Understanding contemporary political division in Western Europe: a multidimensional approach

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Abstract

Recent years have seen an entrenchment of partisan and ideological division across Western European democracies, with pernicious consequences. As cultural conflicts over questions of immigration divide electorates, urgent political challenges like climate change go unresolved in the face of political disagreement, and inter-group hostility undermines efforts to achieve democratic consensus, we appear to be entering a new age of political conflict with worrying implications for democracy. Yet, whilst these processes of polarization have been the subject of a prolific stream of research in recent years, there remains scope for additional contributions.

Research on social division and political polarization often approaches the phenomenon from a macro-level perspective that emphasises the impact of socio-economic transformation, or from a micro-level perspective that emphasises the importance of individual-level psychological mechanisms in driving polarization. This thesis instead adopts a multidimensional approach to explain political polarization and division, examining how context – encompassing both immediate factors in the individual's local environment and broader characteristics – influences and interacts with these individual-level processes. This approach, synthesizing micro- and macro-level explanations, offers new avenues to better understand an increasingly prescient threat to democratic health.

Using data from Britain and Norway, this thesis focuses on three different sources of partisan and attitudinal division: first, authoritarianism and conflicts over cultural issues; second, climate change and responses to exogenous shocks an; third, the emotion of anger. Moving beyond the individual dimension, however, each study examines how these micro-level processes are influenced by contextual factors, encompassing the political information environment, partisan-ideological sorting and political discussion networks. Taken together, findings demonstrate the importance of context in shaping processes of polarization. In doing so, they highlight the characteristics of contemporary Western European democracies that are exacerbating these attitudinal divides - including increasingly sorted and geographically polarized electorates - and point to potential avenues for mitigating polarization.

Declarations

I declare that this thesis is a presentation of original work and I am the sole author. This work has not previously been presented for an award at this, or any other, University. All sources are acknowledged as references.

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1 Introduction

Western European democracy appears characterised by division. Once-stable party systems are now vulnerable to the influence of extremist challengers, intractable identity-based conflicts structure political competition, and democracy – whether from opportunistic elites or hyper-partisan citizens – appears under threat. Stated differently, Western Europe is defined by growing polarization and the increasing mainstreaming of parties, politicians and attitudes that, at best, undermine democratic norms of tolerance and civility and, at worst, threaten democracy itself. Whilst conflict and contestation are foundational components of a functioning democratic system, the nature of this political competition appears to be evolving in a concerning fashion – and there remains a need to understand how and why this is occurring.

The transformation of political conflict and competition can be viewed as taking place on two levels: that of the system, where parties and elites operate; and that of the individual, where attitudes and behaviours appear to have transformed in potentially pernicious ways. At the system level, several concerning changes have been observed in recent decades. First, party systems are becoming more polarized (Dalton, 2021). A key driver of this polarization is the rise of new parties, often more ideologically extreme than the traditional centrist parties that have historically governed Europe (Adams et al., 2006; Hobolt and de Vries, 2016). Party system polarization leads to increasingly ideologically consistent voters and more partisan electorates (Gonthier and Guerra, 2023; Lupu, 2015), potentially making consensus and compromise more difficult to achieve. Inherently linked to the rise of these challenger parties is the growing issue salience of moral and cultural issues at the elite level – such as immigration and minority rights – for challenger parties often campaign on these issues (Wardt et al., 2014). This shift once again potentially furthers the crystallization of division within European party systems, given the intractability of these moral conflicts.

However, these changes are not limited to the system level. Instead, the way in which individuals approach democracy, evaluate democratic institutions and relate to their fellow citizens also seems to be transforming in a manner that holds concerning implications for democracy. First, evidence suggests that faith in democratic institutions is declining across the globe (Citrin and Stoker, 2018; The Guardian 2025). Furthermore – and concerningly – evidence indicates that this trust is distributed heterogeneously across geographic space, leading to clusters of discontent (McKay et al., 2021; Mitsch et al., 2021). The increasing cynicism expressed toward democratic institutions can be situated alongside a wider trend of democratic backsliding – or the gradual decline of democratic quality, usually driven by the actions of (democratically) elected politicians (Waldner and Lust, 2018) – which, on the individual level, manifests as an increasing willingness to put partisan interests above democratic norms (Gidengil et al., 2022).

Beyond evaluations of institutions and democratic structures, citizens of Western European democracies also appear increasingly negative in their attitudes toward each other. The phenomenon of affective polarization, or the increasing tendency of citizens to express hostility toward each other on the basis of partisan attachments or issue positions, is prevalent across the continent (Reiljan (2020); Wagner, 2021). Alongside affective polarization is evidence of growing attitudinal polarization within mass publics, leading to seemingly intractable division over some of the world's most pressing problems (e.g. Charron et al., 2023; Falkenberg et al., 2022). Perhaps of greatest concern is the way in which these individual-level phenomena all serve to reinforce each other. As attitudinal disagreements become further entrenched, political gridlock replaces democratic cooperation, fuelling cynicism with democratic institutions (McCoy et al., 2018). And as in-group loyalty and inter-group hostility grow, individuals become increasingly willing to further ingroup interests at the expense of wider social benefit or democratic health (Orhan, 2022; Svolik, 2019).

The combined consequence of these concerning evolutions is that both the party systems and polities of Western Europe appear now to be structured around competing worldviews and moral and cultural conflicts, which makes arriving at political compromise and consensus – a cornerstone of functioning democracy – increasingly difficult (McCoy et al., 2018). Naturally, this has attracted much scholarly attention. Yet, despite a vast array of research concerned with explaining this increasingly polarized political environment, space remains for a further contribution. Specifically, I argue that a more integrated or multidimensional approach is required to develop a deeper and more nuanced understanding of why these processes of polarization are occurring.

The literature devoted to explaining contemporary political conflict in Western Europe can, I argue, be broadly categorized into two families. First are a set of macro-level explanations that look to global economic changes and continental political transformations – namely, the shift toward globalized economies and the increasing transnational integration of the European political space – to provide a social-structural explanation for why party systems and polities are increasingly polarized (Bornschier, 2010; Kriesi et al., 2006; Hooghe et al., 2009; Hooghe and Marks, 2018). Second are a set of micro-level explanations that focus on individually specific psychological processes and characteristics - including social identities and the consequences of in-group attachment, emotional response and individual differences – as the drivers of this new political conflict (Erisen, 2020; Hetherington and Weiler, 2018; Iyengar et al., 2012). Whilst there are points of overlap between the two, the starting point of this thesis is that the process of conceptual and empirical integration should be taken further.

I argue that this integration – which I term a multidimensional approach – has two primary strengths. First, speaking to the macro-level literature, it draws greater attention to the individual-level processes of identity formation and contestation that underpin this societal conflict. In tandem, speaking to the micro-level literature, it brings context in, and in doing so provides a conceptual basis to explain when and why individuals polarize. In short, this synthesis allows for a richer understanding of understanding contemporary political polarization in Western Europe. Before setting out this multidimensional approach in detail however, it is first necessary to provide an overview of the explanations for political polarization upon which it builds.

1.1 Macro-level Explanations

1.1.1 Globalization and the Economic Restructuring of Western Europe

Faced with a polarized Europe, political scientists have naturally turned to the question of what drives this new form of political conflict. A first approach can be broadly defined as a social-structural account of contemporary political division, focusing on the role of societal socio-demographic change and the accompanying transformation of party systems in driving the emergence of these novel divides. In short, a 'fundamental transformation of the economic model of advanced industrial societies' (Ford and Jennings, 2020, p.309) in Western Europe has led to the clustering of polities into groups, divided by socio-demographic characteristics and conflicting attitudes to questions of European integration, immigration and cultural values, that are given organisational structure and electoral coherence by emergent parties across the ideological spectrum (Bornschier, 2010; Hooghe et al., 2009, Hooghe and Marks, 2018). These macro-level changes have produced a new conflict – a new cleavage – that structures Western European politics.

Whilst differing descriptions of this 'fundamental transformation' exist (e.g. Hooghe et al., 2009; Kriesi et al., 2006; Inglehart, 2008), explanations of the political consequences emerging from these macro-level economic changes share several core characteristics. Recent decades have witnessed, at the national level, the shift toward globalized economies and a more politically-integrated Europe (Grande and Pauly, 2017; Martinez-Fernandez et al., 2012. This has led to the expansion of transnational trade and the emergence of new forms of economic competition; rapid growth in international migration and national cultural diversity; and a shift in political sovereignty toward supranational organisations (Kriesi et al., 2012). But the economic benefits of these transformations have not been uniform. Instead, these processes of integration and globalization have reconstituted European polities into new groups of "winners" and "losers" (Kriesi et al., 2006; Kriesi et al., 2012). Those possessing the requisite education and workplace skills to be employed in the sectors that have benefited from transnational economic integration – such as law, finance and business – are the economic "winners"; those whose economic status is threatened by growing immigration and imports, such as those employed in the service and manufacturing industries, are the economic "losers" (Kriesi et al., 2006; Kriesi et al., 2008).

The division of post-industrial economies into "winners" and "losers" is further entrenched by its geographic consequences. Sector-specific employment is not distributed uniformly across a country. Instead, certain sectors are clustered in certain regions (Gervais, 2019; Martinez-Fernandez et al., 2012). This uneven distribution of employment has produced regional winners and losers in the face of globalization (Martinez-Fernandez et al., 2012). The explosion of international trade and the growth of imports into advanced post-industrial economies has led to rising unemployment and wage losses in regions reliant on manufacturing (Autor et al., 2013). Contrastingly, large urban areas – cities like London and Paris – are now the key sites of economic production, as centres for specialized, post-industrial services (Lang, 2005; Sassen, 2001). These divergent economic trajectories have also led to the geographic clustering of education differences, with degree-educated individuals attracted to and thus residing predominantly in the skills-based economies of large urban centres (Furlong and Jennings, 2024; Maxwell, 2019).

These two groups are not only divided by socioeconomic outcomes. Instead, structured by education and social class, these macroeconomic changes have birthed a new political-attitudinal conflict, centred around questions of national boundaries and sovereignty (Kriesi et al., 2006; Kriesi et al., 2012). Relative to the "losers" of globalization and transnational integration, the "winners" – members of the professional classes and better-educated individuals – display greater tolerance toward immigrants (Carreras et al., 2019; Cavaille and Marshall, 2019; Ceobanu and Escandell, 2010; Hainmueller and Hiscox, 2007), possess greater support for the European Union and international trade (Hainmueller and Hiscox, 2006; Hakhverdian et al., 2013; Häusermann and Kriesi, 2015), and have more favourable attitudes toward ethnic and religious out-groups and multiculturalism in general (Hooghe and de Vroome, 2015; Storm et al., 2017; Strabac and Listhaug, 2008).

Broadly defined, two mechanisms have been proposed to explain this conflict. First, the two groups – the "winners" and "losers" - are argued to have different material concerns and egotropic interests. As immigrants are more likely to be in direct competition for jobs with those lower down the economic ladder – the "losers" of globalization – these individuals possess greater opposition immigration and the policy changes associated with it (Hakhverdian et al., 2013; Häusermann and Kriesi, 2015; Scheve and Slaughter, 2001). An alternative explanation is that this division is value-based. As the argument goes, the "winners" of globalization – whether a product of the socializing consequences of education (CCavaille and Marshall, 2019; Øystein Gaasholt and Togeby, 1995; Hjerm, 2001) or self-selection and parental socialization (Kuhn and Lancee, 2017; Lancee and Sarrasin, 2015) – possess a different set of core values to the losers. Specifically, this group is understood to hold a value orientation that is less hierarchical and more tolerant of difference, nonconformity and cultural diversity than the "losers" of globalization (Hakhverdian et al., 2013; Stubager, 2008), explaining differences in attitudes to immigration and transnational economic integration (Hainmueller and Hiscox, 2006; Hainmueller and Hiscox, 2007).

Furthermore, these attitudinal divides are also structured geographically – individuals residing in regions that have benefitted from globalization and transnational integration hold more positive attitudes toward immigrants, minorities and European integration than those residing in regions that have suffered economically from the internationalization of European economies (Adler and Ansell, 2020; Alba and Foner, 2017; Jennings and Stoker, 2016). This attitudinal clustering appears predominantly driven by socio-economic sorting (Gallego et al., 2016; Maxwell, 2019; Maxwell, 2020). In short, attracted by the high-skilled and well-paid jobs (in sectors like law and finance) that are concentrated in large cities (Cunningham and Savage, 2017), the "winners" of globalization move to these localities, leading to a clustering of cosmopolitan attitudes (Maxwell, 2019).[1]

Compounding these long-term social-structural shifts, the past two decades of European politics have been punctuated by transnational crises which have accelerated and intensified this political conflict: the sovereign debt crisis in the Eurozone from 2008 into the 2010s, and the European migrant crisis of 2015-2016. These two crises amplified the salience of European integration and, in rendering the financial and cultural consequences of this integration in clear terms for European polities, intensified the attitudinal divide over questions of national identity, transnationalism and cosmopolitanism (Börzel

[1]Two competing explanations for the emergence of these geographically clustered attitudinal divides are contextual effects, or the idea that one's residential context shapes their political preferences (Ethington and McDaniel, 2007; Johnston and Pattie, 2006); and political sorting, or the argument that individuals select into the neighbourhoods that they live based on the partisan or ideological composition of that neighbourhood (Cho et al., 2013). Comparative analyses that evaluate all three mechanisms, however, have provided support for socio-economic sorting as the dominant explanation (Gallego et al., 2016; Maxwell, 2019).

and Risse, 2018; Hobolt and de Vries, 2016; Hobolt and Tilley, 2016; Hooghe and Marks, 2018). In sum, long-term macro-economic change in Western Europe has created a set of structural conditions which, fuelled and intensified by international crises, has facilitated the emergence of an attitudinal conflict and left Europe divided over questions of European integration and multiculturalism (Vries, 2018; Hainmueller and Hiscox, 2007; Hainmueller and Hopkins, 2014).

1.1.2 The Role of Parties in the New Cleavage Politics

For this social stratification to constitute a cleavage, however, it must be accompanied by 'the kind of social and political bonds which organisationally unite the individuals' on either side of this demographic and attitudinal division (Bartolini and Mair, 1990, p. 200). In other words, the "winners" and "losers" of the globalized economic transformation are not 'ideologically predefined' groups (Kriesi et al., 2012). Instead, political elites and parties are required to define the dynamics of this political conflict for it to emerge and crystallise as a cleavage. Parties can thus be understood as agents or actors in the formation of the new transnational cleavage (Hooghe and Marks, 2018).

This active role for political parties and elites can be seen in several ways. First, new parties have emerged and party systems evolved so that party-political conflict is, in large part, structured around the issues of European integration, cultural diversity and immigration. As the salience of questions regarding Europe and immigration have grown (de Vries and Hobolt, 2012; Hooghe et al., 2009; Hutter and Kriesi, 2022) and opposition to transnational integration has expanded across mass publics (Vries, 2018; Usherwood and Startin, 2013), parties have adapted by shifting their own issue positions

(Arnold et al., 2012; Malet and Thiébaut, 2024).[2] However, outsider or challenger parties with Eurosceptic positions have responded to the growing attitudinal divide over European integration more effectively than mainstream, traditional parties (Rohrschneider and Whitefield, 2016). Benefiting from their perceived status as alternatives to the mainstream consensus on European issues (Hobolt and Tilley, 2016) and not facing the problems of internal division and embeddedness in EU institutions that constrain the responsiveness of mainstream parties to Eurosceptic publics (Malet and Thiébaut, 2024), these Eurosceptic challengers have seized upon European instability to achieve electoral success in recent elections (Hobolt and de Vries, 2016; Hobolt and Tilley, 2016).

Second, parties make explicit appeals to the new socio-demographic groupings constructed and formed by recent macroeconomic and cultural change. This can be observed first among green parties and other parties of the (new) left who appeal to – and derive their support from – the "winners" of globalization. Evidence indicates that these parties, offering platforms built around policy stances like environmental protectionism and cultural liberalism, are more likely to be supported by those who have benefitted from transnational economic integration: the higher educated, sociocultural professionals (those who work in sectors like education and the media) and individuals who reside in urban areas (Dolezal, 2010; Gethin et al., 2021; Kitschelt and Rehm, 2014; Oesch and Rennwald, 2018).

In tandem, radical right parties in Western Europe have successfully appealed to the "losers" of globalization. On an economic level, globalization and financial integration has exposed lower-skilled and less educated workers in Western Europe to greater economic insecurity, driven (or perceived

[2] For evidence that this relationship is dependent on party characteristics, see Williams and Spoon, 2015; Spoon and Williams, 2017.

to be driven) by growing international trade and migration flows (Oskarson and Demker, 2015; Swank and Betz, 2003). Radical right parties, who point to internationalization and migration as a source of economic threat and propose immigration control and the reassertion of national sovereignty as a solution (Rooduijn and Akkerman, 2017; Swank and Betz, 2003; Zaslove, 2004), have successfully appealed to these economic "losers". Consequently, economic concerns lead to far-right voting: evidence indicates that worsening macro-level economic conditions (Halikiopoulou and Vlandas, 2016; Swank and Betz, 2003) and individual-level economic insecurity drive support for radical right parties in Western Europe (Abou-Chadi and Kurer, 2021; Dehdari, 2022; Vlandas and Halikiopoulou, 2022); and that individuals with economic concerns about immigration vote far-right (Halikiopoulou and Vlandas, 2020).

Trans-European integration and immigration has had cultural as well as economic consequences. The explosion of cultural diversity in Western European societies and the accompanying rise of cosmopolitan, multicultural norms has prompted a cultural backlash from those individuals who reject these value shifts and view demographic change as a threat to national identity (Norris and Inglehart, 2019; Sniderman et al., 2004). Individuals possessing these cultural grievances find an electoral home amongst radical right parties, who construct a nationalistic appeal to voters (Halikiopoulou et al., 2013; Halikiopoulou and Vlandas, 2019) and reject multiculturalism as an attempt to undermine national culture and instead espouse the value of nativism and ethnocentrism (Mudde, 2010; Rooduijn and Akkerman, 2017). Consequently, individuals who feel threatened by socio-cultural and demographic change or oppose immigration for cultural reasons are more likely to vote for radical right parties (Gest et al., 2018; Halikiopoulou and Vlandas, 2020; Ivarsflaten, 2007; Lucassen and Lubbers, 2012).

1.1.3 The Emergence of a Cultural Conflict

A division over questions of immigration and European integration can thus be observed among the electorates and party systems of Western Europe. This new political conflict, however, encompasses more than just these issues. A hallmark of cleavage politics is that 'issues that might otherwise be unconnected form a coherent program' upon which parties compete and around which political division is structured (Hooghe and Marks, 2018, p.123). In the case of contemporary Western Europe, this has meant that the new cleavage incorporates a conflict over cultural norms - relating specifically to questions of equality (of gender, sexuality and race) - and environmental protection (Bornschier, 2010; Hooghe et al., 2002; Inglehart, 2008; Inglehart, 2018; Norris and Inglehart, 2019).

Evidence demonstrates that party competition and voter decision-making at the ballot box is structured by this cultural conflict. On the supply side, Europe has witnessed the rise of parties with platforms and programmes built around these cultural concerns. At one pole is a set of parties – labelled as left-libertarian, New Left or Green-Alternative-Libertarian (GAL) – that advocate for environmental protectionism, gender equality and the advancement of sexual and ethnic minority interests, in addition to favouring immigration and transantionalism (Bornschier, 2010; Hooghe et al., 2002; Kitschelt, 1988). At the other is a set of radical right parties or Traditional-Authoritarian-Nationalist (TAN) parties that reject these new cultural norms in favour of a cultural outlook that emphasises conformity with traditional social hierarchies, alongside a rejection of migration and European integration (Bornschier, 2010; Hooghe et al., 2002; Kitschelt and McGann, 1995).

Cultural issues are also salient on the demand side: individual-level analysis indicates that preferences regarding climate and environmental protection (Mannoni, 2024), attitudes to gender equality and feminism (Anduiza and Rico, 2024; Green and Shorrocks, 2023; Off, 2023); and sexuality and attitudes to sexual diversity (Spierings et al., 2020; Turnbull-Dugarte, 2020) shape voting behaviour.

Importantly, as with questions of European integration and immigration, education and occupation structure the attitudinal divide over the issues of equality, diversity and environmental protection. Results across several studies indicate that education is positively associated with liberal values, tolerance toward out-groups and support for environmental protection (Øystein Gaasholt and Togeby, 1995; Poortinga et al., 2019; Stubager, 2013). Similarly, occupation and social class structure this division, with evidence demonstrating that, relative to those in blue-collar occupations, those in white-collar occupations are more likely to hold these liberal values and beliefs (Napier and Jost, 2008; Pampel, 2014). This social structuration of attitudes is furthermore expressed via vote choice: the degree-educated and professional classes vote for GAL parties, whereas the less educated and working classes vote for TAN parties (Marks et al., 2023; Oesch and Rennwald, 2018).

A New Cleavage in Western Europe

The sum consequence of these transformations – of economies, electorates and party systems – is the emergence of a new cleavage. Cleavages contain three components – social-structural, organisational and normative (Bartolini and Mair, 1990) – and the political conflict that now characterizes Western Europe meets all three criteria. First, a demographic division between the “winners” and “losers” of globalization and transnational economic integration, structured by education, occupation and geography (Hooghe and Marks, 2018; Jennings and Stoker, 2019; Kriesi et al., 2006, Kriesi et al., 2012; Maxwell, 2019). Second, a continental party system structure that organises these demographic groups into competing electoral blocs, with the degree-educated and professional classes voting for parties that favour European integration, multiculturalism and liberal cultural norms, whilst school leavers and blue-collar workers instead vote for parties that support the reassertion of national sovereignty, the rejection of immigration and ethnic diversity, and a return to traditional social hierarchies and cultural norms (Marks et al., 2023; Oesch and Rennwald, 2018). Third, a normative or value-based divide between the two groups, which means that political competition now constitutes 'a cultural conflict pitting libertarian, universalistic values against the defence of nationalism and particularism' (Hooghe and Marks, 2018, p.123). Importantly, at the individual level, this means that the divide between these two groups represents more than simply an attitudinal difference. Instead, it is a conflict between two conflicting identities and worldviews. On the one side is the liberal, internationalistic outlook of the "winners", who possess less hierarchical worldviews, greater tolerance for nonconformity and cosmopolitan values; on the other is the nationalistic and traditional outlook of the "losers", who favour hierarchy, social and cultural conformity, and believe in the primacy of national over universalistic identities (Stubager, 2008; Bornschier, 2010).

The emergence of this new cleavage thus constitutes one explanation for the growing polarization of political attitudes and party systems in Western Europe. The growing salience of moral and value-based issues with no easy resolution (Dalton, 2018) and - consequently - political competition based upon questions of worldview and identity provides a recipe for intractable conflict (Han, 2024; Hetherington and Weiler, 2018). The socio-demographic sorting of voters into competing electoral blocs increases the likelihood of social distance and intergroup hostility between these two groups (Harteveld, 2021), an issue that is compounded by the growing geographic clustering of political preferences (Jennings and Stoker, 2016; Maxwell, 2019). Finally, as these conflicting worldviews find electoral expression through the emergence of parties that represent green, cosmopolitan and liberal values (Bornschier, 2010; Hooghe et al., 2002; Grant and Tilley, 2019) and a competing set of parties that advocate for (ethno-centric) nationalism and traditionalism (Bornschier and Kriesi, 2012; Hooghe et al., 2002), the supply-side salience of these intractable moral issues grows (Dalton, 2018) and party systems become more polarized (Dalton, 2021). Together, this package of transformations in the Western European political space – at both the system- and voter-level – provide a macro-level or structural account of why these mature democracies are now facing democratic challenges and disconnect.

1.2 Micro-level Explanations

However, this structural delineation of a polarized Western Europe is not the only explanation for the new political conflict and its accompanying emergent anti-democratic trends. Instead, a second approach, drawing predominantly on social and cognitive psychology, identifies a set of micro-level explanations for contemporary political polarization in Western Europe. Rather than macro-level changes in the socio-economic environment being the key agent of change in the emergence of this new conflict, these micro-level accounts highlight that the individual – and processes *within* the individual – can be used to explain the political situation in which Europe finds itself.

From this perspective, political polarization can be understood as the product of individual differences (in personality, worldviews and cognitive styles), socio-psychological processes of in-group bias and motivated reasoning, and emotional responses to political stimuli. Whilst there are points of overlap between these two families of explanations – which I will highlight in due course – their key point of difference is in where they locate (either implicitly or explicitly) the locus of change.

1.2.1 An Individual-differences Approach to Political Polarization

Within this family of micro-level explanations, a first set of theories argues that political attitudes and issue preferences are the product of individual differences: individually specific epistemic needs, cognitive styles, personality traits, core orientations and meta-beliefs about the social world (Gerber et al., 2010; Hibbing et al., 2014; Jost et al., 2003). The ideological and attitudinal preferences that an individual adopts are thus understood as attempts to meet and satisfy their psychological needs and motivations: those who fear uncertainty and change adopt reject ethnic and cultural diversity and the proliferation of liberal cultural norms, whereas those who are open to new experiences embrace these societal shifts (Costello et al., 2022; Jost et al., 2003; Jost et al., 2017).

