integration, while the relationship flips for those that are more pro-integration, showing that contestation over European cooperation is a liability when the parliament is relatively anti-European, while the converse when pro-European. Figure 3 illustrates the effect.

FIGURE 3, THE MARGINAL EFFECT OF POLARIZATION ON EUROPEAN INTEGRATION, CONDITIONED BY THE LEVEL OF OVERALL SUPPORT FOR EUROPEAN INTEGRATION



Note: The black line shows the marginal effect of elite level polarization on the issue European integration on excess deaths, moderated by the overall (mean) level of support for European integration, with a 95% confidence interval (dashed lines) from model 5, Table 2. The histogram shows the sample-wide distribution of overall (mean) level of support for European integration.

Overall, the models show support for three of the four hypotheses, with the relationship of H3 emerging as more complicated given the interaction found in model 7. In addition to our control variables, we further test the robustness of our findings. First, our model presumes a constant degree of polarization, yet this factor might be affected the electoral cycle. We re-run all models from Table 1 and 2 and include controls for the age of a government, along with a binary variable for whether a region has an election in 2020. We find the results to be stable. Next, we account for the fact that several regions in our data are non-land contiguous islands, which could have the dual effect of more social cohesion together with better protection against the spread of the virus. We find the results in our main models to be unaffected (see appendix 3).

Conclusions

Since the beginning of March 2020, the COVID-19 pandemic has taken over the lives of European citizens. With its high death toll and its social and economic disruption – as a consequence of lengthy lockdowns, closure of public and work spaces, travel restrictions, and the re-establishment of border checks, among others – COVID-19 has gone from being considered as just ‘another flu’ to the biggest threat to hit Europe since the end of the second World War. But the incidence of the pandemic has been geographically very uneven, both across and within countries. Whereas some parts of Europe have been ravaged by it, others came out of the first wave of the pandemic relatively unscathed. This article has examined the reasons behind these substantial differences in incidence at the regional level in Europe by analysing how variations in social and institutional trust and social and political polarization may have contributed to explain variations in COVID-19-related excess mortality during the first wave of the pandemic.

The results of the analysis conducted for 153 regions in Europe show that, in addition to well-known drivers, such as age and density, variation in social trust are important factors explaining the uneven geography of the pandemic. Regions characterized by a low social trust witnessed a higher excess mortality during the first wave. Concerning H2, we find perhaps most interestingly that mass polarization also played a significant role. When the divide in political trust between supporters and opponents of incumbent governments within societies is high, we observe consistently higher COVID-19-related excess mortality.

At the elite level, we do not find robust support for H3, that elite polarization has a negative consequence for excess deaths. However, we find that partisan differences on one dimension in particular emerged as a strong predictor of higher levels of excess deaths. Regions with a political elite less supportive of European integration are regions where excess deaths have been significantly higher. We interpret this as a proxy for a lack of consensus on international cooperation and expertise, rendering consensus on important issues more difficult, which lends support for H4. We find that only contestation along the European integration dimension, along with parliaments that are more European-friendly overall, are significant predictors, implying that mass-polarization may be more important than elite polarization during a pandemic. It may also have affected the capacity of the population to abide by any type of anti-pandemic measures, botched or not. The consequence has probably been a higher excess mortality.

Hence, lower or lowering social or institutional and greater social and political polarization may have ended up costing lives during the first wave of COVID-19 in Europe. As noted by Norris et al., (2008) and Oksanen et al. (2020), in order to build societal resilience against collective threats, we need a degree of societal and institutional trust (Norris et al. 2008, Oksanen et al. 2020). If that fails, especially in already polarized or polarising societies, the defences against a pandemic or other threats become weakened, making most attempts to combat it futile. If Pasteur said that science is the light that illuminates the world, we can say polarization is the darkness that shadows it, in particular among the masses. Generating trust and overcoming polarization are thus essential if we are going to succeed in fighting the COVID-19 pandemic and in confronting other collective challenges further down the line.

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