These psychological needs, motivations and traits encompass a range of factors. First are epistemic motives and cognitive styles like dogmatism and need for cognitive closure that structure the nature of information processing and decision making (Altemeyer, 2002; Webster and Kruglanski, 1994). Second are personality traits, which are basic or dispositional orientations that capture enduring and stable individual differences in (a) emotional, interpersonal and attitudinal styles and (b) how an individual responds to environmental stimuli (Gerber et al., 2010; Mccrae et al., 1992). They are often organised (in measurement terms) around the "Big Five" traits of extraversion, conscientiousness, agreeableness, openness to experience and emotionla stability (John and Srivastava, 1999). Third are socio-ideological belief systems like social dominance orientation (SDO) and authoritarianism that capture how an individual believes societies should be structured and intergroup relations organised (Altemeyer, 1981; Duckitt et al., 2002; Duckitt and Sibley, 2010; Pratto et al., 1994). Ideological preferences are thus understood as the product of motivated social cognition (Jost et al., 2003) and personality traits (Gerber et al., 2010; Fatke, 2017), meaning that attitudinal conflict and polarization can be viewed as the outcome of competing or conflictual psychological motivations.

From this perspective, conflict over the issues and questions that now structure Western European polities can be viewed as a divide originating in genetics, parental socialization and other individually specific experiences. Cognitive styles and epistemic characteristics like dogmatism, intolerance of ambiguity and the need for cognitive closure are often understood (at least in part) as stable traits or individual differences derived from parental socialization and early-years experience (Altemeyer, 1981; Furnham and Ribchester, 1995; Frenkel-Brunswik, 1949; Webster and Kruglanski, 1994). Similarly, it has been frequently argued that personality traits emerge from a combination of genetic influence and childhood socialization and remain stable over the life course (Ekehammar and Akrami, 2007; Caspi et al., 2005). Furthermore, core orientations and socio-ideological belief systems like SDO and authoritarianism are assumed to partly emerge from personality and socialization environments during childhood (Adorno et al., 1950; Pratto et al., 2006; Altemeyer, 1981) or be derived from social worldview beliefs that are themselves the product of personality and long-term socialization processes (Duckitt and Sibley, 2010).

Importantly, an array of research demonstrates that these individual differences have attitudinal and behavioural implications which help explain the salient political conflicts present in contemporary Western Europe. Evidence indicates that rigid thinking and cognition (encompassing cognitive characteristics like dogmatism, intolerance of ambiguity and need for cognitive closure) is positively associated with cultural and political conservatism, nationalism, out-group prejudice, ethnocentrism and voting for the radical right (Crowson et al., 2008; Crowson, 2009; Cunningham et al. 2004; Gründl & Aicholzer 2020). Alongside cognitive styles, social-ideological belief systems have also been linked to political preferences. SDO is positively associated with sexism, ethnic prejudice, nationalism, patriotism, opposition to immigration, opposition to gay and women's rights and voting for radical right parties (Cornelis and Hiel, 2015; Pratto et al., 1994; Pratto et al., 2006). In tandem, evidence across a number of studies indicates that authoritarianism is positively associated with opposition to the EU (Bakker et al., 2021; Stevens and Banducci, 2023), anti-immigrant attitudes (Peresman et al., 2023; Yoxon et al., 2019), anti-abortion attitudes (Bakker et al., 2021), and voting for far-right candidates and parties in Europe (Dunn, 2015; Vasilopoulos and Jost, 2020; Vasilopoulos and Lachat, 2018).

Finally, regarding personality, the most consistent findings from the array of extant research are twofold. First, conscientiousness – understood as proclivity toward 'socially prescribed impulse control' and adherence to rules and norms (John and Srivastava, 1999) – is associated with self-reported conservative ideology and traditional attitudes to social issues like abortion and homosexuality (Fatke, 2017; Gerber et al., 2010; Osborne et al., 2021b). Second, openness to experience – capturing a preference for change, unconventionalism and behavioural flexibility (McCrae, 1996) – is associated with self-reported left-wing ideology and liberal social attitudes (Fatke, 2017; Gerber et al., 2010). Evidence indicates that personality also predicts voting for parties on either side of the new cleavage: conscientiousness has been linked to support for far-right parties and candidates (Ackermann et al., 2018; Vasilopoulos and Jost, 2020), whereas openness is positively associated with voting for green parties (Bleidorn et al., 2024) and negatively associated with voting for radical right parties (Aichholzer and Zandonella, 2016).[3]

Taken in totality, a focus on individual differences presents another lens through which contemporary political division can be understood. From this perspective, the divide over issues like immigration, national identity and minority rights can be understood as a conflict originating in fundamental characteristics of the individual: personality, cognitions and core beliefs about the social world (Hetherington and Weiler, 2018; Hibbing et al., 2014). With these fundamental characteristics assumed to contain large stable components and to be causally antecedent to political attitudes and (voting) behaviour (Duckitt and Sibley, 2010; Gerber et al., 2010; Webster and Kruglanski, 1994), they provide one explanation for the seemingly intractable nature of present-day polarization.

[3] I make no claims regarding causal order within the relationship between individual differences and political attitudes, nor make assumptions about precedence within the precise causal arrangement of personality, cognitive styles and meta-beliefs like authoritarianism or SDO. Whilst it has long been assumed that these characteristics precede attitudes (e.g. Gerber et al., 2010; Altemeyer, 1981) and specifically that personality traits cause authoritarian and SDO beliefs (Duckitt and Sibley, 2010), recent studies give reason to question these historic assumptions (e.g. Bakker et al., 2021; Kleppesto et al., 2024). See chapter 2 for an examination of this debate in greater detail.

1.2.2 A Social Identity Approach to Polarization

Rather than individual differences in personality and worldview, a second strand of research into the micro-foundations of political polarization looks to social psychology to explain widening attitudinal divides. Specifically, this research argues that the political parties, ideological groups and social-political labels and causes (such as feminism or environmentalism) that an individual attaches themselves to constitute forms of social identity (Campbell et al., 1960; Green et al., 2002; Huddy, 2001; Malka and Lelkes, 2010). In other words, rather than simply instrumental attachments motivated by the desire to achieve policy goals and further one's self-interest, partisanship and ideological orientation constitute an emotional and psychologically meaningful attachment to a political party or belief system and to the individuals who support them (Federico and Malka, 2018; Huddy et al., 2015). This understanding of political preferences as a form of social identity has been used to explain two core aspects of the increasing polarization of mature democracies: first, the growing dislike and hostility witnessed between supporters of opposing political parties; and second, the increasing propensity of individuals to reason in a motivated or biased fashion in order to support or defend pre-existing political beliefs.

Affective polarization, or the growing tendency of partisans to exhibit dislike toward opposing parties and their supporters and unquestioning loyalty to their own side (Iyengar et al., 2012; Iyengar and Westwood, 2015), constitutes a pressing concern for Western European democracy. Cross-national evidence indicates that the phenomenon is widespread across Europe (Reiljan, 2020; Wagner, 2021). Importantly, it is not limited to hostility between supporters of opposing parties, but also those on either side of salient attitudinal divides such as European integration or independence movements

(Balcells and Kuo, 2023; Hobolt et al., 2021). Taking partisanship as a social identity, affective polarization can be understood as a process of in-group bias (Iyengar and Westwood, 2015): individuals favourably evaluate their political in-group relative to political out-groups, in order to maintain a sense of self-esteem, in-group cohesion and positive distinctiveness from these out-groups (Tajfel and Turner, 1979; Turner et al., 1987).

This process of in-group bias matters because affective polarization has a number of potentially pernicious consequences that help explain the increasing intensity of political polarization in Western Europe. Beyond the general trend of inter-partisan hostility (Reiljan, 2020; Wagner, 2021), this includes the polarization of voters in response to questions of European integration and the perceived economic and cultural threat of immigration (Hobolt et al., 2021; Renström et al., 2023) and democratic backsliding (Orhan, 2022). Importantly, an individual's proclivity to engage in in-group bias is not fixed but conditioned by a number of factors (Mullen et al., 1992). From this perspective, political polarization (and specifically its affective component) can be understood as a process of growing in-group bias, driven by numerous individual-level and system-level factors.

At the individual level, explanations include: policy preferences and attitudinal extremity/consistency (Torcal and Comellas, 2022; Webster and Abramowitz, 2017); perceptions of ideological polarization among elites (Hernández et al., 2021) and misperceptions of opposing party supporters and their attitudinal preferences (Mernyk et al., 2022; Moore-Berg et al., 2020); strength of party identification and the centrality of political identity to one's sense of self (Hernández et al., 2021; Satherley et al., 2020); and stable individual differences like personality and empathy (Bankert, 2022; Tilley and Hobolt, 2024; Simas et al., 2020; Webster, 2018). Other drivers of affective polarization are contextual: political systems and institutions (Gidron et al., 2020; Horne et al., 2022); elections and their outcomes (Bassan-Nygate and Weiss, 2022; Gidron and Sheffer, 2024; Hernández et al., 2021; Sheffer, 2020); other extraordinary political events (Balcells and Kuo, 2023; Hobolt et al., 2021); and elite-level ideological polarization (Banda and Cluverius, 2018). A final set of explanations for affective polarization sit at the intersection of the individual and her environment: the increasing demographic and ideological sorting of party support bases (Harteveld, 2021; Mason, 2016); and the growth and consumption of partisan, biased media (Garrett et al., 2014; Lelkes et al., 2017).

However, viewing contemporary Western European politics through a social identity lens has value for more than just the study of inter-partisan relations. It also has implications for understanding political reasoning – the processes through which we interpret information and arrive at judgements in the political realm. Reasoning is motivated: driven either by the desire to arrive at accurate, factually correct conclusions, or driven by the directional objective to arrive at a specific conclusion (Kunda, 1990). On a mass scale, this latter form of reasoning has potentially pernicious consequences for democracy, particularly when structured around the same social identities that drive hostile inter-group relations.

In-group identification is psychologically meaningful. For an individual, identifying with and categorizing one's self as part of a group confers a sense of self-esteem, group attachment and positive distinctiveness (from other groups) (Huddy, 2001; Tajfel and Turner, 1979; Turner et al., 1987). This means that individuals are motivated to maintain a coherent sense of in-group identity and with it this package of affective benefits. One way that in-group identity is maintained is through adherence to the collective beliefs that that unite members of the group (Stern and Ondish, 2018). Consequently, when encountering new information, individuals are motivated to process information and reach judgements in a manner consistent with in-group beliefs, driven by the desire to maintain a coherent sense of attachment with the in-group (Kahan et al., 2011). Put differently, the weight assigned to new evidence and information is biased by an individual's pre-existing political attachments, with information conforming with in-group beliefs weighing heavier in processes of reasoning and judgement (Kahan, 2017).

In the political realm, this has potentially pernicious consequences for democracy. When a particular issue becomes politically salient and a particular stance on that issue becomes a badge of in-group membership, individuals process political information and form judgements that conform with this in-group position – regardless of the accuracy of those judgements (Bisgaard, 2015; Druckman et al., 2013; Kahan, 2016; Petersen et al., 2013). Seen in this light, the concept of politically motivated reasoning helps explain the concerning political polarization witnessed in years. As political in-group identification grows ever more important and inter-group, identity-based conflicts increasingly structure Western European politics (McCoy et al., 2018), identity-driven and identity-protective reasoning becomes more common (Leeper and Slothuus, 2014). Consequently, as already-divided groups engage in processes of heterogenous reasoning and thus make sense of the (shared) world around them in opposing ways, political divides grow larger and consensus becomes more difficult to achieve (Kahan, 2010; Sorace and Hobolt, 2021).

1.2.3 An Emotion-based Approach to Political Polarization

A third foci in the psychologically oriented family of explanations for contemporary political polarization is emotion. Emotions are an essential component of political life (Marcus, 2010). Usually understand as conscious or unconscious reactions to environmental stimuli that guide individual decision-making and action (Frijda, 1986; Lazarus, 1991; Marcus, 2010), decades of research has shown that emotions have meaningful consequences for political behaviour (e.g. Erisen, 2020; Lerner et al., 2003; Marcus et al., 2000; Wagner and Morisi, 2019). Importantly, emotions are discrete: specific emotions are distinct from each other (Marcus et al., 2006; Smith and Ellsworth, 1985), and each emotion is associated with a specific set of consequences for cognition and behaviour (Lerner and Keltner, 2000; Frijda, 1986; Marcus, 2010). From this perspective, two specific emotions have been implicated in processes of polarization: anxiety and anger.

Anxiety arises in response to external threat, and specifically those threats that are perceived to be beyond the affected individual's control (Marcus et al., 2000; Huddy et al., 2007). The social-structural shifts that have transformed Europe in recent decades constitute anxiety inductions, with experimental evidence demonstrating that anxiety is induced by immigration concerns (Brader et al., 2008; Landmann et al., 2019) and economic uncertainty (Hainmueller and Hopkins, 2014; Miller, 2023). This matters for the study of polarization due to the attitudinal consequences of anxiety. When prompted by a threat, feelings of anxiety are associated with heightened risk perceptions (Huddy et al., 2007; Lerner and Keltner, 2001). Importantly, alongside risk, experimental evidence suggests that anxiety prompts individuals to seek out and be persuaded by information relating to the relevant threat (Gadarian and Albertson, 2014; Albertson and Gadarian, 2015). Consequently, individuals who feel threatened (and are thus made anxious) by the changing political environment – whether due to increasing immigration, changing cultural norms or economic hardship – are potentially open to be persuaded by the hostile and potentially even anti-democratic messaging of radical political parties and candidates (Banks, 2016; Brader et al., 2008). Additionally, some evidence indicates that the consequences of anxiety for information seeking and persuasion are conditional on partisanship, suggesting that anxiety could exacerbate already-existing attitudinal divisions (Albertson and Gadarian, 2015).

Another line of related inquiry has argued that anxiety and perceived threat prompts conservative or authoritarian shifts (Bonanno and Jost, 2006; Jost et al., 2017; Vasilopoulos et al., 2018) and activates latent authoritarian tendencies among those possessing an authoritarian disposition (Feldman and Stenner, 1997; Stenner, 2005). Thus, in a political environment viewed by some as increasingly threatening, anxiety – whether by increasing individual receptivity to the hostile rhetoric of radical parties or prompting authoritarian shifts among affected populations – is potentially contributing to the concerning transformations witnessed among European polities. However, overall evidence regarding anxiety and polarization is mixed. The theory of affective intelligence (Marcus et al., 2000) suggests that anxiety could prompt individuals to act as better democratic citizens – to engage in 'nonpartisan open deliberation' (Marcus et al., 2019, p.117) and process information systematically, driven by accuracy concerns (i.e. with less bias). Some findings supports this proposition, showing that anxious individuals are more willing to seek out information that conflicts with their prior beliefs (Mackuen et al., 2010) and rely on evaluative rather than heuristic judgements in political decision making (Brader, 2005). Consequently, the overall implications of anxiety for political conflict are uncertain.

In contrast, a second emotion with clear implications for the increasing polarization of Western Europe is anger. Anger arises when an individual encounters an obstruction toward a desired goal or a familiar and disliked group (Berkowitz and Harmon-Jones, 2004; Mackuen et al., 2010): viewed in this way, the political arena provides numerous anger-inducing stimuli. Specifically, evidence indicates that election campaigns and inter-party competition (Huddy et al., 2015), political elite cues (Gervais, 2019; Stapleton and Dawkins, 2022) and the consumption of political media sources (Hasell and Weeks, 2016) can all induce anger. Consequently, anger is highly prevalent in everyday political life (Erisen, 2020; Webster, 2020).

Widespread feelings of anger matter because its attitudinal and behavioural consequences contribute to polarization. First, anger amplifies punitive tendencies toward out-groups (Lerner et al., 1998), the willingness to employ stereotypes (Bodenhausen et al., 1994) and adopt prejudicial attitudes toward out-groups (Banks and Valentino, 2012; Banks, 2016). Second, anger has been identified as a cause of the growing partisan hostility characterizing mature democracies, with experimental evidence showing that anger drives affective polarization and increasing social distance from those who support opposing parties (Renström et al., 2023; Webster et al., 2022). Third, extant research suggests that anger is also partly responsible for growing partisan polarization and increasing intractability of attitudinal conflicts (Erisen, 2020; Marcus, 2021). Angry individuals are more likely to seek out information that conforms with - and resist information that conflicts with - their prior beliefs (Mackuen et al., 2010); anger also prompts the identity-protective biased assimilation of new information (Suhay and Erisen, 2018). Consequently, anger has been identified as a source of political misperceptions and attitudinal conflicts (Carnahan et al., 2023; Weeks, 2015). Finally, anger has relevance for contemporary electoral trends in Western Europe, given its associations with populist attitudes (Rico et al., 2017; Rico et al., 2020), anti-EU sentiment (Erisen, 2020; Vasilopoulou and Wagner, 2017) and support for far-right parties (Vasilopoulos et al., 2019).

In sum, evidence suggests that anxiety (albeit mixed) and anger contribute to the stark political division observed in Western Europe. Core aspects of the contemporary political environment - from increasing immigration and economic inequality to party competition - prompt emotional reactions among citizens, and these emotions then drive polarization. It is important to note that whilst emotions have been here discussed separately from other factors, they are interwoven with the other psychological explanations for political conflict. Emotions are a continual accompaniment to human cognition and behaviour (Frijda, 1986; Lazarus, 1991) and can perhaps be understood as a connective tissue linking various individual-level explanations for polarization. Anger, for example, has been linked to social identity-based processes of affective polarization and motivated reasoning (Marcus, 2021; Renström et al., 2023; Suhay and Erisen, 2018; Webster et al., 2022), and both anxiety and anger appear to condition or mediate the consequences of core predispositions like authoritarianism (Vasilopoulos et al., 2018; Vasilopoulos et al., 2019). Contemporary political polarization thus cannot be understood without an appreciation of emotion.

1.3 A Multi-dimensional Approach to Polarization

Taken in totality, explanations for the political polarization and conflict witnessed in contemporary Western Europe can be broadly grouped into two families. Approaches are divided between those that focus on the individual as the primary agent of change in this process of polarization, acting upon their environment, or those that examine the influence of changing socio-economic environments upon the individual. My thesis instead approaches the question of contemporary political conflict in Western Europe from a multidimensional perspective: an intermediary position that conceptually and empirically integrates the concurrent influence of individual-level processes of reasoning and judgement alongside contextual factors. In making this claim, I am not arguing that each of the summarized explanations for contemporary political polarization – the macro and the micro – completely ignore the other. Instead, my argument is that whilst initial steps have been taken to begin this integration, extending it further holds the potential to generate new insights into the processes of polarization that underpin our current political conflict.

To illustrate this position, it is worth examining each of these accounts – the social-structural and the individual-psychological – in greater detail. Social identity is an inherent component of the cleavage concept (Bartolini and Mair, 1990), and macro-level perspectives on the formation of a new cleavage in Western Europe recognise – conceptually – the role of psychological processes of in-group attachment in the emergence of this new cleavage (Bornschier 2009; Ford and Jennings, 2020; Kriesi, 2010). However, empirical assessments of the role of group identification in this strand of research are much less frequent (for notable exceptions, see Bornschier et al., 2021; Stubager, 2009; Stubager, 2013; Zollinger, 2024a; Zollinger, 2024b). In other words, whilst the conceptual link is regularly made between these two dimensions of polarization, empirical analysis of both dimensions in tandem is much less frequent.

Similarly, extant explanations of the micro-level underpinnings of political polarization do recognise the role of context. The literature on individual differences and the dispositional and personality-based underpinnings of political preferences recognises the role of elite cues and the political information environment in enabling citizens to match their psychological needs and motives with issue positions (Federico and Malka, 2018; Johnston et al., 2017). Research that adopts a micro-level social identity perspective to analyse partisan bias and motivated reasoning recognises that the salience of social identity and in-group attachment is (partly) context dependent (Druckman et al., 2013; Singh and Thornton, 2019). Finally, scholarship on emotions points to socio-political context as the site in which many emotional stimuli are located, such as external threats and collective political experiences (Huddy et al., 2007; Vasilopoulos et al., 2019), political elite behaviour (Gervais, 2019; Stapleton and Dawkins, 2022) and media consumption (Hasell and Weeks, 2016).

In sum, macro-level explanations of political transformation in Western European polities do recognise the role of individual-level psychological processes; and research which takes these individual-level psychological processes as its conceptual and empirical focus is not devoid of a contextual element. Therefore, the contribution made by this thesis is not to combine the two, but to take this process of integration further. Specifically, across three studies, I explore ways in which contextual characteristics moderate the effect of individual-level psychological processes – personality-based decision making, partisan bias and emotional response – on attitudinal outcomes. Stated differently, whilst prior research has predominantly looked to contextual factors to explain when and why these processes occur, I ask a different question: *how might context influence the attitudinal and behavioural consequences of these processes?*

This contribution matters for several reasons. The analytical synthesis of micro- and macro-level accounts of polarization first provides an opportunity to deepen understanding, both conceptually and empirically, of the role of identities in cleavage formation and cleavage politics. Much of the work on group identities within the cleavage literature is minimalist in its approach to cleavages (often defining them simply via socio-demographic characteristics), treating these identities as fixed or static and paying insufficient attention to the specific processes through which social identities come into being (Westheuser and Zollinger, 2024). Bringing a focus on psychological processes into this field of research provides a means of addressing these shortcomings.

The second, related contribution made by this thesis – and specifically by the focus on individual-level psychological processes in context – is one of generalization. Research on the psychological processes involved in mass polarization is dominated by studies from the US. Much of the evidence pertaining to the relationship between personality or psychological dispositions and political preferences (e.g. Gerber et al., 2010; Johnston et al., 2017), political identities as a driver of inter-group hostility and motivated reasoning (e.g. Druckman et al., 2013; Iyengar and Westwood, 2015), and the polarizing consequences of emotional response (e.g. Marcus et al., 2000; Webster et al., 2022) comes from American samples and studies. The US represents a unique political environment, and its characteristics provide many reasons for hesitancy when attempting to generalize to the Western European context: a two-party system which lends itself to political conflict (Drutman, 2020); extreme levels of elite polarization (Theriault, 2008; McCarty et al., 2016); a highly partisan media environment that contributes to mass polarization (Davis and Dunaway, 2016; Lelkes et al., 2017; Levendusky, 2013); and the sorting of voters into two ideologically distinct, geographically segregated electoral blocs (Brown and Enos, 2021; Mason, 2015).

Whilst there is a burgeoning scholarship that analyses psychological processes of polarization and the psychological underpinnings of political preferences beyond the US context - and specifically in Europe (e.g. Aichholzer and Zandonella, 2016; Bakker et al., 2021; Malka et al., 2014; Reiljan, 2020) - published research outside of the U.S. is still limited compared to the number of studies devoted to the American case. Importantly, the specific psychological processes of polarization that constitute the focus of this thesis have yet to receive sufficient attention beyond the US. Thus, each of the three studies constituting this thesis – as I will detail below – represent tests that enhance the external generalizability of extant research on political polarization.

These contributions also have practical implications for understanding contemporary political polarization in Western Europe. A focus on contextual sources of heterogeneity and the generalizability of extant findings to other national contexts is partly a focus on scope conditions, providing potential insights into when and why individuals and polities will polarize. In tandem, understanding scope conditions provides a potential path forward in limiting political polarization and thus attenuating the concerning anti-democratic trends that face contemporary Europe. With the potential to identify the conditions under which polarization does and does not occur, this multidimensional analysis could point the way to possible policy innovations and societal shifts needed to prevent voters from pulling further apart.

A common set of analytical strategies are used to provide empirical support for this multidimensional approach to political polarization in Western Europe. Specifically, this thesis employs large-N, nationally representative panel datasets to test the relationships of interest. This approach has several strengths. First – and most importantly – concerns the nature of the inferences that can be reached from such a strategy. Whilst observational data can only provide approximations of causal relationships, the use of panel data (alongside additional complementary measures and strategies) allows one to robustly address the issue of unmeasured confounding. All claims to causality when using observational data come with necessary caveats and assumptions – which I explicitly recognise – but the empirical strategies used across this thesis allow for a (conditional) causal interpretation of my findings.

Relatedly, by using panel data, this thesis explicitly models dynamic processes of attitudinal change. Polarization is inherently dynamic – a process of collective transformation which is, of course, made up of many individual-level shifts in attitude and behaviour. Using panel data to measure change within individuals over time thus provides a suitable empirical strategy for examining processes of polarization. Additionally, this analytical approach possesses other benefits. First, given the interest in heterogeneity across individuals, using such datasets provides the necessary statistical power to compare population subgroups. Second, by using high quality, nationally representative surveys, this approach allows for insights and conclusions high in external validity.

1.4 Thesis Structure and Overview

The structure of this thesis is as follows. Chapter two examines the psychological underpinnings of the attitudinal conflict over transnationalism, in co-authored work with Dr Pavlos Vasilopoulos. Specifically, we examine whether authoritarianism – understood as a predisposition or long-term orientation toward social control and hierarchy (Feldman, 2003) – is causally related to immigration attitudes, support for European integration and vote choice in Britain. The question of authoritarianism's impact on political preferences grows ever more salient as authoritarian-populist parties and candidates grow in popularity across global democracies (Norris and Inglehart, 2019). Despite this, and despite the vast literature devoted to the relationship between authoritarianism and attitudes since the publication of The Authoritarian Personality (Adorno et al., 1950) over seven decades ago, important questions remain. First, is authoritarianism causally related to political attitudes, or is the oft-identified relationship instead a product of unmeasured confounding? Second – and relatedly – does authoritarianism precede issue preferences and vote choice, as has long been assumed, or can preferences drive changes in authoritarianism? Third, what is the role of elite cues and the political information environment in moderating the relationship between authoritarianism and social attitudes outside of the US context?

We examine these questions using panel data, enabling the use of estimation strategies that can address the issues of unmeasured confounding and reverse causality (individual fixed effects and random intercept cross-lagged panel models). Results indicate that authoritarianism is causally associated with immigration attitudes (not EU attitudes nor vote choice) but that, contrary to long-held assumptions about the causal precedence of authoritarianism (e.g. Adorno et al., 1950; Altemeyer, 1981; Feldman and Stenner, 1997), immigration attitudes causally precede authoritarianism, not the other way round. Regarding the third aim, we find mixed evidence that political engagement moderates this relationship. These findings have important implications for understanding the role of authoritarianism in the contemporary divide over immigration and related socio-cultural issues, in suggesting that growing hostility toward immigration could trigger a broader authoritarian shift among sections of electorates, helping to explain the reported authoritarian turn among segments of mass electorates (e.g. Norris and Inglehart, 2019).

Chapter three analyses an alternative attitudinal divide within the socio-cultural conflict structuring contemporary Western Europe: the debate over climate change and environmental protection. Specifically, this chapter contributes to the growing literature on the impact of directly experiencing extreme weather events on attitudes toward climate change and environmental policy reform. Despite much scholarly attention being devoted to this question in recent years, evidence continues to be mixed. Some studies indicate that, regardless of political orientation, individuals update their attitudes to become more pro-environmental in response to experiencing an extreme weather event. Contrastingly, other studies find that – consistent with identity-protective motivated reasoning – supporters of climate-sceptic parties are less likely to adopt pro-environmental preferences in the wake of this experience. Querying the assumption that any effect of partisanship will be uniform (i.e. that supporters of a particular party will respond in the same way), I look to partisan-ideological sorting to explain the heterogeneity of extant findings.

Recognising the insight that sorted partisans – those whose ideological positions align with their party identification – possess stronger party identities (Mason, 2015) and are thus more likely to engage in motivated reasoning (Leeper and Slothuus, 2014), I argue that ideologically sorted supporters of climate-sceptic parties are less likely to exhibit attitudinal changes in response to extreme weather. Using panel data that captures the period before and after flooding in Norway to track within-individual changes in attitudes as a response to flood experience, I validate this proposition. Specifically, supporters of Norway's climate-sceptic Progress Party who are not also ideologically sorted do update their attitudes in response to flooding; but those who are sorted ideologically do not. The results of this this study establish a source of heterogeneity in partisan responses to climate change events and, zooming out, suggest that partisan-ideological sorting has potentially deleterious consequences for attitudinal polarization and for the ability of polities to tackle pressing societal problems and respond to external threats.

Chapter four returns to the British context and examines the emotional underpinnings of one of the most concerning aspects of the new political conflict in Western Europe: affective polarization (Reiljan, 2020). Beginning with the insight that anger drives affective polarization (Renström et al., 2023; Webster et al., 2022), I advance a novel argument about the role of inter-personal context in this relationship, proposing that political discussion moderates the relationship between anger and affective polarization. Specifically, I argue that politically diverse discussion acts as a form of constraint on the polarizing consequences of anger. Relative to those who only discuss politics with co-partisans, individuals who discuss politics with out-partisans (i.e. those who support a different party to their own) operate in a behavioural space more constrained by social identities, norms and beliefs that emphasise and encourage political tolerance. Consequently, due to these constraints, individuals who discuss politics with out-partisans are less likely to express hostility toward political opponents when experiencing anger. It is only among those who discuss politics with co-partisans alone, and are not subjected to the same inter-personal constraint, for whom anger will lead to affective polarization.

Drawing on panel data in Britain, I find support for this proposition. Anger drives affective polarization – and specifically dislike toward political opponents – but only among those who discuss politics with co-partisans alone. For those in politically diverse networks, anger has no effect on affective polarization. These findings shed new light on the emotional underpinnings of affective polarization, indicating that anger effects are not uniform, but instead vary with interpersonal context, and enhance the external generalizability of extant research on intergroup discussion and affective polarization by demonstrating that the depolarizing consequences of discussion extend beyond the US context. They also carry substantive implications for contemporary political polarization. Given the geographic clustering of socio-cultural attitudes brought on by globalization (Furlong and Jennings, 2024; Jennings and Stoker, 2016; Maxwell, 2019) and the potential reduction in cross-cutting dialogue and exposure to conflicting views that this implies, the results of this chapter suggest that a potential homogenization of political networks could lead to the entrenchment and exacerbation of inter-group hostility.

Chapter five concludes this thesis and offers an evaluation of the multi-dimensional approach to understanding political polarization. Synthesising insights from the three chapters that proceed it, I illustrate that a focus on context has the power to reveal previously obscured heterogeneities in the psychological processes that drive contemporary political conflict in Western Europe. The impact of predispositions, information processing, and emotion are all conditioned by contextual factors. Recognising the role of context thus has conceptual and empirical implications, bringing greater nuance to our understanding of processes of polarization. It furthermore has substantive value, in highlighting potential avenues for limiting these processes. Ending with an evaluation of my research agenda and directions for future research, I suggest that this thesis constitutes the beginning of a process of analytical integration, and that future study – employing alternative methods and analysing new additional national contexts – can extend these insights to arrive at a broader and deeper understanding of these conditional processes of polarization.

2

Authoritarianism, Political Attitudes, and Vote Choice: A Longitudinal Analysis of the British Electorate

Statement of Authorship

This chapter is an adapted version of a co-authored article with Dr Pavlos Vasilopoulos. For further details on my contribution to the original work and how it has been adapted for this thesis, see the Statement of Authorship submitted alongside this file.

Statement of Publication

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Data Accessibility Statement

Replication data for this study is available here.

Abstract

In an era of growing electoral support for far-right political parties and candidates, understanding the consequences of the psychological trait of authoritarianism for political attitudes and behaviour remains vitally important. This chapter aims at advancing extant knowledge on authoritarianism —measured here by child-rearing items — in three ways. First, by investigating the impact of authoritarianism on political attitudes and voting, net of individual heterogeneity, thus improving causal estimation. Second, by investigating the extent to which there exists reverse causality between authoritarianism and political attitudes. Third, by examining the impact of political engagement and the political information environment in shaping the relationship between authoritarianism and attitudes, using within-person methods. To do so, we employ a longitudinal analysis using panel data in Britain. The results suggest that authoritarianism is positively associated with anti-immigration attitudes, anti-EU preferences, and vote choice. However, when accounting for potential confounding through the inclusion of individual fixed effects, we find that authoritarianism retains its significant association with anti-immigration preferences alone. Further, lagged relations between authoritarianism and immigration preferences indicate that within-person changes in immigration attitudes precede changes in authoritarianism - not the other way around. These findings highlight the need to reconsider long-held assumptions of authoritarianism as a stable predisposition. Furthermore, they suggest that changing characteristics of European political conflict - namely the rise of far-right parties and anti-immigrant hostility - might be driving an authoritarian shift among mass publics.

2.1 Introduction

Few concepts have been debated more in political behavior literature than authoritarianism. Popularized in social science research after the end of WWII by the seminal work of Adorno et al. and his colleagues (1950), authoritarianism was initially conceived as a personality trait that provided a psychological proclivity to support totalitarian leaders and movements and express prejudice toward out-groups. Seven decades after the publication of Adorno et al.'s work, the concept remains highly relevant to contemporary Western European politics, as demonstrated by the rise of far-right populist politicians and parties who regularly target minorities, restrict individual freedoms, and undermine fundamental democratic processes (Dennison and Geddes, 2019; Norris and Inglehart, 2019).

The rise of authoritarian leaders, parties and behaviours in the past years has been accompanied by a stream of intense and fruitful research around the psychological construct of authoritarianism and its association with political choice in mass publics (Aichholzer and Zandonella, 2016; Bakker et al., 2021; Choma and Hanoch, 2017; Cohen and Smith, 2016; Dunn, 2015; Engelhardt et al., 2023; Hetherington and Weiler, 2018; Luttig, 2021; Macwilliams, 2016; Nilsson and Jost, 2020; Pettigrew, 2017; Vasilopoulos and Jost, 2020; Vasilopoulos and Lachat, 2018). However, despite a very productive and animated debate over the existence and the direction of associations between authoritarianism and a range of social and political attitudes, questions remain. First, much of the available literature begins with the assumption that authoritarianism is exogenous to political attitudes (e.g. Altemeyer, 1981; Feldman and Stenner, 1997), which recent evidence gives reason to question (see Bakker et al., 2021; Luttig, 2021; Osborne et al., 2021a; Engelhardt et al., 2023). Second, extant literature draws almost exclusively on cross-sectional (e.g. Dunn, 2015; Napier and Jost, 2008; Vasilopoulos and Lachat, 2018) or - more recently - cross-lagged panel studies (see Bakker et al., 2021; Engelhardt et al., 2023; Luttig, 2021; Osborne et al., 2021a). With these approaches, it becomes difficult to disentangle the net effect of authoritarianism from unobservable factors that simultaneously correlate both with authoritarianism and political attitudes. Third, questions remain about the role of elite cues and the political information environment in shaping the relationship between authoritarianism and attitudes (AArceneaux et al., 2024) and specifically the contextual generalizability of extant findings (Malka et al., 2014).

In this article we aim at advancing extant knowledge on the psychological orientation of authoritarianism. Drawing on the case of Britain we investigate its impact on attitudes toward immigration, support for European integration, and vote choice, from a longitudinal perspective. This allows us to assess the role of authoritarianism on political behavior, net of individual heterogeneity, as well as investigate the direction of causality between authoritarianism and political preferences. To this end, we draw on the British Election Study, a large representative panel study that measures authoritarianism at four points in time over a timespan of two years. We measure authoritarianism using Feldman's childrearing scale (Feldman, 2003; Feldman, 2003; Stenner, 2005), which is an increasingly popular measure of the trait in mass publics across contexts (Bakker et al., 2021; Engelhardt et al., 2023; Hetherington and Suhay, 2011; Hetherington and Weiler, 2009, Hetherington and Weiler, 2018; Macwilliams, 2016; Vasilopoulos and Lachat, 2018; Vasilopoulos et al., 2019; Velez and Lavine, 2017). Three longitudinal methods are used: first, we use random effects models that provide an assessment of the between-person association of authoritarianism with political preferences. Second, we employ individual fixed effects models that estimate whether within-person changes in authoritarianism are associated with corresponding changes in policy preferences and enable us to control for stable unobservable characteristics of individuals that may impact both authoritarianism and political preferences. Finally, we draw on random intercept cross-lagged panel models (RI-CLPMs) to assess the direction of causality between authoritarianism and political behavior. The latter two approaches allow for a rigorous assessment of causal effects of authoritarianism on political choice.

Results suggest that authoritarianism in Britain is positively associated with anti-immigration attitudes, anti-EU preferences, and vote choice. However, when accounting for potential confounding through the inclusion of individual fixed effects, we find that authoritarianism retains its significant association with anti-immigration preferences alone. Assessing causal direction through RI-CLPMs, results cast doubt on the assumption that authoritarianism is causally prior to political preferences. Lagged relations between authoritarianism and immigration preferences indicate that within-person changes in immigration attitudes precede changes in authoritarianism - not the other way around. Finally, assessing whether the relationship between authoritarianism and social issue preferences is moderated by political engagement, we find some evidence that engagement amplifies this relationship, extending extant findings from the US (Ollerenshaw and Johnston, 2022) to the European context.

These findings have important theoretical and methodological implications for both understanding authoritarianism and the psychology of political attitudes, and in making sense of the polarization that characterizes contemporary conflict in Britain and other advanced European democracies.

In our data, the relationship between authoritarianism and anti-immigrant attitudes is not driven by time-invariant unobservables that may simultaneously affect both authoritarianism and political attitudes. This test provides a rigorous empirical assessment of a widely used authoritarianism measure – Feldman's child-rearing values scale (Feldman, 2003; Feldman and Stenner, 1997) – and demonstrates that in line with its original conception and design, the scale exhibits some construct validity. Overall, the child rearing scale indeed correlates with prejudicial attitudes independently of individual heterogeneity. Nonetheless, our results suggest that prejudice influences authoritarianism and not the other way around, which indicates that an increase in anti-immigration hostility may trigger a broader authoritarian response that extends beyond immigration. This has potentially concerning implications for political polarization in Western Europe. The Western European context is one in which far-right parties and candidates deploy anti-immigrant rhetoric and immigration is a salient issue (Dennison and Geddes, 2019). Findings suggest that in such a context, the adoption of anti-immigration attitudes among sections of mass publics might prompt increasing desires for in-group homogeneity and conformity, making compromise and cooperation across cultural and attitudinal divides – a pressing concern for European democracy – ever more difficult.

2.2 Theoretical Framework

Authoritarianism, conceived as an individual difference, has been inexorably linked with the landmark study *The Authoritarian Personality* (Adorno et al., 1950). Relying heavily on the premises of Freudian psychology, Adorno and his colleagues posited that authoritarianism stemmed from socialization processes within the context of the family during childhood and consists of the interrelated yet seemingly distinct components of conventionalism, authoritarian submission, authoritarian aggression, anti-intellectualism, obsession with power and toughness, stereotypical thinking, generalized cynicism, exaggerated concerns with sex, and the projection of one's own aggressive impulses to others. These were interlinked to form a common personality type that was characterized by strong aggressive impulses toward minorities and was prone to follow antidemocratic leaders and movements (Adorno et al., 1950). The authors constructed the F-scale, a scale designed to measure levels of authoritarianism, which they found to correlate with anti-Semitism, as well as social and economic conservatism. Despite its important influence in the study of political psychology, The Authoritarian Personality has been the focus of much criticism. The theory was questioned on the basis of the heavy reliance on the Freudian framework that was later disputed by psychological research. Methodological concerns mostly focused on the F-scale, and included sampling choices, possible acquiescence bias, and the low correlations between the subscales for each of the nine components (seeBrown, 1965).

These criticisms led to a major reconceptualization of authoritarianism developed by Altemeyer (1981). He argued that instead of constituting a personality trait, authoritarianism is a general orientation that is rooted in personality but is at the same time influenced and updated by features of the social environment. Further, Altemeyer (1981, p. 148) kept only three of the nine components of The Authoritarian Personality, which he described as "attitudinal clusters": Conventionalism, which refers to "a high degree of adherence to the social conventions which are perceived to be endorsed by society and its established authorities"; Authoritarian Submission, or "a high degree of submission to the authorities who are perceived to be established and legitimate in the society in which one lives"; and Authoritarian Aggression, which refers to "a general aggressiveness, directed against various persons, which is perceived to be sanctioned by established authorities". Importantly, Altemeyer developed the Right Wing Authoritarianism (RWA) scale as an alternative to the F-Scale (1981). The original scale included 30 items to capture each of the three dimensions. It included items such as "What our country really needs is a strong, determined leader who will crush evil, and take us back to our true path." or "It would be best for everyone if the proper authorities censored magazines so that people would not get their hands on trashy and disgusting material".

Altemeyer's refinement of authoritarianism and the RWA scale stimulated an intense and productive wave of research. Subsequent works showed high correlations between the RWA scale and heterogenous aspects of prejudice and conservatism, as well as voting for far-right parties in different settings (e.g. Altemeyer, 1988; Choma and Hanoch, 2017; Peresman et al., 2023). However, the conceptualization and measurement of Right Wing Authoritarianism has been criticized for being partly tautological by directly measuring some of the social and political attitudes that it is designed to predict. That is, instead of capturing a psychological orientation that motivates prejudice, the RWA scale rather captures the outcomes of prejudice by directly asking attitudes toward minorities and perceived social deviants (Cohrs, 2013; Feldman, 2003, Feldman, 2013; Hetherington and Weiler, 2009; Pérez and Hetherington, 2014; Stenner, 2005). Another criticism of the scale is that the wording of the items closely resembles the rhetoric of far-right leaders, which may produce spurious correlations between RWA and voting for the far right (Engelhardt et al., 2023; Feldman, 2003).

Considering these issues, Feldman and colleagues proposed a second major theoretical and methodological refinement of the psychological construct of authoritarianism, described as a predisposition (Feldman and Stenner, 1997; Feldman, 2003; Engelhardt et al., 2023; see also Stenner, 2005). These authors posit that every society is characterized by a trade-off between individual autonomy and social control. On the one end is the need for social homogeneity and the development of collective social norms. On the other end lies the need for individual expression and the pursuit of self-interest. Some people show a proclivity to prioritize individual autonomy over control, while others prioritize social control at the expense of autonomy. These relative priorities constitute the basis of the authoritarian spectrum. On the one end of the spectrum are those who value autonomy. These individuals are more committed to freedom of expression, supportive of civil liberties, and against state control in individuals' lives. Further, they are less likely to feel threatened by and hostile toward those leading lives outside of conventional norms, such as ethnic and sexual minorities or immigrants. On the other end are those who show a strong preference for social control over autonomy. These individuals are supportive of state control and are more likely to endorse punitive tendencies against diversity and those with nonconformist lifestyles.

In addition to their theoretical refinement, Feldman and colleagues proposed a set of questions focusing on child rearing ideals (Engelhardt et al., 2023; Feldman, 2003). These have no apparent political content and thus allow for the measurement of authoritarianism without the endogeneity issues that characterized the RWA scale. Further, they offer the advantage of comparability across time and space. Subsequent research has found that the child-rearing scale strongly correlates with different manifestations of authoritarianism such as prejudice toward sexual minorities and ethnic intolerance

(Brandt and Henry, 2012; Brandt and Reyna, 2014; Cizmar et al., 2013; Cohen and Smith, 2016; Oyamot et al., 2012; Stenner, 2005' Vasilopoulos and Lachat, 2018), support for restricting civil liberties (Feldman, 2020; Hetherington and Suhay, 2011; Hetherington and Weiler, 2009), voting for far right parties and candidates (Bakker et al., 2021; Cohen and Smith, 2016; Dunn, 2015; Macwilliams, 2016; Vasilopoulos and Lachat, 2018), as well as broader opposition to equality and adherence to tradition (Federico et al., 2011).

2.2.1 Authoritarianism and Political Behaviour: Theoretical and Empirical Questions

Despite the lengthy scholarly debate over the concept and measurement of authoritarianism, and the popularity of the child-rearing scale since its introduction to the field of political psychology, important theoretical and empirical questions about authoritarianism remain. Since the birth of the concept, authoritarianism was conceived and developed as a trait that was exogenous and causally prior to political attitudes and voting. This assumption has dominated the relevant literature and has been informing hypothesis-building and empirical modelling for over seven decades. Yet, several studies, some dating back to the early days of authoritarianism research, cast doubt on this claim. The skepticism rests on two potential issues. First, it has long been argued that the widely reported correlations between authoritarianism and political attitudes or behaviour may be driven by unobservable factors and hence the relationship may be spurious (Brown, 1965; Hyman and Sheatsley, 1954). Second, more recently, Luttig (2021), Osborne et al. (2021), and Bakker et al. (2021) provide evidence of reverse causality, arguing that vote choice and political attitudes may - at least to some extent - affect reported levels of authoritarianism rather than the other way round.

Omitted Variable Bias

There are indeed plausible reasons to anticipate that the impact of authoritarianism on political attitudes may be a product of other stable factors that operate outside of personality. The causal role of authoritarianism in predicting prejudice has been questioned since the publication of The Authoritarian Personality, with critics suggesting instead that the covariance between authoritarianism and prejudice may be rooted in feelings of marginalization, low cultural sophistication, and other norms that are a product of growing up in a low socioeconomic environment (Brown, 1965; Hyman and Sheatsley, 1954).

For instance, low socioeconomic status (SES) correlates with, and is assumed to precede, authoritarianism (Carvacho et al., 2013; Lipset, 1960; Napier and Jost, 2008). But low SES also directly influences the attitudinal outcomes associated with authoritarianism, such as prejudice. This raises the possibility of confounding if the effect of SES on exclusionary attitudes occurs via mechanisms independent of authoritarianism. Evidence suggests this to be the case. First, low SES predicts a subjective sense of impotence or group deprivation (Jenssen and Engesbak, 1994; Pettigrew et al., 2008), which is associated with prejudice toward outgroups (Pettigrew et al., 2008; Yoxon et al., 2019). Importantly, evidence suggests that economic self-interest can provide the mechanism from deprivation to exclusionary attitudes (Algan et al., 2017; Dehdari, 2022): authoritarianism is not the only route through which this can occur.

Additionally, some theories of authoritarianism posit that low SES (particularly lack of education) leads to authoritarianism through the communication of particular norms and worldviews (Gabennesch, 1972). But it is feasible to assume that the beliefs and norms produced by a low-SES developmental environment could prompt the adoption of prejudicial and intolerant attitudes, independent of authoritarianism. For example, Stephens et al. (2007) present evidence supporting the argument that SES produces differing models of agency - working class developmental contexts promote beliefs about normatively good action that emphasise similarity with others. These beliefs could well translate into exclusionary attitudes toward minority groups.

This evidence demonstrates the possibility that low SES fosters exclusionary attitudes, beyond the influence of authoritarianism. Consequently, the association between authoritarianism and political attitudes might not represent a causal association but the product of confounding, driven by low SES. Extant evidence provides support for this possibility, suggesting that both group deprivation and prejudicial norms influence prejudice, independent of authoritarianism (Pettigrew et al., 2008; Yoxon et al., 2019). A similar case can be made for a number of other unobservable factors: socialization (Lipset, 1960), cognitive ability (Choma and Hanoch, 2017; Onraet et al., 2015) and lack of outgroup contact (Altemeyer, 1988), all of which correlate both with authoritarianism and prejudice.

Accounting for the nuanced and multifaceted (and often unobservable) implications of SES and other factors is therefore necessary to accurately estimate the causal association between authoritarianism and political attitudes. Failure to do so risks attributing to authoritarianism the influence of omitted variables on prejudice. Drawing on cross-sectional data, vulnerable to omitted variable bias, is not well suited to this task. In contrast, through panel data—measuring within-individual changes in authoritarianism over time whilst controlling for time-invariant factors, both observed and unobserved—this objective can be achieved.

Reverse Causality

A second stream of research has highlighted possible reverse causality between authoritarianism and political behaviour. In a recent study in New Zealand, Osborne et al. (2021) conducted a longitudinal analysis covering a timespan of 10 years using RI-CLPMs to show that the RWA (and Social Dominance Orientation) scales precede various forms of prejudice. Yet, they also find that RWA and SDO are — to a lesser extent — also predicted by levels of prejudice (Osborne et al., 2021a). Two recent important studies come up with similar findings that, according to their authors, cast doubt on the causal influence of authoritarianism on political behavior. Luttig, 2021 (2021) investigates potential reverse causality between authoritarianism and voting, drawing on panel data. Drawing on two two-wave panel studies and a cross-lagged regression model he finds that authoritarianism (measured with the child-rearing items) was unassociated both with a change in the probability of supporting Trump between September and October 2016 and with a change in voting for Romney between 2012 and 2013. Based on these findings he concludes that "contradicting long-held assumptions, the child-rearing measure of authoritarianism is not exogenous to politics" (Luttig, 2021 p. 786). Luttig instead suggests that support for authoritarian leaders may be driven by top-down factors where voters adjust their preferences in line with elite cues rather than authoritarianism per se. Another study by Bakker et al. (2021), drawing on a series of cross-lagged panel models in US samples, found that authoritarianism (measured by two child-rearing items) both influenced and was influenced by political attitudes such as opposition to abortions and LGBTQ rights. Further, the authors experimentally illustrate that priming political issues influences responses to the authoritarianism child-rearing scale, compared to a control group that was not primed with political issues.

Why would authoritarianism, which is considered an enduring psychological orientation, be affected by issue attitudes? Bakker and his coauthors offer two explanations. First, they argue that the inclination of politically similar-minded people to interact more frequently with each other may foster common norms, patterns of behaviour, and consequently trigger a broader attitudinal change. This in turn could be reflected in measures of general psychological characteristics (Bakker et al., 2021). A second explanation could be that many people are aware of the stereotypical behavioural repertoires of their political ingroups and tend to adjust their answers to psychological trait measures accordingly (Bakker et al., 2021).

In addition to these two mechanisms, there is a further key theoretical reason that leads us to anticipate that, on top of being affected by authoritarianism, attitudes toward outgroups should also affect levels of authoritarianism. As Duckitt (1989) asserts, even though authoritarianism has been predominantly conceptualized as an individualistic construct, it fundamentally concerns intergroup phenomena insofar as it has been built to explain prejudice, ethnocentrism, and hostility toward minorities. Hence, increasing opposition to outgroups (such as immigrants or ethnic minorities) may lead to increased authoritarianism through a process of strengthening ingroup identification and increasing the desire for homogeneity and group cohesiveness (Duckitt, 1989). Duckitt's hypothesis over a reciprocal association between outgroup attitudes and authoritarianism should be particularly relevant for Feldman's theorization of authoritarianism as an enduring orientation toward social homogeneity at the expense of personal autonomy: an increase in hostility toward outgroups should strengthen the motivation to maintain homogeneity at the expense of individual freedom, leading to more authoritarian scores on the child-rearing scale.

The role of context

Within the vast scholarship examining the impact of psychological dispositions on issue preferences, some scholars argue that the relationship is conditional (Federico and Malka, 2018; Johnston et al., 2017). Whilst there is a direct or instrumental pathway from dispositions to preferences, with individuals adopting the issue positions that most closely meet their psychological needs, there is also an indirect pathway (Johnston et al., 2017). As the argument goes, individual select party preferences based on their psychological characteristics, and in-party elites provide policy preference cues which individuals adopt, motivated either by the newfound, elite-driven awareness that these policy preferences align with their psychological needs (a learning mechanism) or the expressive desire to adopt preferences that signal or symbolise one's in-group identity (an expressive mechanism) (Federico and Malka, 2018; Johnston et al., 2017).

At the individual level, this indirect pathway is moderated by political engagement, because only engaged citizens will be possess the awareness of elite cues required to match their psychological preferences with policy positions (Johnston et al., 2017). What this substantively means is that the relationship between authoritarianism and socio-cultural policy preferences is assumed to be of a larger magnitude among the politically engaged, who are better able to match their underlying psychological dispositions with policy preferences (Ollerenshaw and Johnston, 2022).

Whilst a conditional relationship between authoritarianism and policy preferences, moderated by engagement, has been established for both social/cultural issues (Ollerenshaw and Johnston, 2022; Ollerenshaw, 2024) and economic issues (Jedinger and Burger, 2019, Jedinger and Burger, 2020;

Johnston et al., 2017), important questions remain. First, regarding social and cultural issues, evidence of the moderating role of political engagement has come predominantly from US-based studies (e.g. Azevedo et al., 2019; Ollerenshaw and Johnston, 2022; Ollerenshaw, 2024; for a notable exception, see Malka et al., 2014).[1] There remains a need for replications of this analysis in other contexts because the posited mechanism in this process is one of elite cues: specifically how elites frame the ideological and identity-relevant meaning of political issues and the recognition of these cues by (engaged) citizens. In the US, this process of cue recognition and attitudinal adjustment is a relatively simple one for voters, given its highly polarized two-party context which offers two distinct choices for the electorate (Johnston et al., 2017; McCarty et al., 2016; Theriault, 2008). Furthermore, elite signals in the US are likely to be easy to interpret, given the absence of cross-party dialogue/consensus and the elite incivility on display (Dodd and Schraufnagel, 2013). It is less clear however that this process will hold in the more complex multi-party political information environments of European democracies.

The second outstanding question concerning this literature is a methodological one. The conceptual explanation for why engagement would moderate the relationship between authoritarianism and issue preferences is inherently dynamic - a process of attitudinal adjustment in response to elite cues (Federico and Malka, 2018; Johnston et al., 2017). However, with the notable exception of the experimental evidence provided by Johnston et al. (2017), the predominant empirical approaches used to draw conclusions about this process in extant research have been cross-sectional (e.g. Malka et al., 2014; Ollerenshaw and Johnston, 2022; Ollerenshaw, 2024). Such approaches can

[1] Studies have examined the conditional relationship between authoritarianism and economic preferences outside the US (see Jedinger and Burger, 2019, Jedinger and Burger, 2020). The focus here, however, is on social issue preferences.

only provide a partial confirmation of the hypothesised relationship because cross-sectional analyses are unable to distinguish between between-person and within-person processes. This is important because evidence suggests that cross-sectional estimates of the relationship between ideologies and attitudes conform more closely to between-person estimates than within-person estimates (Brandt and Morgan, 2022), and the within-person relations between psychological traits and attitudes can differ significantly from the between-person relations of the same constructs (Osborne and Sibley, 2020). Thus, to properly test the relationship between authoritarianism and attitudes, moderated by engagement, within-person methods are required.

2.3 The Present Study

In the light of the literature we reviewed above, the aims of this research are threefold. The first aim is to address the issue of omitted variable bias that has cast doubt on the causal effect of authoritarianism on political behaviour. Past research predominantly relies on cross-sectional designs and falls short of capturing the effect of authoritarianism outside of factors such as low socio-economic status that may correlate both with authoritarianism and political behaviour. Further, whilst being greatly superior to cross-sectional studies, cross-lagged regressions are still affected by omitted variable bias (Hamaker et al., 2015), which hampers confidence in the causal role of authoritarianism on political attitudes and voting. Thus, this article aims at investigating the impact of authoritarianism on political attitudes and propensity to vote for different parties using longitudinal data that make it possible to control for stable unobservable traits of individuals. This is the first study - to the best of our knowledge - that investigates the effect of authoritarianism on political attitudes and voting, net of individual heterogeneity.

Second, given recent evidence of reverse causality between authoritarianism and facets of political behavior (Bakker et al., 2021; Luttig, 2021; Osborne et al., 2021a), we aim at advancing extant knowledge by investigating the extent to which authoritarianism has an influence on and is influenced by political preferences (immigration and EU attitudes) using a large-N panel study that covers a timespan of two years. To assess the questions of reverse and reciprocal causation, we employ random-intercept cross-lagged panel models (RI-CLPMs). The traditional CLPM has long been the dominant means of assessing reciprocal relations in observational research, but suffers from potential shortcomings. CLPMs are vulnerable to omitted variable bias (Hamaker et al., 2015), raising confounding as a potential issue when analysing the relationship between authoritarianism and political preferences. In addition, the conventional CLPM procedure does not separate out between-person and within-person relations, meaning that if these two concurrent processes diverge in either direction or magnitude, CLPMs can produce biased or even uninterpretable estimates (Berry and Willoughby, 2017a). The RI-CLPM addresses both of these concerns. By decomposing observed scores into stable, between-person components and fluctuating within-person components, this strategy is able to assess reciprocal within-person relations between constructs, whilst controlling for time-invariant confounding (Hamaker et al., 2015; Mulder and Hamaker, 2021). Consequently, the RI-CLPM produces estimates that are less biased than those produced by the traditional CLPM (Hamaker et al., 2015; see also Osborne et al., 2021a).[2]

[2] Recognising concerns raised with the RI-CLPM - in particular, that the RI-CLPM can produce estimates that suffer from downward bias (i.e. underestimating the true relationship: see Leszczensky and Wolbring, 2022) - we also estimate CLPMs to assess

A third aim is to build upon research investigating the potentially conditional nature of the relationship between authoritarianism and cultural issue preferences (attitudes to immigration and the EU), moderated by engagement (e.g. Azevedo et al., 2019; Ollerenshaw and Johnston, 2022; Ollerenshaw, 2024) in two directions. First, by examining whether extant findings generalize beyond the US to alternative national contexts and political information environments. Second, to provide a more rigorous empirical test of this relationship by examining whether the process of attitudinal adjustment in response to elite cues - in order to ensure alignment between psychological dispositions and policy preferences - can be validated using methods that explicitly model within-person processes.

2.4 Data and Methods

Data come from the British Election Study panel (BESP), collected by the polling organization YouGov. It selects around 30,000 respondents using a series of quotas (such as age, gender, education, past turnout) in each wave from an online sample of a panel consisting of around one million respondents. The sample is designed to be representative of the British population (England, Scotland, and Wales) aged 16 and over (see Fieldhouse et al., 2021).

We draw on the four waves of the BESP that include measures of authoritarianism. These cover a timespan of 2 years: April–May 2016 (Wave 7), November–December 2016 (Wave 10), April–May 2017 (Wave 11), and May 2018 (Wave 14).[3] Authoritarianism has been asked of a sub-sample of

reciprocal relations in section A.5 of the supplementary materials. For a full discussion of the strengths of each estimation strategy and the theoretical and empirical justification for our choices, see Sect. A.3.1 of the supplementary materials.

[3] Authoritarianism has also been measured in Wave 19, with the replacement of one of

the panel consisting of around 7500 respondents in each wave. The sample includes a total of 13,085 respondents, corresponding to 26,911 observations. Some respondents are observed only once (43%), while the majority have repeated observations over time. Table A.1.1 of the supplementary materials reports the panel structure. As with all panel studies the BESP suffers from panel attrition, which may compromise the representativeness of the sample if loss is non-random. To ensure that attrition will not hinder the validity of the findings we compared the full sample with the fixed-effects subsample (supplementary materials Table A.1.2). The comparison indicates that there are no differences between the full and reduced sample and consequently that panel attrition does not undermine the validity of the obtained results.

Authoritarianism was measured using Feldman's child rearing items described in the theoretical section. The responses "respect for elders" (v. "independence"), "obedience" (v. "self-reliance"), "well behaved" (v. "considerate") and "good manners" (v. "curiosity") indicated an authoritarian response. The final scale ranges from 0 (least authoritarian) to 4 (most authoritarian - see Feldman, 2003; Engelhardt et al., 2023).

The first dependent variable measures attitudes toward immigration in the UK, using a scale constructed from two items ($\alpha = 0.85$): an 11-point scale measuring support for immigration (where "0" indicates "allow many fewer" immigrants and "10" indicates "allow many more"), and a 7-point scale measuring attitudes concerning the cultural impact of immigration (where "1" indicates "undermines Britain's cultural life" and "7" indicates "enriches Britain's cultural life"). The second dependent variable measures attitudes toward economic redistribution in a similar scale where "0" indicates that "the government should try to make incomes equal" and "10" indicates "the

the four items and hence cannot be used in a panel analysis.

government should be less concerned with equal incomes". Thirdly, we measure support for European integration with a scale variable ranging from "unite fully" with the EU (0) to "protect our independence" (10). We reverse code this measure so that higher scores correspond to pro-European attitudes. Both of these variables are measured in the same four panel waves as authoritarianism.

The last set of dependent variables are three propensity to vote (PTV) scores (van der Eijk et al., 2006). These items ask respondents how likely it is that they will ever vote for a party in question on a scale ranging from 0 ("not at all likely") to 10 ("extremely likely"). We use the PTV scores for three major UK parties, namely the incumbent Conservative party (centre right), the Labour party (centre left), and the United Kingdom Independence Party (populist right).[4] PTV scores have been designed to measure the electoral utility of each party separately without being affected by parameters outside of utility, such as strategic voting. They are thus ideal to investigate the psychological correlates of party appeal, net of strategic considerations.

To measure political engagement for our moderation analysis, we use a question - included at all four waves at which authoritarianism is measured - which asks respondents 'How much attention do you generally pay to politics?'. This is a scale measure coded from 1 (least attention) to 10 (most attention). The data also include controls for age, gender, education, ethnicity, social grade, and income. Age, social grade, and income are all treated as time-variant, while gender, education and ethnicity are treated as time-invariant.[5]

We use three sets of models for the main analysis. We start with random

[4]PTV scores are only available at waves 7, 10 and 11.

[5]The data supports this decision—less than 1% of observations for education and ethnicity vary from one wave to the next, and none for gender.

effects models, which draw on the full sample of respondents - whether they were observed once or repeatedly over time. The random effects estimator accounts for both between-person and within-person variation in predictors (i.e. providing a combined estimate of the effect of differences between those high and low in authoritarianism alongside within-person changes in authoritarianism over time). Given that the panel structure potentially includes multiple observations (over time) per respondent, we cluster standard errors at the individual level. We include wave fixed effects, to account for the influence of over-time trends that exert a uniform influence across the study population. As all dependent variables are scales, we employ Ordinary Linear Regression. These models do not provide causal estimates but allow us to understand the influence of between-person differences in authoritarianism on policy preferences and vote propensity - for example, whether individuals high in authoritarianism are more opposed to immigration than those individuals low in authoritarianism.

In the second set of models, we include individual fixed effects. These models essentially treat each respondent as their own control (Allison, 2009), estimating the effects of within-person changes in authoritarianism (over time) on the outcomes. In other words, these models assess whether an individual who becomes more authoritarian also adopts (for example) more exclusionary attitudes toward immigrants. Here, the effects of stable characteristics of individuals are automatically factored out of the model, thus significantly reducing omitted variable bias linked to individual heterogeneity and allowing us to account for the stable unobservables that may be confounding the relationship between authoritarianism and political preferences (Brown, 1965; Hyman and Sheatsley, 1954). An important consideration when using individual fixed effects is the amount of within-person variation in the predictor of interest—if it is stable over time, estimates of its effect can be biased (see Clark and Linzer (2015)). In section A.1.5 of the supplementary materials we present evidence of substantial within-person variation in authoritarianism over time, indicating that this source of potential bias in the fixed effects estimator is not a concern. With the combination of random and fixed effects, we are able to understand whether the influence of authoritarianism on policy attitudes and vote choice is a stable, between-person difference, or whether individuals update their preferences as they become more (or less) authoritarian.

The third set of models aim at assessing potential reverse causality between authoritarianism and the target variables, using RI-CLPMs. All RI-CLPM models were estimated using R 4.3.1 (R Core Team, 2022), using the lavaan package version 0.6-17 (Rosseel, 2012). We utilize Full Information Maximum Likelihood estimation to handle missing (at random) data. Following Mund et al. (2021), time-varying confounders were modelled by including their observed scores at each wave as wave-specific controls. We also account for measurement error in both authoritarianism and policy preferences by generating reliability estimates for the child-rearing scale and policy preferences at each wave and inputting these estimates into the RI-CLPM modelling procedure.[6] Results indicate that the items are highly reliable, with α scores ranging from 0.85 to 0.93. In section A.1.3 of the supplementary materials, we discuss our measurement error models and results in detail. A full breakdown of the preliminary analyses, model specification

[6]We recognise that given we have multiple indicators for authoritarianism, a superior approach to accounting for measurement error would be to model authoritarianism as an latent variable, inputting the indicators directly into lavaan. However, lavaan arrives at improper solutions to the RI-CLPMs when adopting this approach, so we instead fit measurement models and then input these reliability estimates into the RI-CLPMs, as described in supplementary materials Sect. A.1.3.

and estimation procedures for the RI-CLPMs are available in supplementary materials section A.3.

Lastly, for our moderation analysis, we use four complementary approaches, seeking to determine whether political engagement amplifies the relationship between authoritarianism and cultural policy preferences when using empirical strategies that explicitly model the within-person component of this relationship. To provide an initial baseline and a comparison with extant research that uses cross-sectional data (e.g. Ollerenshaw and Johnston, 2022; Ollerenshaw, 2024), we employ two approaches that enable us to model the between-person component of this conditional relationship: random effects models and cross-lagged panel models. Then, to assess the within-person component of this relationship, we fit hybrid models and RI-CLPMs. See supplementary materials section A.4 for a more detailed discussion of this empirical strategy.

2.5 Results

2.5.1 Random Effects

Table 2.1 summarizes the results of the random effects models. The first two columns report the association between authoritarianism and attitudes toward immigration and EU integration respectively. The last three columns report the corresponding association with the propensity to vote scores for UKIP, the Conservative Party, and Labour. All variables in this model are standardised, running from 0 to 1.

Table 2.1: Authoritarianism, Political Attitudes, and Vote Choice in Great Britain (Random Effects)

Predictor	Immigration attitudes	EU integration	UKIP	Conservative	Labour
Authoritarianism	-0.161***	-0.125***	0.135***	0.129***	-0.089***
	(0.006)	(0.007)	(0.008)	(0.009)	(0.008)
Wave 10	0.032***	0.057***	-0.042***	0.042***	-0.036***
	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)
Wave 11	0.052	0.076***	-0.062***	0.085***	-0.012***
	(0.003)	(0.004)	(0.003)	(0.004)	(0.004)
Wave 14	0.072***	0.1***			
	(0.003)	(0.003)			
Controls	YES	YES	YES	YES	YES
Observations	20,092	21,144	15,796	15,538	15,534
Individuals	10,270	10,647	9009	8885	8887

Note: Entries are coefficients with robust standard errors (in parentheses). *p<0.05; **p<0.01; ***p<0.001. Source: British Election Study Panel

Overall, and expectedly, the findings suggest that authoritarianism is, all else equal, negatively associated with the willingness to allow more immigrants in the UK (b = -0.16, SE = 0.01, $p < 0.001$) and negatively associated with support for greater integration with the EU (b = -0.13, SE = 0.01, $p < 0.001$). Moving on to the association between authoritarianism and the PTV scores, the results suggest a positive association between authoritarianism and the propensity to vote for the two rightwing parties of the UK, the rightwing Eurosceptic UKIP (b = 0.14, SE = 0.01, $p < 0.001$) and the Conservative Party (b = 0.13, SE = 0.01, $p < 0.001$). Further, there is a negative relationship between authoritarianism and voting for the center left Labour Party (b = -0.09, SE = 0.01, $p < 0.001$).

Interpreting these results substantively, an individual at the top of the child-rearing scale (i.e. the most authoritarian) is, in comparison to those at the bottom of the scale (i.e. the least authoritarian) 16 percentage points more opposed to immigration; 13 pp more opposed to EU integration; 14

pp more likely to vote UKIP; 13 pp more likely to vote Conservative; and 9 pp less likely to vote Labour. Across these models, authoritarianism is the largest predictor of the corresponding outcome variable, exceeding the coefficients of demographic and socioeconomic characteristics. Full model output is available in table A.2.1, supplementary materials. These results echo the findings of past research over the positive correlation of authoritarianism with attitudes toward immigration and voting for right-wing parties (Dunn, 2015; Engelhardt et al., 2023; Stenner, 2005; Vasilopoulos and Jost, 2020; Vasilopoulos and Lachat, 2018). They further point to a negative association between authoritarianism and support for the EU and voting for left-wing parties. Given that random effects do little to account for omitted variable bias, in the next section we investigate the extent to which these findings are affected by individual unobservables.

2.5.2 Individual Fixed Effects

Table 2.2 reports the results of individual fixed effects models for each of the dependent variables. Again, all model variables are standardised from 0 to 1. Beginning with attitudes toward immigration, the findings suggest a negative effect of authoritarianism on the willingness to allow more people to migrate to the UK, net of individual heterogeneity (b = -0.02, SE = 0.01, $p < 0.01$). Moving on, the results indicate that, when controlling for stable unobservables, authoritarianism is unrelated to attitudes toward European integration and the propensity to vote for UKIP, the Conservatives, and Labour, with the coefficients near zero in all four models.

Table 2.2: Authoritarianism, Political Attitudes, and Vote Choice in Great Britain (Fixed Effects)

Predictor	Immigration attitudes	EU integration	UKIP	Conservative	Labour
Authoritarianism	-0.021***	-0.007	0.014	0.017	0.016
	(0.006)	(0.007)	(0.01)	(0.012)	(0.01)
Wave 10	0.03***	0.047***	-0.037***	0.046***	-0.037***
	(0.003)	(0.004)	(0.004)	(0.005)	(0.004)
Wave 11	0.045***	0.059	-0.06***	0.093***	-0.015**
	(0.004)	(0.005)	(0.005)	(0.006)	(0.006)
Wave 14	0.076	0.078***			
	(0.006)	(0.008)			
Controls	YES	YES	YES	YES	YES
Observations	23,402	24,612	18,310	18,012	17,999
Individuals	11,560	11,964	10,238	10,097	10,096

Note: Entries are coefficients with robust standard errors (in parentheses). *p<0.05; **p<0.01; ***p<0.001. Source: British Election Study Panel

In sum, within-person increases in authoritarianism are associated with increased opposition to immigration but are unrelated to attitudes toward European integration or vote choice. Substantively, the association between authoritarianism and immigration preferences is small: moving from the minimum to the maximum value on the child-rearing scale is associated with a change of around 2-percentage points on the immigration scale. These findings suggest that - at least in the case of Great Britain - authoritarianism does not have a net causal effect on voting or EU attitudes but rather the associations reported in the random effects models are due to omitted variable bias. Full model output for each outcome is available in supplementary materials Table A.2.2.

2.5.3 Random Intercept Cross-Lagged Panel Models

Fixed effects results indicate that, when accounting for individual heterogeneity, the only preference for which we find a significant association with authoritarianism is immigration attitudes. Probing this result further, we estimate an RI-CLPM to assess possible reciprocal effects, controlling for time-varying covariates (age, social grade and income).[7]. Positive and significant cross-lagged effects of authoritarianism on immigration attitudes (i.e., attitude at T regressed on authoritarianism at $T_{\text{-1}}$) would indicate that authoritarianism shapes immigration preferences, net of controls. Conversely, positive and significant cross-lagged effects of immigration attitudes on authoritarianism (i.e., authoritarianism at T regressed on attitude at $T_{\text{-1}}$) would indicate that immigration preferences shape authoritarianism.

We report beta-standardized coefficients and interpret the substantive size of the cross-lagged effects using the benchmark values detailed by Orth et al. (2022): $b = 0.03$ for a small effect, $b = 0.07$ for a medium effect, and $b = 0.12$ for a large effect.[8] Assessments of model fit using CFI, SRMR and RMSEA statistics all indicated good fit (Browne et al., 1992; Hu and Bentler, 1999a - see table A.3.3 of the supplementary materials). We test for stationarity in all models, comparing model fit when the bidirectional effects of authoritarianism on immigration preferences (and vice versa) are allowed to vary over time with that of a model in which these effects are constrained to stability over time. Comparison indicates that imposing stationarity has little impact on model fit (see supplementary materials table A.3.3), so we

[7]We recognise that individual fixed effects do not offer a panacea for the assessment of relations between variables (Clark and Linzer, 2015). Consequently, we further probe the relationship between authoritarianism and attitudes to the EU by fitting RI-CLPMs (and CLPMs). The interested reader is directed to supplementary materials section A.4.2 for these results.

[8]Orth et al. derive these values from a quasi-representative sample of 1184 effects from previously published work, with these benchmarks corresponding to the 25th, 50th, and 75th percentile of the distribution of effect sizes in this sample. A more substantive interpretation of RI-CLPM effect sizes is difficult given that the cross-lagged effects represent a complex process: the effect of the within-person change from the trait level of authoritarianism at $T_{\text{-}1}$ on the within-person change from the trait level of immigration preferences at T (and vice versa).

report the time-homogenous effects. Results with time-varying effects are presented in sections A.4 and A.5 of the supplementary materials.

RI-CLPM results reveal that within-person increases in authoritarianism at $T_{\text{-}1}$ are negatively associated with support for immigration, although this does not reach statistical significance (b = -0.026, SE = 0.02, p = 0.202). In contrast, within-person increases in support for immigration at $T_{\text{-}1}$ are negatively and significantly associated with authoritarianism (b = -0.047, SE = 0.022, $p < 0.05$). Alongside the fixed effects results, this model points to the existence of a small but significant relationship between authoritarianism and opposition to immigration when accounting for potential confounders (see supplementary materials table A.4.1 for full model output, including time-varying effects). Interestingly, RI-CLPM results suggest this is driven by the effect of immigration preferences on authoritarianism, consistent with recent evidence that political preferences influence authoritarianism (or at least self-perceptions of authoritarianism measured via survey items), not the other way round (Bakker et al., 2021; Luttig, 2021). Further supporting this conclusion, CLPM results (Table A.5.1, supplementary materials) also indicate that the cross-lagged effect of immigration preferences on authoritarianism is larger than the effect of authoritarianism on immigration preferences, suggesting again that immigration preferences are causally prior to authoritarianism.

2.5.4 Moderation effects

Lastly, we examine whether political engagement moderates the relationship between authoritarianism and immigration results. We begin by estimating the between-person effects of authoritarianism on immigration attitudes, conditional on engagement, using (a) a random effects model and (b) a multiple-group CLPM. Recognising the need to model within-person processes using within-person estimation strategies (Brandt and Morgan, 2022), we then assess whether the within-person effect of authoritarianism on immigration attitudes is moderated by political engagement, using a hybrid model and a multiple-group RI-CLPM. Results from these models (presented in supplementary materials section A.6, alongside an overview of our modelling procedure) indicate that engagement amplifies the between-person effect of authoritarianism on immigration attitudes, mirroring extant findings (e.g. Ollerenshaw and Johnston, 2022). However, when estimating the within-person effect of authoritarianism, we find no evidence that engagement moderates this effect.[9] Taken in totality, we thus find mixed support for the claim that political engagement moderates the relationship between authoritarianism and immigration attitudes - and most importantly fail to find evidence of a conditional within-person effect.

2.6 Discussion and Conclusion

More than seven decades after the publication of The Authoritarian Personality, illiberalism is making a stark comeback in mainstream politics across nations, either in the form of the electoral rise of far-right parties or through the accommodation of far-right demands by centre-right parties. The surge of authoritarian candidates and parties evokes anti-immigrant hostility, prejudice toward ethnic minorities and LGBTQ+ members, and poses a threat to civil liberties. Producing theories that can help understand the mindset of authoritarian followers has been one of the first and most important aims of

[9] We also undertake similar analysis with EU attitudes, presented in supplementary materials section A.6, and find that results mirror the trend observed for immigration attitudes.

political psychological research since the birth of the discipline. Extant literature offers competing theories and the concept of authoritarianism has been significantly refined both conceptually and methodologically. Importantly, the bulk of evidence over the influence of authoritarianism comes from cross-sectional studies that are particularly prone to omitted variable bias and cannot account for reverse causality. In this paper, we aimed at moving research in authoritarianism forward by offering a robust longitudinal analysis on the causal relationship of authoritarianism with attitudes toward immigration, the EU, and vote choice. Further, we put the most popular authoritarianism measure in political behaviour literature, the child-rearing item scale, to the testbed of construct validity.

Overall, the findings suggest that authoritarianism is positively associated with anti-immigration attitudes, anti-EU attitudes and right-wing voting preferences. However, when accounting for potential confounding through the inclusion of individual fixed effects, authoritarianism retains its association with immigration preferences alone. This is a significant finding as it illustrates that authoritarianism (conceived and measured as a psychological trait) is meaningfully and independently associated with exclusionary attitudes and not merely an epiphenomenon of time-invariant omitted variables (such as norms and beliefs associated with low socioeconomic status) as has long been suspected by critics (e.g. Hyman and Sheatsley, 1954).

Importantly, however, results question the assumption that authoritarianism is causally prior to preferences. In the case of immigration attitudes, RI-CLPM results suggest that within-person changes in authoritarianism are caused by within-person changes in immigration preferences, not the other way round. In other words, our findings suggest it is anti-immigration attitudes that lead to a broader authoritarian response. This finding is in line with recent evidence over the impact of political attitudes on long term psychological traits (Bakker et al., 2021; Luttig, 2021) and has important political implications. It suggests that holding anti-immigration attitudes for reasons unrelated to authoritarianism may function as a gateway to adopt a broader authoritarian adaptation. The mechanisms behind this may include the development of social networks, selective exposure to right-wing partisan media, or a tendency to adjust to the stereotypical behaviors of one's own political ingroup (see Bakker et al., 2021). We believe that this is a key finding that helps explain a reported authoritarian turn among segments of mass electorates (e.g. Inglehart and Norris, 2016). In times where voters adopt increased anti-immigration attitudes or the topic of immigration increases in salience, as was the case with Britain in the 2010s (Sobolewska and Ford, 2019), a general rise in authoritarianism could follow.

We believe that this is potentially key for explaining the transition of significant segments of European electorates toward authoritarianism. In a political context increasingly structured by an apparent value division between those who value traditional hierarchies and those who accept and encourage difference and nonconformity (Hetherington and Weiler, 2018; Norris and Inglehart, 2019), the increased salience of immigration (Hooghe and Marks, 2018; Hutter and Kriesi, 2022) has potentially contributed to the proliferation of this value conflict. In making this claim, we also however recognise that further replication of this analysis in other national contexts is needed, particularly given competing evidence that authoritarianism precedes prejudice (e.g. Osborne et al., 2021a).

Regarding the argument that authoritarianism exerts a conditional influence on social policy preferences, moderated by political engagement (e.g. Ollerenshaw and Johnston, 2022; Ollerenshaw, 2024), we find mixed support for this expectation. Specifically, whilst we find that engagement amplifies the between-person effect of authoritarianism on immigration attitudes, we find no evidence that engagement moderates the within-person effect of authoritarianism. This lack of variation in the within-person effect, we suggest, has conceptual implications for understanding differences between the engaged and less engaged. Specifically, rather than being a dynamic process in which the engaged are better able to adjust their issue attitudes in response to elite cues, perhaps the differences between the engaged and less-engaged instead reflect longer term and more stable identity-driven processes in which the engaged – for whom political identity is likely to be more important to them – are motivated to adopt preference that align with and express their psychological needs and core beliefs (Federico and Malka, 2018). To provide further support for this possibility, follow-up analysis should conduct longitudinal tests of the relationship between authoritarianism and issue preferences, moderated by engagement, using a less stable issue. Immigration is a familiar issue in which preferences are likely to be crystallized (Kustov et al., 2021), and examining this process using a more novel issue would provide a more rigorous test of the process of attitude adjustment in response to elite cues.

Importantly, results indicate that the correlation between authoritarianism and vote choice is spurious, being driven by unobservable characteristics. When using random effects, we find a positive association between authoritarianism and voting for the Conservative party and the populist Eurosceptic UKIP, and a negative association between authoritarianism and voting for the Labour party. However, these relationships do not hold when individual heterogeneity is considered. This is a surprising finding given past research that finds clear associations between levels of authoritarianism and vote choice in different settings (Dunn, 2015; Vasilopoulos and Jost, 2020;

Vasilopoulos and Lachat, 2018). A possible explanation over the absence of an effect, especially regarding UKIP, is the fact that the latter is not a prototypical far-right party associated with neo-fascist organizations and movements, as is the case for instance with the Rassemblement National in France, the Golden Dawn in Greece, or Jobbik in Hungary.

Despite the vast superiority of panel data compared to cross-sectional designs, some limitations remain. Individual fixed-effects models in large representative samples, such as the BES, combine high external validity with a stronger causal advantage. Yet fixed-effects models still come with the limitation that they cannot account for time-varying unobservables, that is any variable that fluctuates across time alongside authoritarianism. Still, even though this methodological limit is hard to overreach, the combination of individual fixed-effects and RICLPMs offers a particularly stringent test on the potency of authoritarianism to explain political behaviour. In addition, we are limited to a single-item measure of EU integration preferences, which introduces potential measurement error, although we have addressed this concern by accounting for this error in the RI-CLPMs. A final limitation is that the evidence is limited to the British case. Future research could assess the extent to which the findings obtained here replicate across contexts and party systems.

3

Floods of Change? Extreme weather, Political orientation and Climate Attitudes in Norway

Statement of Authorship

This chapter is solo-authored work.

Statement of Publication

Written as for publication with the intention of submission.

Data Accessibility Statement

NCP panel data is only available through a restricted server managed by the University of Bergen, meaning that I cannot currently share the data or Stata code used in this study for replication.

Abstract

Divides over climate change constitute one aspect of the cleavage structuring contemporary Western European politics. Within the wider research effort to understand the antecedents of climate change attitudes, a growing scholarship examines the impact of extreme weather events - such as floods, wildfires or hurricane - on climate attitudes. However, questions remain about the role of partisanship in how individuals respond to these events: what factors determine whether supporters of climate-sceptic (or more broadly right-wing) parties respond to extreme weather with politically motivated reasoning? To answer, this chapter employs a longitudinal analysis of the impact of flood experience on climate change attitudes, using Norwegian panel data. Findings indicate that the experience of flooding increases individual-level concern about climate change but has no effect on attitudes towards fossil fuel extraction, and supporters of right-wing parties display the largest increases in climate concern. However, among those partisans who are also sorted ideologically, the effect of flood experience is attenuated. These findings present novel evidence that partisan-ideological sorting conditions responses to extreme weather events and help clarify the generalisability of past research, suggesting that partisan polarization in response to extreme weather may be a trend unique to the highly sorted and polarized US context. The results of this study help clarify the influence of partisanship on responses to extreme weather, and more broadly act as a call to pay greater attention to political context when analysing (a) the attitudinal consequences of extreme weather and (b) the emergence and entrenchment of attitudinal conflicts over political issues in general.

3.1 Introduction

Among the most acute consequences of rising global temperatures are the increasing prevalence of events that pose dangers to human lives and livelihoods – extreme heat, wildfires, floods, cyclones and a range of other climate-driven events (IPCC, 2023). Despite this prescient threat, Western European democracies are divided over climate change. Whilst the majority of citizens believe in the existence of climate change (Poortinga et al., 2019), mass publics disagree over the implementation of climate policy reform (Fairbrother et al., 2019). Furthermore, as part of the GAL-TAN dimension which divides European polities and party systems, electoral conflict and party competition is partly structured around the climate issue (Dassonneville et al., 2024; Hooghe et al., 2002). Contributing to this divide, green and radical right parties – that respectively favour and oppose environmental policy reform – are consistently important players in European elections (Dickson and Hobolt, 2024; Grant and Tilley, 2019). In short, climate and related environmental issues have become part of the new cleavage structuring Western European politics (Hooghe and Marks, 2018.

In this divided context, focus has turned to pathways for achieving climate consensus. One possibility is the material consequences of climate change itself: evidence indicates that, on the aggregate level, the experience of extreme weather leads to pro-environmental shifts in attitudes and political preferences (e.g. Baccini and Leemann, 2021; Hazlett and Mildenberger, 2020; Osberghaus and Fugger, 2022).[1] However, questions remain about the role

[1]It is important to note that a parallel literature exists alongside research on extreme weather, which examines more conventional meteorological variation such as changes in temperature or rainfall (e.g., Egan and Mullin, 2012; Howe, 2018). This work, whilst valuable, is beyond the focus of the present study.

of partisanship in influencing responses to such events. With parties of the radical right - who often oppose climate policy reform (Dickson and Hobolt, 2024; Schwörer and Fernández-García, 2024) - growing in electoral popularity (Norris and Inglehart, 2019), understanding how the supporters of such parties respond to extreme weather events grows ever more important.

Some evidence indicates that supporters of climate-sceptic parties are less likely to adopt pro-environmental preferences in the wake of meteorological disasters (e.g., Hazlett and Mildenberger, 2020; Usry et al., 2022). This is consistent with theories of politically motivated reasoning, or the tendency of partisans to interpret information and reach judgements consistent with in-party beliefs (Kahan, 2016). Contrastingly, in accordance with theories of experiential learning (Marx et al., 2007; Demski et al., 2017), other studies show that supporters of climate sceptic or right-wing parties instead display the largest pro-environmental attitudinal shifts in response to extreme weather events (Arias and Blair, 2024; Rüttenauer, 2024; Zanocco et al., 2019). Evidence thus presents something of a puzzle – when and why does partisan motivated reasoning occur in response to extreme weather events? Addressing this question is vital for two reasons. First, to understand whether such events will contribute to the mass attitudinal transformation needed to enact environmental policy reform, or if partisan division will persist, hampering climate mitigation efforts. Second, to understand whether the growing popularity of climate-sceptic radical right-wing parties, particularly among younger generations who will be responsible for tackling the climate problem (Schäfer, 2022), might limit attitudinal responsiveness to environmental threats.

Extant literature on extreme weather and partisan responses often makes the implicit assumption that any effect of partisanship will be uniform (i.e. that supporters of a particular party will respond in the same way). Querying this assumption, this study examines a possible factor that conditions partisan responses to extreme weather events: partisan-ideological sorting. Sorted partisans (i.e., those whose ideological positions align with their party attachment) likely possess stronger party identities (Mason, 2015), which potentially increases the likelihood of engaging in motivated reasoning (Leeper and Slothuus, 2014) and thus reduces the likelihood of attitudinal changes in response to extreme weather among supporters of climate-sceptic parties. This study tests whether sorting conditions responses to extreme weather, and specifically whether sorted supporters of climate-sceptic parties are less likely to adopt pro-environmental attitudes when exposed to such an event. This – to the best of my knowledge – constitutes the first such test in the literature. In doing so, I seek to clarify the puzzle of when and why extreme weather prompts politically motivated reasoning. As evidence (predominantly from the US) indicates partisans are more sorted now than they were in prior decades (Mason, 2015; Mason and Wronski, 2018), understanding the potential consequences of this shift for climate attitudes (and thus climate reform) grows ever more important.

This study makes two other contributions. First, by analysing the attitudinal consequences of extreme weather using a longitudinal design aimed at measuring the effects of extreme weather net of individual heterogeneity. Much past research on extreme weather and political orientation relies on cross-sectional designs which fall short of establishing causal relationships between weather experience and climate attitudes (e.g. Lyons et al., 2018; Ogunbode et al., 2017, Ogunbode et al., 2019; Usry et al., 2022; for exceptions, see Arias and Blair, 2024; Hazlett and Mildenberger, 2020; Rüttenauer, 2024). Second, by assessing the external validity of existing research. The bulk of prior studies on extreme weather and partisanship have examined weather events in the US – a national context in which climate change is a uniquely divisive issue across partisan lines (Bliuc et al., 2015; McCright et al., 2016. The present study tests whether insights from the US are generalizable elsewhere with an assessment of extreme weather in the European context.

Using panel data, I conduct a longitudinal assessment of how partisanship and strength of partisan-ideological sorting moderate the impact of extreme weather on climate attitudes. With data from Norway, I examine whether individual-level concern about climate change and opposition to fossil fuel extraction changes as a result of experiencing flooding in 2018, net of individual heterogeneity. Results indicate that flood experience induces greater concern about climate change - and that supporters of right-wing parties display the largest increases in climate concern. However, this attitudinal shift occurs predominantly among less sorted partisans, suggesting that partisan-ideological sorting increases the likelihood of politically motivated reasoning in response to extreme weather. Contrastingly, flood experience has no effect on support for the extraction of fossil fuels. The results of this study indicate that the impact of partisanship on responses to extreme weather is not uniform, providing important clarification as to why partisans sometimes respond with politically motivated reasoning other times do not. These insights also address questions of context and generalizability: with much of the research indicating motivated reasoning and partisan asymmetries in response to extreme weather derived from the highly sorted US context, the results of this study suggest that sorting might help explain these extant findings.

3.2 Cognitive Pathways of Attitudinal Change

Experiential information, or the memories and feelings associated with personal or vicarious experience, is a powerful influence on judgment and decision-making (Marx et al., 2007). Experience of our natural environment, such as an extreme weather event, thus has the potential to shape beliefs about climate change beyond the more abstract influence of statistical and secondary information (Weber, 2010). Thus, as a form of experiential learning, extreme weather represents a theoretically powerful mechanism of attitudinal change (Demski et al., 2017). In addition, the visceral and corporeal impact of extreme weather can make climate change feel more certain and tangible, reducing the psychological distance of climate change, or the belief that its impacts are 'far away from the self, here and now' (Trope and Liberman, 2010, p.440). Psychological distance from climate change is associated with apathy and inaction (see Spence et al., 2012), so the reduction in psychological distance prompted by extreme weather can prompt greater climate concern and heightened mitigation intentions (Ogunbode et al., 2017; Spence et al., 2011). Studies testing this theoretical mechanism can be categorized into two families - those that examine the standalone impact of extreme weather experience on climate attitudes, and those that examine potential heterogeneity in this effect. Consistent with experiential learning, studies that examine the standalone impact of extreme weather (i.e., without testing for individual-level differences in this effect) have predominantly found that exposure to such events leads to a small but significant increase in climate concern (Demski et al., 2017), Green party support (Hilbig and Riaz, 2024), environmental issue salience (Valentim, 2021), and support for climate mitigation policies (Baccini and Leemann, 2021).[2]

A parallel branch of scholarship explores potential heterogeneity in the impact of extreme weather on climate attitudes, focusing on the influence of political preferences and pre-existing climate beliefs. In particular, partisanship - understood as an affective and social identification with a particular party and its supporters (Huddy et al., 2015) – is associated with climate preferences. Cross-national evidence has demonstrated that supporters of climate-sceptic parties, usually those on the (radical) right, are more likely to possess climate-sceptic beliefs, and vice versa, particularly in advanced democracies (Hornsey et al., 2016; Tranter and Booth, 2015). This emerges thanks to two related mechanisms. First is cue-taking: partisans utilise cues from in-group party elites when formulating judgements on political issues (Lenz, 2012), including climate change (Carmichael and Brulle, 2017). Consequently, those who identify with climate-sceptic parties are likely to adopt climate sceptic beliefs.[3] Second is politically motivated reasoning or identity-protective cognition. Party attachment (and ingroup identification more broadly) is psychologically meaningful and a source of self-esteem (Huddy et al., 2015), meaning that partisans are motivated to maintain a coherent sense of ingroup (i.e. party) identity. Consequently, partisans are motivated to appraise and interpret the external world in a manner consistent with their ingroup values and beliefs, in order to sustain in-group attachment and

[2] It is important to note that some studies identify null effects (e.g. Boon 2016; de Bruin et al., 2014; Carmichael and Brulle, 2017). This inconsistency can perhaps be explained by evidence that the impact of extreme weather on climate attitudes is short-lived, and limited to those in close geographical proximity to the event (Hilbig and Riaz, 2024; Osberghaus and Fugger, 2022). The studies identifying null findings, which employ a cross-sectional approach, might thus lack the temporal or geographical specificity to identify a positive effect.

[3] An alternative possibility is that individuals choose to support a particular party if that party's environmental policy offering aligns with their preferences. However, extant research has demonstrated that parties instead shape the preferences of their supporters: voters follow, not the other way round (see Lenz, 2012).

a coherent sense of political identity (Kahan, 2016; Kahan, 2017; Bisgaard, 2015; see also Taber and Lodge, 2006). Thus, when processing information concerning an issue that has social meaning within one's ingroup (such as gun control among US Republicans), partisans will do so in a biased fashion, consistent with ingroup attitudes (Kahan, 2016).

This process of politically motivated reasoning has potential implications for how people respond to extreme weather events. Climate change has become a partisan issue among both elites and ordinary citizens (McCright et al., 2016; Tranter and Booth, 2015), providing it with the necessary in-group social meaning required for politically motivated reasoning to occur. In sum, driven by in-group attachments and a desire for consistency with in-group beliefs, supporters of climate-sceptic parties will be motivated to interpret and process the experience of extreme weather as either a random meteorological fluctuation or even as evidence disproving climate change. In contrast, supporters of parties that seek to address climate change will instead interpret this same experience as confirming evidence of climate change, leading to attitudinal updating. This possibility implies that partisan asymmetries in climate beliefs will persist or even widen in the wake of extreme weather events.[4]

Supporting this position, some evidence suggests that perceptions of weather are the product of motivated reasoning (e.g., Howe and Leiserowitz, 2013; Myers et al., 2012). Specifically, the findings of certain studies indicates that upon experiencing an extreme weather event, supporters of liberal or

[4]An additional possibility exists – that an individual who experiences an extreme weather event is simply unaware of the potential connection with climate change. However, given evidence that extreme weather exerts an influence on climate attitudes (e.g., Osberghaus and Fugger, 2022; Usry et al., 2022) and the increasing tendency for media to attribute weather events to climate change (Hopke, 2020), those who experience an extreme weather event are likely to recognise the connection with climate change.

left-wing political parties are significantly more likely to attribute the event to climate change and express heightened climate change belief, mitigation intentions and support for environmental policy initiatives than their conservative or right-wing counterparts (e.g. Hazlett and Mildenberger, 2020; Lyons et al., 2018; Ogunbode et al., 2017; Ogunbode et al., 2019). Right-leaning partisans either display no significant attitudinal change in response to extreme weather or even interpret the experience of extreme weather as supporting evidence for a climate sceptic position (Usry et al., 2022).

However, findings are not uniform. Instead, some evidence suggests that supporters of both pro-climate and climate-sceptic parties exhibit similar responses to extreme weather (Arias and Blair, 2024). Going further, other findings have indicated that the largest increases in climate belief, threat perceptions and support for mitigation are found among those with partisan attachments or political dispositions linked to climate scepticism (Arias and Blair, 2024; Rüttenauer, 2024; Zanocco et al., 2019). These findings are consistent with theories of experiential learning, suggesting that extreme weather events reduce the psychological distance of climate change and prompt Bayesian-style updating of climate attitudes, boosting climate concern and support for mitigation policies among all affected individuals, regardless of partisanship. In sum, evidence demonstrates that partisanship matters in explaining responses to extreme weather events. However, mixed findings in the extant literature reveal a puzzle. In some instances, the experience of weather induces attitudinal updating regardless of political disposition, supporting the experiential learning hypothesis. In others, partisan differences persist in the face of extreme weather, or are even exacerbated by such an experience - supporting a motivated reasoning hypothesis. The present study seeks to address this uncertainty by examining the potential influence of partisan-ideological sorting.

3.3 Partisanship in Context

Whilst mixed findings from prior studies present something of a puzzle, this research has often made the implicit assumption that the effect of partisanship on responses to extreme weather is uniform (i.e. homogenous among supporters of a particular party – for a notable exception, see Egan and Mullin, 2012, who examine strength of partisanship). This is unlikely to be the case: evidence indicates that the proclivity toward politically motivated reasoning is conditioned by both individual-level and contextual factors (e.g. Druckman et al., 2013; Leeper and Slothuus, 2014; Taber and Lodge, 2006). If such factors determine the likelihood of motivated reasoning, then they potentially determine whether supporters of climate-sceptic parties respond to extreme weather with politically motivated reasoning or Bayesian-style attitudinal updating. One such factor is partisan-ideological sorting. When partisan identities overlap with other identities so that identity divisions do not cut across each other but instead overlap into homogenous blocs, party identification is strengthened (Mason and Wronski, 2018). One such identity is ideology. As with partisanship, ideological orientation constitutes an emotional and psychologically meaningful attachment to a belief system and to the individuals who share that belief system (Federico and Malka, 2023; Malka and Lelkes, 2010).

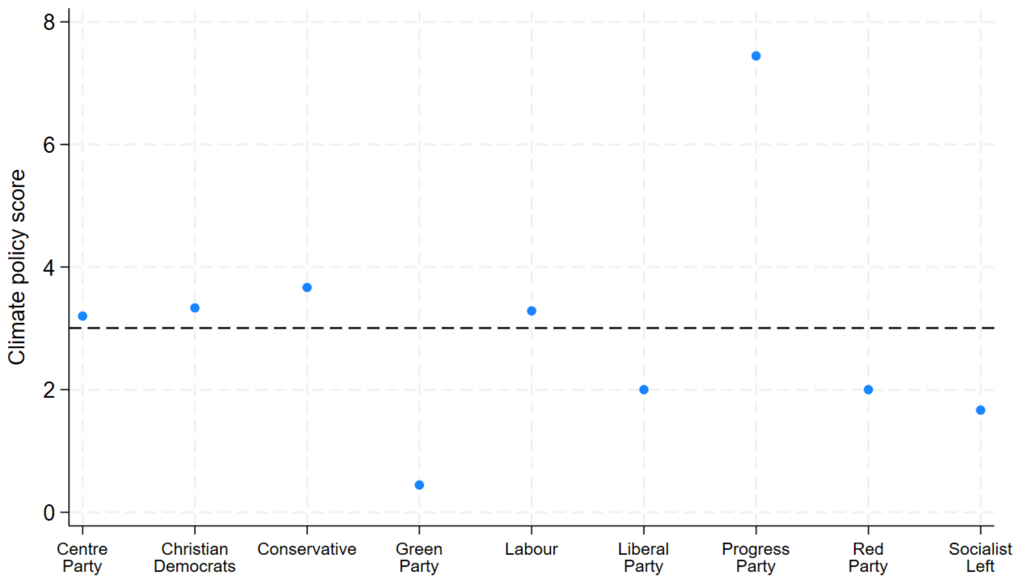
Evidence demonstrates that partisan identity is stronger when party attachments align with ideological views (Mason, 2015). This has implications for extreme weather responses: the stronger an individual's identity and, relatedly, the more strongly attitudes are held, the more likely that person is to engage in motivated reasoning (Leeper and Slothuus, 2014; Taber and Lodge, 2006; although see Guay and Johnston, 2022). Thus, more sorted partisans (i.e. those with overlapping partisan and ideological identities) are potentially more likely to engage in motivated reasoning in response to extreme weather (an assumption supported by evidence that more sorted individuals display greater partisan bias – see Mason, 2015), meaning that unsorted partisans are more likely to update their attitudes in response to extreme weather, whereas sorted partisans are less so.

Importantly, sorting is both an individual-level characteristic and a collective phenomenon, with countries varying in the extent to which partisans are sorted (cf. Mason, 2015; Perrett, 2021). Extending expectations regarding sorting onto the collective level, I propose that politically motivated reasoning in response to extreme weather is more likely in countries in which partisan-ideological sorting has occurred to a greater degree. These insights provide a potential way forward in understanding the mixed findings in the extant literature. Evidence indicating motivated reasoning and partisan polarization in the wake of extreme weather predominantly comes from the US (e.g., Hazlett and Mildenberger, 2020; Lyons et al., 2018; Usry et al., 2022), where partisan sorting over climate change is high (relative to other countries). To demonstrate this, I calculate a country-level partisan sorting scale (a country-specific Cramer's V score representing the association between partisanship and climate attitudes within 17 EU and G7 countries, using the Environment IV module of the ISSP dataset: see supplementary materials section 1.2 for an overview of this measure and results from all countries). Results indicate that the US displays extreme levels of partisan sorting (Cramer's V = 0.41 in the US – highest in the data – with a mean of 0.21 across all countries). Thus, the politically motivated reasoning in response to extreme weather identified in the US (e.g. Hazlett and Mildenberger, 2020; Lyons et al., 2018; Usry et al., 2022) is potentially driven by its unique levels of partisan sorting.

This assumption also raises a parallel question: can existing findings from the US be generalized to other contexts, in which partisans are less sorted? I seek to answer this question by analysing attitudinal responses to flooding in Norway. Norway is a suitable case because it differs from the US on two dimensions. First, Norwegian partisans are considerably less sorted regarding climate beliefs than those in the US (the same ISSP data reveals a Cramer's V score of 0.25 in Norway compared to 0.41 in the US). Second, Norwegian parties are less polarized over climate change than those in the US. To demonstrate this, I calculate a party-level climate polarization score for 31 EU and G7 countries using expert-coded data on party positions regarding climate change from the 2019 Global Party Survey (GPS). This provides a country-specific measure of the extent of polarization between parties over climate change, weighted by vote share. Results (presented in detail in supplementary materials section 1.3) indicate that party-level polarization in the US (4.54 on a 0-10 scale, 2nd highest of all countries in the data) is much higher than in Norway (1.41 on the polarization scale). Norway thus provides a good comparative foil for much of the extant research and constitutes a suitable case to test if extreme weather prompts motivated reasoning in a less sorted, less polarized context than the US case which has been frequently employed in prior research.

To understand party positions on climate change in Norway further, Figure 1 below presents Norwegian party positions on support for environmental protection, using the GPS dataset. The right-wing Progress Party offer the most climate-sceptic position, whereas the Greens offer the most pro-environmental position. These findings point to the existence of some party-level division over climate change in Norway, an important characteristic given that political division over an issue is a prerequisite for politically motivated reasoning to occur (see Kahan, 2016). However, as the party-level polarization comparison indicates, this is not to the same extent as the US. Whilst the Progress Party and Green Party offer polarized positions on climate policy, they are supported by a minority of the Norwegian population (together accounting for 18.43% of the popular vote in the 2017 parliamentary election, the closest election to the study period and GPS data) – an important distinction that is captured in the party-level polarization measure, which is weighted by vote share.

Figure 1: Climate policy scores by party, Norway



In sum, levels of partisan sorting and party-level division over climate change in Norway make it an excellent case to test whether extreme weather prompts motivated reasoning or experiential learning in a less sorted nation and whether insights from the US generalize to such a context. Driven by these motivations, the present study conducts a longitudinal assessment of the impact of flood experience in 2018 on climate change concern and attitudes to fossil fuel extraction, utilising a large-N panel dataset in Norway. Importantly, I examine whether partisanship moderates the relationship between flood exposure and attitudes, helping to determine whether politically motivated reasoning occurs in response to extreme weather when partisan sorting is less extreme than in the US. In follow-up analysis, I assess whether partisan-ideological sorting conditions this relationship, testing whether more sorted partisans are more likely to display evidence of motivated reasoning in response to extreme weather. This, to my knowledge, represents the first test of the influence of sorting on responses to extreme weather.

This study also offers an important empirical contribution. Most existing research on the relationship between extreme weather experience, political orientation and climate attitudes has utilised cross-sectional data (e.g., Lyons et al., 2018; Ogunbode et al., 2020; Zanocco et al., 2019). Whilst this research has been valuable, cross-sectional data raises inferential concerns (see Quoß and Rudolph, 2022). Panel data provides a more robust means of assessing partisan asymmetries in response to extreme weather: using such data, one can assess within-individual changes in climate attitudes over time, control for time-invariant confounders and determine the temporal precedence of the relationship. Using panel data, comparing the average change in the outcomes between those who experienced flooding and those who did not provides an estimate of the impact of flood experience on climate attitudes, net of individual heterogeneity and minimising potential confounding caused by omitted variables.

Hypotheses

Given evidence that the experience of extreme weather is positively related to belief in climate change and support for environmental policy reform (e.g., Baccini and Leemann, 2021; Rüttenauer, 2024), I anticipate first that - on the aggregate level - the experience of flooding in 2018 will be positively associated with climate concern (*H1*) and support for reducing the extraction of fossil fuels (*H2*). Given the importance of fossil fuels to the Norwegian economy (Farstad and Aasen, 2023) and extant divisions over the industry in Norway (Tvinnereim and Ivarsflaten, 2016), examining fossil fuel policy attitudes provides a robust test of the impact of flood experience.

The central question under study is whether partisanship moderates the relationship between flood experience and climate attitudes. Of primary interest are supporters of the Progress Party, Norway's climate-sceptic party (see figure 1 above). Given the assumption that sorting influences partisan propensities to engage in motivated reasoning and sorting is low in Norway, I anticipate that – on the aggregate level - the experience of flooding will override the influence of political dispositions on climate preferences. In other words, I anticipate that experiential learning (and not motivated reasoning) will take place and that flood experience will be positively associated with climate change concern and support for reducing the extraction of fossil fuels among supporters of the Progress Party (*H3*). However, whilst partisan sorting is low on the aggregate level, individual-level variation in sorting is likely to exist. Given that partisan sorting strengthens party identities (Mason, 2015) and identity strength is assumed to increase the likelihood of engaging in motivated reasoning (Leeper and Slothuus, 2014), I anticipate that strongly sorted partisans are more likely to engage in motivated reasoning in response to extreme weather. Thus, I anticipate that among strongly sorted

Progress Party supporters, the positive association between flood experience and climate attitudes will be attenuated (*H4*).

3.4 Data and Methods

Data

To assess the above hypotheses, this study examines the attitudinal impact of flooding that struck Norway in 2018. Driven by abnormally high snowmelt, Eastern and Southern Norway was impacted by flooding in April 2018, causing damage totalling around 100,000,000kr (Reuters, 2018; NVE, 2019). This was followed by rainfall-induced floods in September and October 2018, forcing numerous evacuations and causing 'catastrophic' damage across the east, west and central regions of the country (Berglund, 2018; Crisis24, 2018). The widespread impact of this flooding makes it a useful instrument for studying the impact of extreme weather on political attitudes.

I measure the impact of these floods through data from the Norwegian Citizen Panel (NCP), a large-N panel dataset organised by the University of Bergen. The NCP is a probability sample and broadly representative of the Norwegian population (Høgestøl and Skjervheim, 2013). Beginning in 2014, the NCP conducts three waves each year, with respondents recruited through post and SMS and completing the survey online (Skjervheim et al., 2019). The present study utilises waves 11 (March 2018) and 14 (January 2019). Panel attrition is low, with the NCP maintaining wave-to-wave retention rates that exceed 90% (Skjervheim et al. 2019). Due to the timing of these waves, they contain measures of environmental attitudes before and after flooding occurred, meaning the NCP dataset presents an opportunity to assess individual-level change in environmental preferences as a result of flood experience. Around half of NCP respondents across these waves ($N = 2900$) were asked the flood experience question (detailed below). The study sample consists of those individuals who were asked the flood experience question and provided complete information for all study variables across waves 11 and 14 ($N = 966$). Results from sample comparisons between the study sample and all respondents at waves 11 and 14 indicate that the study sample is broadly similar to the total sample (for complete sample comparisons and discussion of identified differences, see supplementary materials section 1.1).

Variables

The central predictor is a binary (yes/no) flood experience variable, which asked respondents: 'Have you in the past year experienced flooding near where you live?'. Given that the flood experience variable is self-reported (and hence subjective), it is important to validate the assumption that climate-related attitudes are not related to the likelihood of reporting flood experience: i.e., that individuals who are more concerned about climate change do not self-select into the flood experience condition, driven by the motivated reasoning of weather perceptions (e.g., Howe, 2018; Myers et al., 2012). To do so, I conduct balance tests on all study variables, comparing the mean values of those who report flood experience and those who do not at wave 11 (i.e., prior to the floods). I also regress flood experience on lagged values of climate concern and fossil fuel policy attitudes - if those who report flooding were self-selecting into this response because of prior climate attitudes, lagged values of the outcomes would be expected to associate with the flooding variable. However, both tests – presented in detail in supplementary materials section B.1.4 – provide no evidence of self-selection based on pre-existing climate attitudes, validating the use of the flood experience variable.

To assess the attitudinal effects of flood experience, this study utilises two outcome variables. First is climate change concern ('How concerned are you about climate change?'), made up of five categories ranging from 'not at all concerned' to 'extremely concerned'. At wave 11, some respondents received different category labels for this variable (with the final category instead labelled 'very concerned'). To eliminate potential statistical noise caused by this variation, respondents who were given this alternative variable were dropped from the study sample. The second outcome variable under study is a seven-category measure of agreement with preventing 'oil and gas extraction in Lofoten, Vesterålen and Senja', ranging from 'strongly disagree' to 'strongly agree'.

Partisanship, the moderating variable of interest, is measured as the party that a respondent would vote for 'if there were a parliamentary election tomorrow'. To measure the extent to which partisans have also sorted ideologically, I first derive a measure of each Norwegian party's ideological position using data from the 2019 Global Party Survey. This dataset provides expert-coded economic and cultural ideology scores for each Norwegian party (on 0-10 scales), which I combine into an ideology score for each party (coded 0-1). To code an individual-specific measure of sorting among NCP respondents, I subtract the ideology score for each individual from the GPS ideology score for their favoured party. Transforming negative values so that all scores are positive, this provides a measure of the ideological distance of each survey respondent from their party. This measure is reverse coded so that higher scores equate to more sorted partisans (i.e. those whose ideological positions more closely correspond to the ideological position of their party). Finally, the study incorporates demographic controls – ideology, age, gender, education and income – all of which have been found to associate with climate-related attitudes in prior empirical studies (Pampel, 2014; Poortinga et al., 2019). All variables are coded from 0-1 to facilitate comparison of coefficients.

Estimation Procedure

I employ hybrid models to assess the relationship between flood experience and climate attitudes. Hybrid models are, in practical terms, random effects models in which time-varying covariates are decomposed into a person-centred score and individual-level mean (Bell et al., 2019). The person-centred score is calculated by subtracting the mean of an individual's observed scores on that variable from each observation of the variable, and thus represents the deviation (at each wave) from the individual's mean score over time. The value of the person-centred score equates to the within-individual variation of the corresponding variable, producing estimates that are equivalent to an individual fixed effects model (Bell et al., 2019). A hybrid model thus enables the present study to estimate the impact of flood experience on within-person changes in attitudes, net of individual heterogeneity. The individual-level mean represents the time-invariant component of the variable (i.e., between-person variation - see Howard, 2015 for an overview of this procedure). Importantly, hybrid models also enable estimation of stable, time-invariant predictors. As partisanship is a relatively stable characteristic (Huddy et al., 2015) and I am interested in the differences in attitudinal responses between partisans, estimating the stable, between-person components of this variable is necessary.

I first estimate baseline models in which the outcome variable is regressed on flood experience (decomposed into a within-person component and a between-person component), before adding covariates: ideology, party identification, and sociodemographic controls (age, gender, education and income).[5] Third, to examine the moderating influence of partisanship, the interaction term of flood experience and party identification is added to the model. All models are estimated in Stata 18, using random effects GLS regression with robust standard errors (clustered at the individual level).[6] Regression coefficients represent the change in the outcome variable that occurs as a result of a one-unit change in the predictor (or, for categorical predictors, the change in the dependent variable that occurs as a result of moving from the reference category to the category of interest). Note that all subsequent discussion of flood experience relates to the within-person effect.

3.5 Results

Turning first to climate change concern, both baseline model results (b = 0.09, SE = 0.2, $p < 0.001$) and covariate model results (b = 0.09, SE = 0.2, $p < 0.001$) indicate that flood experience is positively and significantly associated with this outcome. Evidence thus provides support for *H1* - that experiencing flooding leads to a significant increase in one's concern about climate change (around half a point on the 5-point climate concern scale).[7]

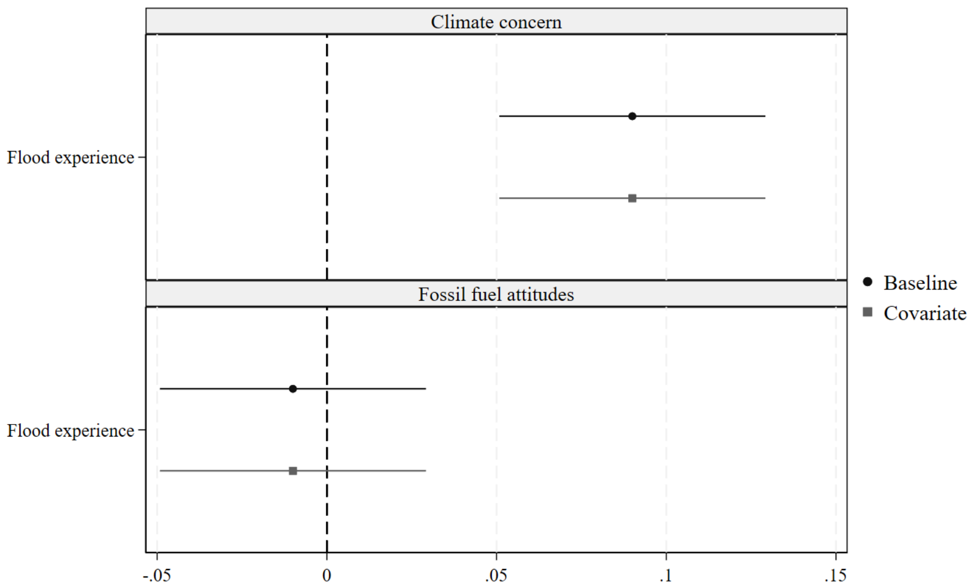
[5]Controls are necessary in the estimation of hybrid models because whilst the model produces estimates of time-varying predictors net of individual heterogeneity, the estimation of time-invariant predictors can still be biased by unmeasured stable characteristics (Bell et al., 2019).

[6]Given that the outcome variables are categorical, I also replicate the models with ordinal logistic regression, and find no difference in the results. Models and plots estimated with ordinal logistic regression are presented in section B.3.1 of the supplementary materials.

[7]To validate the assumption that this result represents a Bayesian-like process of experiential learning, I conduct a placebo test. Experiential learning implies that attitudinal change would be specific to climate change and that flooding would not influence other political outcomes. Results from a placebo test (presented in supplementary materials section B.3.2) indicate that flood experience is unrelated to support for income redistribution, providing further evidence that flood experience induces changes in climate concern through the mechanism of experiential learning, rather than attitudinal change being driven by

Whilst the size of this effect appears substantively small, prior studies have identified similar effect sizes of extreme weather on climate concern (e.g. Rüttenauer, 2024; Spence et al., 2011). Contrastingly, results provide no evidence that flood experience leads to increased support for limiting fossil fuel extraction (*H2*): the coefficient for flood experience is near zero in both baseline and covariate model. Figure 2 plots these results (with accompanying model output in table B.2.1, supplementary materials).

Figure 2: GLS regression coefficients for the regression of climate concern and fossil fuel attitudes on flood experience



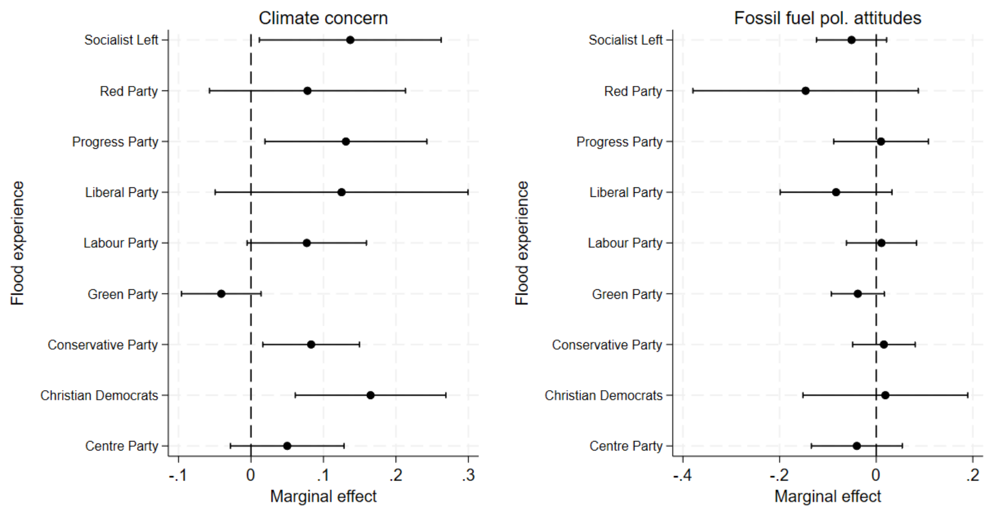
I turn next to the possibility that partisanship conditions the impact of flood experience.[8] Figure 3 below presents the marginal effect of flood experience on climate concern (left-hand plot) and fossil fuel policy attitudes

unobserved factors.

[8]I follow the procedure outlined by Schunck (2013), decomposing the interactions into a within-person and between-person component. The results presented in figure 3 are the results of the within-person interactions of flood experience and partisanship.

(right-hand plot) among supporters of each of the major Norwegian parties, along with 95% confidence intervals. Full model output for both regressions are presented in table B.2.1 of the supplementary materials, along with marginal effects estimates in table B.2.2.

Figure 3: Marginal effects estimates of flood experience on climate concern and fossil fuel policy attitudes, moderated by partisanship



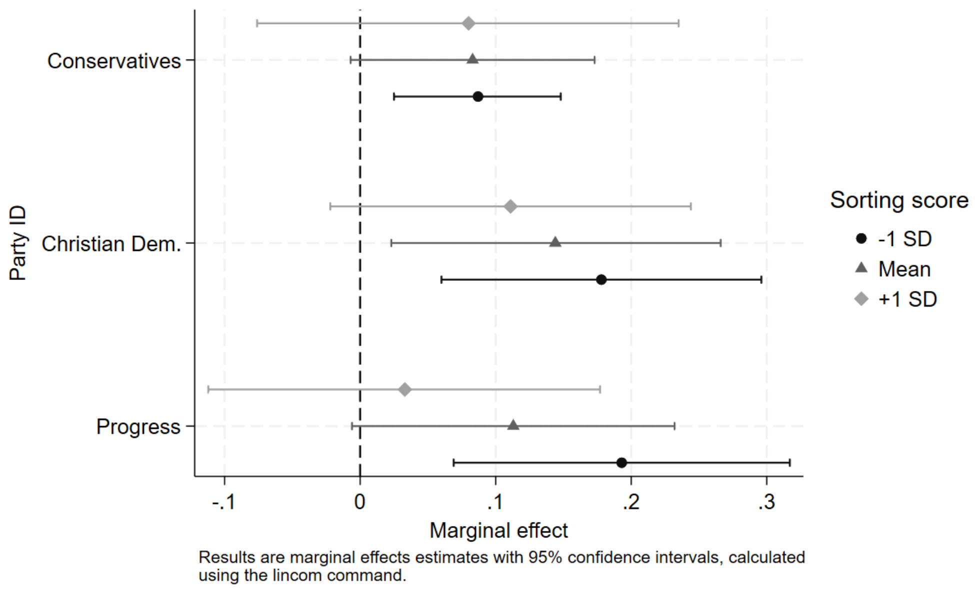
Results are marginal effects estimates with 95% confidence intervals, calculated using the lincom command. The left-hand plot corresponds to the model in which climate concern is the outcome variable and the right-hand plot corresponds to the model in which support for limiting the extraction of fossil fuels is the outcome variable.

Of central interest are Progress Party supporters. The Progress Party offers the most sceptical positions on climate change and resistance to climate policy reform in Norway (see figure 1). Thus, expectations derived from motivated reasoning suggest that flood experience would have a negative or null association with the outcomes among Progress Party supporters. Contrastingly, experiential learning implies that Progress Party supporters would display pro-environmental attitudinal shifts (*H3*). Turning first to climate change concern, marginal effects estimates (presented in full in supplementary materials table B.2.2) indicate that, among Progress Party supporters

($b = 0.13$, $SE = 0.6$, $p < 0.05$), flood experience is positively and significantly associated with this outcome, constituting a 0.65-point increase on the 5-point climate concern scale. Results for climate concern therefore confirm *H3* and suggest that, absent high levels of partisan sorting over climate change, partisan division is not entrenched. Instead, even those who identify with a climate-sceptic party become more concerned about climate change following flood exposure, indicating that there are limits to the extent of motivated reasoning. Additionally, the marginal effect of flood experience is positive among both Conservative Party supporters ($b = 0.08$, $SE = 0.3$, $p < 0.5$) and Christian Democrat supporters ($b = 0.17$, $SE = 0.05$, $p < 0.05$) – two parties on the ideological right – providing further evidence of experiential learning rather than politically motivated reasoning in the wake of extreme weather experience. Regarding fossil fuel attitudes, marginal effect estimates indicate that flood experience is unrelated to this outcome among supporters of all parties (as can be seen in figure 3, with accompanying marginal effects estimates presented in supplementary materials table B.2.2). These results provide further evidence that fossil fuel policy attitudes are resistant to change in the face of flood experience.

I turn next to the question of partisan-ideological sorting. Whilst results indicate that, in the aggregate, Progress Party supporters (as well as Christian Democrats and Conservatives) update their concern about climate change following flood experience, this might mask heterogeneity among these groups. To test this, I add the three-way interaction term of flood experience, partisanship and the individual-specific partisan sorting score to the climate concern model (along with the requisite lower-order interaction terms). To ensure that this sorting measure is not confounded by respondent ideology, both ideology and ideological extremity (derived from the self-reported ideology scale measure) are included in this model as controls. Full model output is presented in supplementary materials table B.2.3, with accompanying marginal effects estimates (for all parties) in table B.2.4. Figure 4 below plots the marginal effect of flood experience among supporters of the Progress Party, Conservatives and Christian Democrats at three levels of the partisan sorting scale (the mean and ± 1 standard deviations from the mean). This enables an assessment of whether highly sorted partisans differ from less sorted supporters of the same party in how they respond to flood experience, and specifically whether strongly sorted supporters of right-wing parties are more likely to engage in motivated reasoning in response to flood experience.

Figure 4: Marginal effects estimates of flood experience on climate concern, moderated by partisanship and partisan sorting



Three-way interactions for partisan sorting indicate that among Progress Party supporters, the positive effect of flood experience is driven by less-sorted individuals. Among weakly sorted individuals (those 1 *SD* below the mean for the sorting variable), the marginal effect of flood experience on climate concern is positive and significant (b = 0.19, *SE* = 0.06, $p <$ 0.01). At the mean, the marginal effect of flood experience is still positive, although smaller in magnitude (b = 0.11, *SE* = 0.06, $p < 0.1$). Among strongly sorted individuals (1 *SD* above the mean) the effect of flood experience is near zero (b = 0.03, *SE* = 0.07, p = 0.66). Results therefore support *H4* in that whilst some Progress Party supporters become more concerned about climate change following flood experience, this attitudinal updating does not occur among the most sorted supporters. This finding supports the proposition that partisan-ideological sorting increases the likelihood of motivated reasoning in response to extreme weather. Consistent with the Progress Party findings, results indicate that among supporters of the Christian Democrats, the marginal effect of flood experience is positive and significant among less-sorted individuals ($b = 0.18$, *SE* = 0.06, $p < 0.01$) and smaller and non-significant among more-sorted individuals ($b = 0.11$, *SE* = 0.07, $p = 0.1$). However, point estimates for Conservative Party supporters are similar at all three levels of sorting (see supplementary materials table B.2.4).

3.6 Discussion

Utilizing panel data to understand the impact of flood experience on climate attitudes in Norway, the present study offers several insights to the extant literature on the relationship between extreme weather and climate change beliefs. Results indicate that flood experience is positively associated with climate change concern, confirming expectations and the results of prior studies (e.g., Rüttenauer, 2024; Spence et al., 2011). However, flood experience is unrelated to attitudes to fossil fuel extraction. This surprising finding can perhaps be explained by the Norwegian socio-political context – the fossil fuel industries are an important part of the Norwegian economy (Farstad and Aasen, 2023), and those who work in this sector are more likely to oppose attempts to reform it (Tvinnereim and Ivarsflaten, 2016). If opposition to fossil fuel policy reform is entrenched among those with a personal stake in the industry, flood experience may be unable to induce attitudinal shifts.

Norwegian party positions on climate policy presents another possible explanation. Norwegian parties support emissions reductions (Farstad, 2019) but given the centrality of fossil fuel exports to Norway's economy (Farstad and Aasen, 2023), parties often propose alternative approaches to limiting fossil fuel extraction, such as carbon capture (e.g. Båtstrand, 2012). For example, in the 2017 Norwegian national election (the election closest to the flooding under study), only the Green Party and Red Party advocated for a fast phase-out of fossil fuel use, with the manifestos of the Conservatives, Labour, Centre, Christian Democrats and Progress (that collectively won nearly 80% of the vote in 2017) all supporting the exploration and opening of new oil and gas fields (Lehmann et al., 2024). Perhaps the absence of clear party-elite advocates for limiting fossil fuel extraction explains the absence of a relationship between flood experience and this outcome variable. Thirdly, the null effect on fossil fuel attitudes may be driven by ceiling effects. Over 30% of respondents at wave 11 reported the maximum value for the outcome ('strongly agree' with limiting the extraction of fossil fuels). Thus, the nature of the scale might be obscuring actual variation in attitudes, with those already at the maximum value unable to express heightened support for limiting fossil fuel extraction. Finally, flood experience may be unrelated to fossil fuel attitudes because individuals fail to make the connection between the threat posed by climate change and limiting the extraction of fossil fuels. However, I explain and test this possibility in section B.4.1 of the supplementary materials and find no evidence to support it.

Moderation analysis examines potential partisan asymmetries in response to flood experience. Initial findings suggest that flood experience leads to experiential learning or a Bayesian-style attitudinal updating of climate attitudes, with supporters of the climate-sceptic Progress Party – and other parties of the ideological right – becoming more concerned about climate change following flood experience (a similar finding to the work of Rüttenauer, 2024 and Zanocco et al., 2019). However, when examining potential variation caused by partisan-ideological sorting, results indicate that this attitudinal updating is limited to less sorted partisans. Progress Party supporters who have sorted ideologically do not become more concerned about climate change following flood experience.

This finding – which, to my knowledge, represents the first analysis of the influence of partisan-ideological sorting on responses to extreme weather – has three important implications. First, it demonstrates that supporters of a particular party do not display uniform responses to extreme weather and suggests that a focus on partisan-ideological sorting might help to explain the heterogeneous findings of prior research, some of which point to experiential learning from climate-sceptic partisans in response to extreme weather (e.g. Arias and Blair, 2024; Rüttenauer, 2024; Zanocco et al., 2019) with others instead providing evidence of politically motivated reasoning following the experience of an extreme weather event (e.g. Hazlett and Mildenberger, 2020; Usry et al., 2022). These differences might – at least in part – be driven by variation in the strength of partisan-ideological sorting found in these study samples. Second, it gives reason to question the generalizability of extant findings from the US to other countries, given that the US displays much greater sorting over climate change than other countries (as shown in supplementary materials section B.1.2), with divisions over climate change entrenched in conflicting social identities (Bliuc et al., 2015). Third, whilst these findings suggest that supporters of climate-sceptic parties are perhaps more prone to change than prior evidence would indicate, they also highlight that sorting poses a barrier to climate action, raising concerning questions regarding recent evidence – particularly from the US – indicating that partisans are increasingly sorting into homogenous blocs (Mason, 2015; Mason and Wronski, 2018).

More generally, this finding highlights that the increasing sorting of electorates across advanced democracies (Harteveld, 2021; Mason, 2015; Merkley, 2023) might pose a barrier to the achievement of climate consensus. European electorates and party systems exhibit division over climate policy reform and the urgency with which it should be implemented (Fairbrother et al., 2019; Dickson and Hobolt, 2024). Whilst attitudinal shifts in response to the experience of extreme weather might boost support for the implementation of new environmental policies (e.g. Baccini and Leemann, 2021), findings suggest that the sorting of mass publics into opposing electoral blocs could hinder this process.

Whilst the results of this study point to the contextual influence of partisan-ideological sorting on responses to flooding, future research could investigate other contextual factors that might influence attitudinal responses to extreme weather events. Recognising that party-level polarization also conditions partisan propensities to engage in motivated reasoning (Druckman et al., 2013), it is possible that party positioning conditions individual-level responses to extreme weather: when parties are polarized over climate change, extreme weather events will induce motivated reasoning. However, when parties exhibit consensus, individuals will act as Bayesian updaters in response to extreme weather, regardless of partisanship. The results from the present study can also be interpreted as evidence supporting this proposition. In addition to differences in sorting, Norway exhibits much less party-level polarization over climate change than the US (see supplementary materials section B.1.3). This difference offers another potential explanation for why motivated reasoning appears to occur in the US (e.g. Hazlett and Mildenberger, 2020) but not in the present study. However, future research that directly compares polarized and non-polarized contexts or examines perceived party polarization among individuals is needed to confirm that party-level polarization influences responses to extreme weather among partisans.

It is important to note the limitations of this study and, correspondingly, to highlight possible directions for future research. The use of panel data enables a robust assessment of extreme weather, and balance tests and cross-lagged regressions indicate that the self-reported measure of flood experience is free of bias. However, to provide further confirmation of these findings, future research would benefit from the use of objective indicators of extreme weather. Additionally, future study should employ more in-depth measures of partisanship and partisan-ideological sorting – perhaps, for example, using measures of expressive partisanship (e.g. Huddy et al., 2015). Furthermore, the outcomes studied here have been limited to climate attitudes. Given knowledge of the attitude-behaviour gap that exists in relation to environmental actions (Farjam et al., 2019), it is reasonable to question whether the impact of flooding – via increased climate concern – translates to meaningful behavioural change. Future research should also investigate the impact of extreme weather on behavioural change.

Despite these limitations, this study offers insights for the study of extreme weather events, presenting a comprehensive assessment of how partisanship conditions the effect of extreme weather on climate attitudes. Furthermore, findings differ from extant research in the US, suggesting that we should be cautious about generalizing across national contexts, and suggest that partisan-ideological sorting influences responses to extreme weather. This evidence perhaps also offers substantive insights about effective climate mitigation. If the relationship between identities influences how individuals respond to extreme weather, then one possible means for increasing the effectiveness of persuasion efforts would be to emphasise partisan commonality. More broadly, future study would do well to continue to explore the contextual characteristics that may explain variation in how individuals respond to extreme weather – with a particular focus on sorting and perhaps party-level polarization – and adopt a more holistic lens when analysing these events.

4

Anger at the ballot box: how do partisan emotions and political discussion shape affective polarization?

Statement of Authorship

This chapter is solo-authored work.

Statement of Publication

Written as for publication with the intention of submission.

Data Accessibility Statement

Replication data for this study is available here.

Abstract

As widening political divisions undermine the effective functioning of democratic states, scholarly concern with affective polarization - or inter-group hostility on the basis of political beliefs - has grown. Among its many potential causes, recent evidence suggests that anger drives affective polarization. Extant research however has yet to examine potential heterogeneities in this relationship. This chapter does so, focusing on the role of social context - and specifically the impact of political discussion networks - in conditioning the impact of anger on affective polarization. I argue that politically diverse discussion (i.e. regular conversation with supporters of opposing parties) provides a form of social constraint that limits the polarizing consequences of anger. Using two waves of panel data in Britain, I validate this proposition. Results indicate that anger drives affective polarization - and particularly out-party dislike - but only among those who discuss politics with co-partisans alone. Among those who participate in politically diverse discussion, anger has no effect on affective polarization. This chapter highlights the need to examine context as a moderator of the relationship between emotions and political attitudes, and underlines the potentially pernicious consequences of increasingly segregated and geographically polarized electorates which limit the opportunity for cross-cutting, politically diverse interactions.

4.1 Introduction

Feelings of partisan anger are widespread in contemporary politics (Huddy et al., 2015; Webster et al., 2022), and accompany many of the fundamental components and processes of democracy. Election campaigns and party competition induce anger among partisans (Huddy et al., 2015; Mehta et al., 2020); political media prompts anger among those who engage with it (Hasell and Weeks, 2016); and its use is prevalent within political elite rhetoric (Ridout and Searles, 2011; Webster, 2021), who are capable of inducing anger among mass publics (Gervais, 2019; Stapleton and Dawkins, 2022).

The prevalence of anger is a concerning finding, because anger has been implicated in a number of deleterious democratic trends, including the proliferation of political misperceptions and the entrenchment of attitudinal division among mass publics (Carnahan et al., 2023; Weeks, 2015) and support for populism and far-right parties (Rico et al., 2017; Rico et al., 2020; Vasilopoulos et al., 2019). But of all the threats presently facing advanced democracies, that which perhaps generates the most scholarly attention and concern is affective polarization. Affective polarization describes the growing in-group bias that structures inter-partisan relations, with partisans increasingly pairing unquestioning in-group loyalty alongside negative or hostile attitudes toward opposing parties and their supporters (Iyengar et al., 2012; Iyengar and Westwood, 2015).

In other words, voters display dislike toward each other on the basis of party attachments, and this trend has been identified across much of the democratic world (Reiljan, 2020; Wagner, 2021). Furthermore, it has a number of concerning implications, including the avoidance of those who support opposing parties (Hobolt et al., 2021; Knudsen, 2021), the willingness to discriminate against out-partisans (Iyengar and Westwood, 2015), and even to dehumanise political opponents (Martherus et al., 2021). Additionally, affective polarization has been linked to a number of concerning behaviours, from the willingness to tolerate democratic backsliding (Gidron et al., 2023; Orhan, 2022) to the erosion of support for democratic norms (Kingzette et al., 2021 and support for political violence (Kalmoe and Mason, 2022).

Importantly, extant evidence shows that anger drives affective polarization: angry partisans adopt more hostile attitudes toward supporters of opposing parties, desire greater social distance from out-partisans, and are more willing to assign negative character traits to political opponents (Renström et al., 2023; Webster et al., 2022).[1] However, research on the role of anger in driving affective polarization has yet to explore potential heterogeneity within this relationship.

I argue that social context – and specifically the kind of political discussion network that an individual inhabits – moderates the effect of anger on affective polarization. I propose that individuals in diverse discussion networks – those who discuss politics with supporters of opposing parties – reside in social contexts in which norms, values and information places greater emphasis on tolerance toward political out-groups. This context, I argue, provides a form of constraint that limits the affectively polarizing consequences of anger. Contrastingly, this constraint is not present for those who reside in homogenous discussion networks, consisting only of co-partisans. Without this constraint – which otherwise provides a bulwark against the adoption of

[1]Anger is of course one cause among many: evidence has pointed to numerous other factors - including ideological extremity (Webster and Abramowitz, 2017), strength of party identification (Hernández et al., 2021; Satherley et al., 2020), personality (Bankert, 2022; Tilley and Hobolt, 2024; Simas et al., 2020; Webster, 2018), political systems (Gidron et al., 2020; Horne et al., 2022); elections (Bassan-Nygate and Weiss, 2022; Gidron and Sheffer, 2024; Hernández et al., 2021; Sheffer, 2020), elite-level ideological polarization (Banda and Cluverius, 2018), social and ideological sorting (Harteveld, 2021; Mason, 2016), and media use (Garrett et al., 2014; Lelkes et al., 2017) - as sources of affective polarization. The focus of the present study, however, is anger.

hostile attitudes toward political out-groups – anger drives affective polarization among those in homogenous networks.

This article tests and validates this proposition that political discussion moderates the relationship between anger and affective polarization using two waves of panel data in Britain. Britain is characterized by high levels of interparty conflict (Walter, 2014) and affective polarization has been identified at similar levels to fellow countries in Northwestern Europe (Reiljan, 2020; Wagner, 2021), making for a suitable research context. Using two waves of panel data to compare the effect of within-person changes in anger on affective polarization among individuals in politically diverse discussion networks (containing supporters of opposing parties) vs those in politically homogenous networks (containing only co-partisans), I show that anger drives affective polarization – but only among those in homogenous networks. Contrastingly, among those who discuss politics with out-partisans, anger has no effect on affective polarization. Importantly, this heterogeneity is not driven by differences in either the distribution or variation in anger over the study period. Instead, this difference appears to be driven by the attitudinal consequences of anger, which leads to increased affective polarization among those in politically homogenous networks alone.

Given both the prevalence of anger in contemporary politics (Webster, 2020) and the threat posed by affective polarization to democratic health (e.g. Gidengil et al., 2022; Gidron et al., 2023; Kalmoe and Mason, 2022; Kingzette et al., 2021; Orhan, 2022), the need to further understand the relationship between anger and inter-partisan hostility remains pressing. This study contributes to this effort: to the best of my knowledge, it provides the first demonstration that the attitudinal consequences of anger are not uniform, but instead vary with political discussion type. In doing so, my findings highlight the importance of bringing context in to analyses of emotions and their political consequences. Emotions are aspects of complex interpersonal systems (Butler, 2017) that are shaped by the social context in which they are experienced (Goldenberg, 2024), and the results of this study highlight the need to recognise this contextual influence.

4.2 Anger and its Attitudinal Consequences

Emotions shape individual-level cognition, behaviour and decision-making (Frijda, 1986; Marcus et al., 2000). Of central interest to this study – and much contemporary research on the emotional underpinnings of political behaviour (see Erisen, 2020) – is anger. Anger arises when an individual encounters an obstruction toward a desired goal or a familiar and disliked group (Berkowitz and Harmon-Jones, 2004; Mackuen et al., 2010). As an action-oriented emotion that induces attitudinal and behavioural shifts in response to stimuli (Carver and Harmon-Jones, 2009; Lazarus, 1991), anger is particularly important in the political realm.

Evidence suggests that anger shapes political judgement and action in a number of ways. First, anger influences information processing and cognition. Angry individuals are more likely to seek out information that conforms with their prior beliefs, and resist information that conflicts with these priors (Mackuen et al., 2010). Furthermore, experimental evidence demonstrates that anger prompts the biased assimilation of new information, so that individuals process novel information in ways that conform with their prior beliefs (Suhay and Erisen, 2018). It is for these reasons that anger has been identified as a source of political misperceptions and attitudinal conflicts (Carnahan et al., 2023; Weeks, 2015), and more generally has been pointed to as a cause of growing partisan polarization and the increasing intractability of attitudinal conflicts (Erisen, 2020; Marcus, 2021).

Second, anger shapes voting behaviour. Both experimental and observational evidence from multiple national contexts indicates that anger is positively associated with political participation, of various types (Valentino et al., 2011; Vasilopoulos, 2018). Anger also shapes electoral preferences, with evidence indicating that anger is associated with populist attitudes (Rico et al., 2017; Rico et al., 2020), opposition to the European Union (Erisen et al., 2020; Vasilopoulou and Wagner, 2017) and support for far-right parties (Vasilopoulos et al., 2019).

Beyond the ballot box, anger has specific implications for inter-partisan relations and has been identified as a cause of affective polarization (Renström et al., 2023; Webster et al., 2022). Feeling of anger leads individuals to engage in out-group denigration, as demonstrated by evidence that anger amplifies punitive tendencies toward out-groups (Lerner et al., 1998) and the proclivity to employ stereotypes (Bodenhausen et al., 1994). With an essential component of affective polarization being the adoption of prejudicial, stereotyped attitudes toward partisan outgroups (Iyengar and Westwood, 2015; Martherus et al., 2021), the link between anger and affective polarization is clear. This is further supported by recent experimental evidence showing that anger has a causal effect on affective polarization, driving greater hostility toward and social distance from out-parties and partisans (Renström et al., 2023; Webster et al., 2022).[2]

[2]Given the linguistic overlap between emotions and affective polarization, it is tempting to view out-party anger and affective polarization as intertwined. Conceptually, however, anger and affective polarization are related but distinct phenomena. Emotions have long been understood as situational responses to environmental stimuli that lead to specific changes in cognition or behaviour (Frijda, 1986; Marcus et al., 2000). Thus, affective polarization (which describes a process of change in cognition and/or behaviour) can be understood as an outcome of emotional response, as confirmed in prior experimental

Whilst the impact of anger on affective polarization has been well-established, via experimental evidence across multiple national contexts (Renström et al., 2023; Webster et al., 2022), potential heterogeneity within this relationship has yet to be explored. This is a significant absence, because I argue that social context likely moderates the relationship between anger and affective polarization. Recognising the role of social context matters because emotional response and cognition are components of complex, interactive systems (Butler, 2017; Vlasceanu et al., 2018). Individual-level processes of emotional response, belief formation and judgement are thus shaped by the social contexts in which they take place (Goldenberg, 2024; Vlasceanu et al., 2018). Thus, whilst there is an individual-level component to political polarization – the increasing extremity of beliefs – these individual-level processes cannot be fully understood without recognition of the wider contexts that surround them (Butler, 2022). Similarly, whilst emotional response is a process that takes place within the individual, the inherently interpersonal nature of emotions means that there is much to be gained by analysing them within the social contexts in which they are expressed (Butler, 2017). This study does so, with a focus on political discussion networks.

4.3 The Role of Political Discussion Networks

Scholars have long been interested in the attitudinal and behavioural consequences of the social networks people inhabit and the people they talk about politics with. Within this research effort, special attention has been paid to the impact of disagreement or opposing views within one's networks, which I term politically diverse discussion. Evidence has revealed that the presence

research (Renström et al., 2023; Webster et al., 2022).

of contradictory opinions in one's political discussion network is associated with a range of outcomes: attitudinal ambivalence (Huckfeldt et al., 2004); reduced political participation (Mutz, 2002a); more detailed justifications for one's own political preferences (Huckfeldt et al., 2004); increased awareness of opposing political views and their rationales (Mutz, 2002b); and greater political knowledge in general (Eveland and Hively, 2009 - see Amsalem and Nir, 2021 for a qualifying view).

Alongside these consequences, focus has recently turned to the potential implications of inter-group discussion for affective polarization. Building on past research demonstrating a link between inter-group discussion and political tolerance (Mutz, 2002b), evidence from several studies demonstrates that conversations with supports of opposing parties can attenuate affective polarization (Amsalem et al., 2022; Levendusky, 2023; Levendusky and Stecula, 2021; Rossiter, 2023;Santoro and Broockman, 2022). One explanation is that inter-group discussion leads to a reconfiguration of in-group/out-group perceptions in which the out-group is viewed as possessing greater commonality and shared characteristics with the in-group (Santoro and Broockman, 2022; Wojcieszak and Warner, 2020) and facilitates the decategorization and personalization of out-group members so that they are viewed not through the lens of group stereotypes but as individuals (Rossiter, 2023).

Another potential mechanism is that, as a source of information about out-partisans, inter-group discussion corrects misperceptions about the attitudinal extremity of out-parties and partisans (Levendusky, 2023) and allows out-group preferences and issue positions to be better understood (Mutz, 2006). In other words, political discussion with those who hold differing opinions leads to a more deliberative, less biased form of interaction and information processing (Klar, 2014; Levitan and Visser, 2008) that results in more positive evaluations of political out-groups (Caluwaerts and Reuchamps, 2014) alongside a more accurate and appreciative understanding of their views (Mutz, 2006; Lyons and Sokhey, 2017).

My argument however pertains not to the direct effects of political discussion - as analysed in prior studies - but to its potential role as a moderator. Specifically, I argue that the relationship between anger and affective polarization is conditional on the type of political discussion that an individual engages in. Individual belief formation, judgement and behaviour in the political realm is constrained. The attitudes and behaviours that an individual adopts – such as affectively polarized political judgements and actions – occur within an individually-specific realm of acceptability, produced by a combination of social expectations and pre-existing cognitive structures. I argue that regular participation in politically diverse discussion provides a form of socially-derived constraint on political attitudes and behaviour, and specifically on the tendency to adopt hostile attitudes toward out-partisans. Thus, when individuals who regularly discuss politics with out-partisans experience anger in the political realm, they are less likely to translate it into out-partisan hostility and prejudice. It is instead among those individuals in political homogenous discussion networks – who only discuss politics with individuals who share their partisan affiliation – that anger will lead to affective polarization, for the attitudinal and behavioural space in which they operate is not structured by this constraint.

There are three interrelated mechanisms by which I anticipate that diverse discussion networks attenuate the impact of anger on affective polarization: processes of social identity and self-categorization, social norms and the salience of out-group based heuristics. First are the complementary theories of social identity and self-categorization (Tajfel and Turner, 1979; Turner et al., 1987). Individuals define themselves through social categories. In other words, an individual derives a sense of identity – a social identity – through the groups that she perceives herself to belong to, which confers a sense of self-esteem, in-group cohesion, and positive distinctiveness from out-groups (Tajfel and Turner, 1979; Turner et al., 1987). Vitally, individuals possess multiple social identities (Roccas and Brewer, 2002), meaning that partisan identification is one among many. Relatedly, social identities and the groups that an individual chooses to categorize herself in at any one time are socially and contextually determined (Turner et al., 1994), meaning that political discussion networks – and the social interaction that underpins them – will provide a social identity through which an individual can categorize themselves.

Importantly, this process of self-categorization has a social influence on behaviour. Through self-categorization into a specific group – such as a political discussion network – individuals construct a 'group prototype that describes and prescribes beliefs, attitudes, feelings and behaviours' – a set of attitudinal and behavioural ideals to follow (Terry and Hogg, 1996 p.789). In tandem, self-categorization motivates the individual to conform to this prototype (Terry and Hogg, 1996). An individual in a politically diverse network, who is more likely to engage in and witnesses cordial interactions between political opponents, will construct and follow a group prototype that emphasises out-group tolerance, providing a constraint against the polarizing consequences of anger.

One of the ways in which self-categorization influences behaviour is via social norms. The group prototype we construct is normative. Through observing and interacting with in-group members, one identifies or establishes an in-group norm – or more precisely a cognitive representation of that norm

– and this norm constitutes part of the group prototype which she strives to conform with (Abrams and Hogg, 1990; Abrams et al., 1990). Members of politically diverse discussion networks can thus be expected to construct and conform to in-group norms that emphasise political tolerance. This normative mechanism matters especially for affective polarization, because affective polarization can be understood as the violation of the tolerance and civility norm which governs interpersonal behaviour (Mullinix and Lythgoe, 2023; You and Lee, 2024). For example, affectively polarized partisans are more willing to discriminate against and dehumanise political opponents (Iyengar and Westwood, 2015; Martherus et al., 2021), which constitutes a clear transgression of democratic norms of tolerance and civility (Dalton, 2008) and the norm against prejudice (Blinder et al., 2013).

Importantly, the salience and influence of norms are fluid, being socially and contextually determined (Álvarez Benjumea and Winter, 2018; Bursztyn et al., 2020; Monteith et al., 1996; Tankard and Paluck, 2016). As a form of social context, discussion networks thus likely provide a normative influence on those who inhabit them. This occurs via several mechanisms. First, the observed behaviours of peers provide normative cues that we are motivated to follow (Paluck and Shepherd, 2012; Tankard and Paluck, 2016), because they generate feelings of group inclusion, acceptance and self-esteem (Blanton and Christie, 2003; Kelman, 1958, Kelman, 1961; Sherif and Sherif, 1953; Tajfel et al., 1971; Tajfel and Turner, 1979). Second, individuals conform with norms to meet the perceived expectations of their peers (Bicchieri, 2005; Bicchieri and Xiao, 2009). Third, dynamics of sanctioning for norm transgression within in-groups (Goette et al., 2006; Shinada et al., 2004) mean that individuals conform with group norms, motivated by the desire for in-group acceptance and the fear of sanctioning (Blanton and Christie, 2003; Habyarimana and Jack, 2011).

Those in politically diverse discussion networks are more likely to practice and witness cordial inter-partisan interactions, meaning that the local group norm is one of tolerance and cooperation. These individuals, I argue, are thus motivated by norm conformity to avoid adopting prejudicial and hostile attitudes toward out-partisans – a proposition supported by experimental evidence that witnessing the expression of positive attitudes toward outgroups by a confederate leads individual to report most positive attitudes toward those outgroups (Monteith et al., 1996; Blanchard et al., 1994). Contrastingly, those in homogenous networks are less constrained by this motivation and are freer to adopt hostile attitudes toward out-partisans (Blanchard et al., 1994).

Going further, politically homogenous networks might even motivate individuals to adopt prejudicial views. Social interaction between in-group members can provide social validation which leads to the development of new in-group norms favouring prejudice (Smith and Postmes, 2009, Smith and Postmes, 2011). Political discussion between co-partisans thus might facilitate the development of new normative standards that encourage hostile attitudes toward supporters of opposing parties. A related mechanism is social sanctioning, which occurs within political discussion networks and is influenced by the partisan composition of these networks (Fieldhouse et al., 2022; Mutz, 2002a). Individuals in politically diverse discussion networks are more likely to face (or anticipate) sanctions for violating norms of inter-partisan tolerance, increasing the motivation to avoid such intolerance. Contrastingly, those who only discuss politics with co-partisans are less likely to face sanctioning for the expression of hostility toward out-partisans, providing less of this motivation. Evidence that social pressure and the fear of sanctioning shapes political behaviour supports this proposition (Gerber et al., 2008; Panagopoulos, 2010).

Beyond self-categorization and the influence of social norms, a third and final mechanism is learning-based. Stereotypes – which underpin affectively polarized judgements about political out-groups (e.g. Martherus et al., 2021) – are a form of heuristic (Bodenhausen et al., 1994; Bodenhausen and Wyer, 1985). This matters because anger is associated with the use of heuristics when forming judgements, including the use of stereotypes (Bodenhausen et al., 1994; Small and Lerner, 2008; Tiedens and Linton, 2001). Thus, one of the assumed mechanisms by which anger drives affective polarization is through the activation of stereotypes. An important conceptual point, however, is that stereotypes (and heuristics more generally) are knowledge structures that individuals store and retrieve from memory (Chaiken and Ledgerwood, 2015; Chen et al., 1999). Thus, anger drives affective polarization by activating a stereotype that the individual already possesses.

This highlights another potential pathway by which politically diverse discussion attenuates the polarizing consequences of anger. Given that intergroup discussion is a source of learning about political out-groups (Mutz, 2006; Lyons and Sokhey, 2017) and prompts systematic, reasoned processes of political cognition (Klar, 2014; Levitan and Visser, 2008), those in diverse networks are less likely to possess stereotypes and prejudicial heuristics about political out-groups within their knowledge structures. Consequently, when angry, those in diverse networks are less likely to employ such heuristics, and thus less likely to adopt affectively polarized attitudes toward political out-groups.

In sum, I argue that the nature of an individual's political discussion network conditions the impact of anger on affective polarization, by constraining the attitudes and judgements that an individual adopts (or feels is appropriate to adopt). When individuals in politically diverse discussion networks experience partisan anger, interrelated processes of self-categorization, in-group norms and the use of heuristics will constrain the attitudinal effects of anger, so that it does not lead to affective polarization. Stated formally:

H1a: Among individuals who discuss politics with out-partisans, feelings of partisan anger will be unrelated to affective polarization.

In contrast, for individuals in politically homogenous discussion networks, who discuss politics with co-partisans alone, these constraints will be less salient. Consequently, when feelings of anger arise among these individuals, they are more likely to form judgements of out-parties and partisans consistent with an affectively polarized position. Stated formally:

H1b: Among individuals who exclusively discuss politics with co-partisans, feelings of partisan anger will have a positive effect on affective polarization.

Affective polarization has two constituting dimensions – loyalty and affection toward one's in-party, and hostility toward out-parties. As the conceptual model outlined above relates to feelings of prejudice and socially-derived motivation to suppress them, I anticipate that heterogeneity in the effect of anger on affective polarization will be driven by differences in out-party dislike. Stated formally:

H2a: Among individuals who exclusively discuss politics with co-partisans, feelings of partisan anger will have a positive effect on out-party dislike.

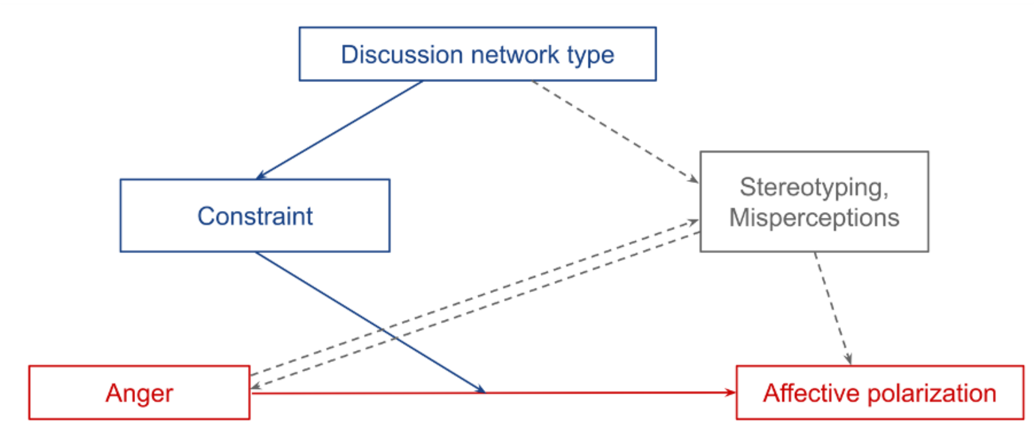
H2b: Among individuals who discuss politics with out-partisans, feelings of partisan anger will be unrelated to out-party dislike

Expectations for in-party like are less clear cut. Whilst there is some evidence that partisan anger can drive in-party loyalty (Webster, 2020), the absence of norms and social standards against in-group loyalty means that the nature of one's political discussion network is unlikely to prompt variation in the effect of anger on in-party dislike. Furthermore, anticipating that anger primarily has implications for out-group derogation (Bodenhausen et al., 1994; Lerner et al., 1998), I expect that:

H3: Regardless of the nature of an individual's political discussion network, feelings of partisan anger will be unrelated to in-party like.

Before proceeding to the analysis, three points of clarification should be emphasised. The first pertains to the relationship between the constraint-based model I have proposed here and existing research on inter-group discussion and affective polarization. Extant research (e.g. Amsalem et al., 2022; Levendusky, 2023; Levendusky and Stecula, 2021; Rossiter, 2023; Santoro and Broockman, 2022; Wojcieszak and Warner, 2020) has examined *the effect of inter-group discussion on affective polarization* (assumed to be mediated via learning-based mechanisms). My argument and analysis instead focuses on *the role of inter-group discussion as a moderator*. In other words, I examine the indirect effect of inter-group discussion, via its moderating influence on anger. Thus, this research investigates a distinct yet complementary mechanism by which inter-group discussion can influence affective polarization. Figure 1 below details these mechanisms and the proposed relationship between them. In this model, discussion networks are assumed to have two independent pathways of influence on affective polarization – a learning-based pathway (stereotyping and perceptions of out-parties) and a constraint-based pathway, which has an indirect influence via its impact on anger.

Figure 1: The constraining influence of political discussion on the relationship between anger and affective polarization.



Second, the theoretical expectations detailed in this framework pertain to the attitudinal consequences of anger, not its distribution. In other words, I expect both groups to feel anger, but the attitudinal consequences of this anger to be different. Anger arises when encountering an obstruction toward a desired goal (Berkowitz and Harmon-Jones, 2004). In a competitive political environment, opposition parties and partisans constitute such an obstruction, toward the goal of electoral and political success. In the political realm anger is thus induced via several mechanisms, independent of discussion networks, such as electoral competition (Huddy et al., 2015) or emotional cues from political elites (Gervais, 2019; Stapleton and Dawkins, 2022) and media (Hasell and Weeks, 2016). Thus, the anticipated difference between the two groups relates to the attitudinal consequences of anger, not its presence or absence.[3]

[3]Given the assumptions of theories of emotional contagion (Hatfield et al., 1993; van der Schalk et al., 2011) and evidence linking political homophily with anger (Cheng et al., 2024) - both of which suggest that those in homogenous networks might have higher levels of anger - it is important to test this assumption. I do so in the results section, and find that neither the baseline level nor change in anger over the study period differs between the

Third, anger is the sole emotional focus of this study. Specific emotions are distinct from each other (Marcus et al., 2006) and associated with specific consequences for cognition and behaviour (Frijda, 1986; Lerner et al., 2003; Marcus et al., 2000). Consequently, whilst emotional responses are often accompanied by other emotions – anger, for example, often correlates with fear (Marcus et al., 2006; Vasilopoulos et al., 2019) – expectations for each varies. Given evidence that fear is unrelated to affective polarization (Renström et al., 2023), the focus here is on anger.[4]

4.4 The Present Study

To test the above hypotheses, I use panel data from the British Election Study. Specifically, I employ the pre-election and post-election waves for the 2015 UK general election, fielded in March and May 2015 respectively. This context is well-suited to testing the above hypotheses for several reasons. First, elections activate partisan identities and platform inter-party conflict and differences (Hernández et al., 2021), meaning that this electoral context provides the conditions for both partisan anger (Huddy et al., 2015; Valentino et al., 2011) and affective polarization (Hernández et al., 2021) to arise. More specifically, the British case is well-suited to the study of anger and affective polarization. With a single-member district plurality electoral system mainly divided between two dominant parties (the Conservatives and Labour), Britain provides the necessary conditions for interparty conflict (Walter, 2014). Importantly, evidence indicates that partisanship is a salient

two groups.

[4] In follow-up analyses – presented in detail in supplementary materials section C.3.1 – I replicate the main models with additional emotions included as covariates (fear, pride and hope). Results for anger remain unchanged in these alternative specifications. I return to this point in the results section.

identity in Britain (Westwood et al., 2018), meaning that partisan anger is likely to emerge over the course of an election. Furthermore, whilst affective polarization has been identified in Britain (Wagner, 2021; Hobolt et al., 2021),[5] it is by no means an exceptional case: prior comparative evidence indicates that levels of affective polarization in Britain are broadly similar to those in many other European countries – particularly fellow countries in Northwestern Europe – and the US (Reiljan, 2020; Wagner, 2021).

Variables

Affective polarization is measured using like-dislike scores toward the major British political parties (on 0-10 scales): the Conservatives, Labour, Lib Dems, SNP, Plaid Cymru, UKIP and the Green Party. Specifically, I employ the weighted spread score measure proposed by Wagner (2021), which provides a measure of polarized attitudes toward parties. I detail the process for calculating this measure in section C.1.2 of the supplementary materials. The use of like-dislike scores is a widespread and empirically validated approach to measuring affective polarization (e.g. Reiljan, 2020; Reiljan, 2020; see also Gidron et al., 2022). Like-dislike scores correlate with additional, more normatively concerning aspects of affective polarization such as social distancing (Gidron et al., 2022) and thus can be used to make inferences about inter-group relations. Alongside affective polarization, I assess the impact of anger on its two constituent dimensions: in-party like and out-party dislike. In-party like is measured through changes in like towards the party the respondent reports the intention to vote for at the pre-election wave. Out-party dislike is measured first through a single-party measure of like toward the respondent's least-liked party. The second measure of out-party

[5]Evidence suggests that affective polarization has occurred over both party identities (Wagner, 2021) and Brexit identity (i.e. 'Leavers' and 'Remainers' – see Hobolt et al., 2021). However, given that the study data is collected prior to the beginning of the Brexit referendum and campaign, party-based polarization is likely dominant in the data.

dislike is a multi-party measure (like toward all parties other than the one the respondent intends to vote for at the pre-election wave, weighted by vote share in the 2015 election), used to assess whether out-party hostility extends to more general evaluations of out-parties. The dislike measures are recoded so that higher scores equate to more negative attitudes toward out-parties.

At both the pre- and post-election wave, respondents are asked whether the major British parties – the Conservatives, Labour, Liberal Democrats, Green Party, UKIP, the Scottish National Party (asked of respondents in Scotland only), and Plaid Cymru (asked of respondents in Wales only) – make them feel anger. Response options are binary (i.e., the respondent feels anger toward the Labour Party or does not). I combine these anger measures with respondent vote intention (measured pre-election) to identify out-parties, and then sum anger scores for each out-party together to create a total measure of out-party anger. Validating the assumption that out-party anger and affective polarization are distinct constructs, the data reveals that out-party anger is positively correlated with affective polarization, but not strongly ($r = 0.2$). The correlations between out-party dislike and anger are larger ($r = 0.$ 28 for the single-party measure; $r = 0.3$ for the multi-party measure), but still support the assumption that anger and affective polarization are distinct constructs.

To measure the nature of individuals' discussion networks, at wave 4 (the pre-election wave), sample participants select up to three individuals with whom they discuss politics (those who do not discuss politics skip the question). Importantly, respondents are asked to specify which party they think 'each of these people usually votes for'. Using this information, I code a binary indicator capturing the nature of each individual's discussion network: 0 if they report a homogenous network (i.e. all discussants vote for the same party as the respondent); and 1 if they report a diverse network (i.e. at least one discussant votes for a different party as the respondent).[6] Dropping those with missing information on this variable leaves a sample of 1927 person-observations, which are split broadly evenly between those who only discuss politics with co-partisans ($N = 938$) and those who discuss politics with out-partisans ($N = 989$). Whilst this a much smaller sample than the overall BES sample, comparison of sample characteristics indicates that the discussion sample is broadly similar to the larger BES sample, albeit differing slightly on observed indicators of political engagement (see supplementary materials section C.1.1 for a discussion). I do not however view this as a limitation – given that the goal of this research is to understand how political discussion influences affective polarization, generalizing beyond those who discuss politics is not a study objective.

Estimation strategy

To assess (a) whether out-party anger leads to affective polarization and (b) this relationship is restricted only to those in politically homogenous discussion networks, I employ hybrid models. Hybrid models are, in practical terms, random effects models in which time-varying covariates are decomposed into a person-centred score and individual-level mean (Bell and Jones, 2015; see Howard, 2015 for an overview of this procedure). These two components capture the within-person variance and the between-person variance of the corresponding variable (see supplementary materials section C.2.1 for

[6]This approach differs slightly from prior research. Amsalem et al. (2022), for example, differentiate between those who have homogenous discussions, heterogenous discussions and those who do not discuss politics at all. Due to the measurement of political discussion in the BES sample, I am unable to properly categorize those who do not discuss politics at all, so instead employ a binary measure. Given that the focus here is on the attitudinal consequences of different types of discussion, I do not view this as a limitation. See section C.1.3 of the supplementary materials for a discussion of this issue and a more general evaluation of the discussion network measure.

a more detailed summary of hybrid models). As an observational study, empirically validating the proposed conceptual model requires careful attention to confounding and bias, and hybrid models are well suited this objective.

First, this modelling strategy minimises concerns with self-selection bias. Individuals potentially select into a particular type of discussion network based on pre-existing levels of affective polarization, which would introduce bias into a cross-sectional model. By using panel data to estimate the effect of within-person changes in anger on within-person changes in affective polarization, each individual in the model is effectively provided with an individually-specific baseline value of affective polarization, ruling out the possibility that any observed differences in the anger effect are due to pre-existing differences in affective polarization. For the same reason, this design also minimizes concerns that pre-existing differences in affective polarization, driven by discussion network type, could be impacting the results.

Additionally, by decomposing time-varying predictors into separate measures of within-unit and between-unit variance, hybrid models estimate the effect of these variables whilst controlling for stable or time-invariant factors. In other words, they provide estimates of time-varying predictors that are equivalent to those derived from individual fixed effects models (Bell et al., 2019), ruling out all time-invariant confounding. The hybrid models estimated here thus control for all time-invariant factors that predict both anger and affective polarization, further minimising concerns that self-selection into discussion networks might bias the results. Importantly, hybrid models allow for time-invariant predictors to be included in the model whilst still controlling for time-invariant confounding – an advantage over the individual fixed effects model (Bell et al., 2019). This is necessary because the discussion variable is measured at the pre-election wave only and is thus treated as time-invariant.

The central conceptual claim being made in this causal framework is that discussion networks – by influencing identity, social norms and heuristics – constrain the acceptability of hostile attitudes toward out-parties and partisans and the tendency to adopt them, which influences the effect of anger on affective polarization. To infer this from the model results, additional covariates are required. One of the proposed mechanisms by which diverse discussion acts as a constraining influence is by shaping individual perceptions of tolerance norms. However, norm perceptions and personal moral standards are not derived solely from social networks, but also from system-level or institutional influences like the media (Bandura, 1991; Paluck, 2009) or political elites (Bursztyn et al., 2020), whose influence is communicated via media. Thus, I control for media consumption. Importantly, given evidence that the attitudinal consequences of media consumption varies depending on whether it is balanced or partisan (Hasell and Weeks, 2016; Wojcieszak et al., 2016), I assume that different forms of media likely provide different cues about how partisans should relate to supporters of opposing parties. Specifically, TV and radio news in the UK are regulated to ensure impartiality and are thus likely to provide cues that emphasise tolerance (Lunt and Livingstone, 2012). Print and internet media is less regulated and more partisan, and thus could instead be providing cues that emphasise conflict. Models thus include two media consumption measures: one for TV and radio (neutral media) and one for print and internet (partisan media).

Additional confounders are also included. Perceptions of elite polarization both drive affective polarization (Hernández et al., 2021) and potentially prompt anger, given evidence of the link between elite conflict and anger (Gervais, 2019). I thus control for perceived party-level ideological polarization (an overview of the coding of this measure is presented in supplementary materials section C.1.4). Again, as this is measured at both waves, it is decomposed into a within-person and between-person component when included in the model.

Due to the electoral context of the study period, I control for electoral outcomes (i.e. whether the respondent's party won or lost at the national and local level). Given that electoral outcomes prompt emotional responses (Mehta et al., 2020) and are associated with affective polarization (Gidron and Sheffer, 2024; Sheffer, 2020), these represent potential confounders. Finally, models include a set of sociodemographic factors: gender, age, ethnicity, region of residence and education (a dummy for degree-education). All models are random effects GLS regression models, estimated in Stata 18 (StataCorp, 2023). Following Schunck (2013), I avoid the use of the # operator and the margins command when including interactions in hybrid models. Instead, interaction terms are generated prior to inclusion in the model and marginal effects are calculated using the *lincom* command.

4.5 Results

I begin by comparing the distribution of out-party anger between the two discussion groups. The central claim to be tested in this article is that the consequences of anger for affective polarization vary, depending on the nature of the political discussion networks that one inhabits. Stated differently, the empirical model begins with the assumption that those in politically homogenous networks and those in politically diverse networks are equally likely to become angry, but that the effect of anger on affective polarization differs between the two groups. I begin by validating this assumption of uniformity in anger levels across the two groups. First, I compare levels of out-party anger between the two groups at baseline (i.e. at the first wave). T-test results indicate that those in politically homogenous networks (M = 0.42) are angrier than those in diverse networks (M = 0.39) at baseline, albeit above conventional levels of statistical significance (t = 1.96, df = 962, $p < 0.1$). Second, I calculate a measure of within-person change in out-party anger over the study period, and compare the mean score for this variable between the two groups. Results again support this key assumption. Those in homogenous networks, on average, become slightly less angry over the study period (M = -0.06) than those in diverse networks (M = -0.04), but again this difference is non-significant (t = -1.04, df = 961, p = 0.3).

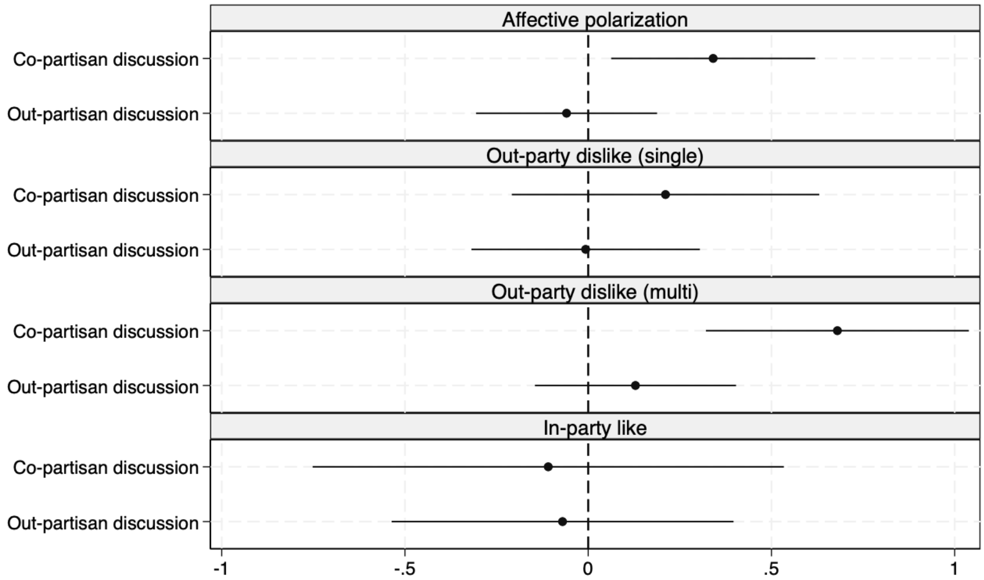
With this key assumption validated, I proceed to the main models. I begin by regressing affective polarization on the variables of interest – the discussion network indicator, out-party anger and the interaction term of the two – along with the assumed confounders. As a time-varying predictor, out-party anger is decomposed into a person-centred score (which captures the within-person effect of anger on affective polarization) and an individual-level mean (which captures the between-person association between anger and affective polarization). The interaction terms included in the subsequent models are between the within-person anger component and political discussion type, thus eliminating any time-invariant confounding in the observed effect of anger (Bell et al. 2019). Thus, the interaction terms capture differences in the within-person effect of anger on affective polarization between the two groups. An abbreviated table of model results is presented below in table 1, with complete model output presented in supplementary materials table C.2.2.

Table 1: The effect of out-party anger on affective polarization, moderated by political discussion

	Affective polarization		Out-party dislike				In-party like	
	Model I		Model II		Model III		Model IV	
Variable	β	SE	β	SE	β	SE	β	SE
WP OP anger	0.34*	0.14	0.21	0.21	0.68***	0.18	-0.11	0.32
Diverse discussion	-0.24***	0.05	-0.14*	0.06	-0.78***	0.07	-0.33*	0.1
WP OP anger * discussion	-0.4*	0.19	-0.22	0.27	-0.55*	0.23	0.04	0.4
Observations	1609		1609		1609		1609	
N	859		859		859		859	
Note:	Entries are OLS coefficients, with SEs clustered at the individual level. $p < 0.001$***, $p < 0.01$**, $p < 0.5$*, $p < 0.1$†. Source: BESIP.							

As indicated in table 1 (model I), the interaction term is significant (b = -0.4, SE = 0.19, $p < 0.05$), indicating that the effect of out-party anger on affective polarization does differ between those who discuss politics with out-partisans, and those who only discuss politics with co-partisans. To better understand this interaction, I calculate marginal effects. Results indicate that among those who only discuss politics with co-partisans, out-party anger has a positive and significant effect on affective polarization (b = 0.34, SE = 0.15, p < 0.05). Contrastingly, among those who discuss politics with out-partisans, anger has no effect on affective polarization. Results thus support both hypotheses 1a and 1b in showing that the effect of anger on affective polarization is heterogenous, and exclusive to those who only discuss politics with co-partisans. Figure 2 below plots these marginal effects.

Figure 2: The marginal effect of anger on inter-group attitudes, moderated by political discussion



Next, I turn to the relationship between out-party anger and out-party dislike. I begin with the single-party measure of out-party dislike – feeling toward the least-liked party (model II). Results from this model indicate that the interaction of out-party anger and political discussion type is non-significant (b = -0.22, SE = 0.27, p = 0.41) and marginal effects estimates confirm the absence of differences. Among neither those who discuss politics with out-partisans alone (b = 0.21, SE = 0.21, p = 0.33) nor those who discuss politics with co-partisans (b = 0.01, SE = 0.16, p = 0.96) does anger influence this measure of out-party feeling.

Contrastingly, when regressing the multi-party measure of out-party dislike on the model variables (model III), results indicate that the interaction term of anger and discussion network type is statistically significant (b = -0.55, SE = 0.23, $p < 0.05$). Calculating marginal effects reveals a pattern of results similar to those for affective polarization. Specifically, among those who only discuss politics with co-partisans, anger has a positive effect on out-party dislike (b = 0.68, SE = 0.18, p < 0.001). Contrastingly, among those who participate in politically diverse discussions, anger is unrelated to out-party dislike (b = 0.13, SE = 0.14, p = 0.36). Results for out-party dislike thus provide mixed support for H2a and H2b. However, the finding that out-party anger only leads to greater dislike toward out-parties among those in homogenous discussion networks is consistent with expectations. Specifically, it supports the argument that individuals who only discuss politics with co-partisans are less inhibited by socially derived constraints against inter-partisan hostility and thus have less motivation to control such judgements when, prompted by anger, they arise.

Finally, results for in-party like (model IV) support H3. The interaction term is non-significant (b = 0.04, SE = 0.4, p = 0.92), indicating an absence of difference between the two groups. Marginal effects estimates indicate that among both those who discuss politics with co-partisans alone (b = -0.11, SE = 0.32, p = 0.74) and those who discuss politics with out-partisans alone (b = -0.07, SE = 0.24, p = 0.77), anger is unrelated to in-party like.

In sum, results indicate that out-party anger increases affective polarization and generalized dislike toward all out-parties among those who discuss politics with co-partisans alone. In both of these models, the standalone coefficient for diverse discussion is negative and statistically significant (b = -0.24, SE = 0.05, p < 0.001 for affective polarization; b = -0.78, SE = 0.07, p < 0.001 for out-party dislike). In other words, when among individuals who are not angry, diverse discussion is negatively associated with affective polarization. This provides evidence supporting the claim that the indirect mechanism by which inter-group discussion impacts affective polarization (as a moderator of anger) exists alongside and in complement to the direct mechanism that prior studies have argued for (see Levendusky and Stecula, 2021; Levendusky, 2023; Santoro and Broockman, 2022).

Interpreting the interaction effects substantively, and focusing on the coefficients for those who discuss politics with co-partisans alone, moving from the minimum to the maximum value on the out-party anger scale is associated with an increase of 0.35 standard deviations in affective polarization. This means that becoming angry about one additional out-party is associated with an increase of 0.07 standard deviations in affective polarization. Correspondingly, moving from the minimum to the maximum value on the out-party anger scale is associated with an increase of 0.57 standard deviations in out-party dislike, meaning that becoming angry about one additional out-party is associated with an increase of 0.11 standard deviations in out-party dislike.

4.6 Robustness Checks and Further Analysis

4.6.1 Additional emotions

The models presented above contain one emotion measure – out-party anger. As a robustness check, I estimate a model containing additional emotion measures. Recognising that emotions covary (Marcus et al., 2006) and the argument that accounting for the concurrent influence of fear is sometimes required to accurately estimate the effect of anger on political judgement (Marcus et al., 2019), I estimate a model that includes out-party fear as an additional control. Furthermore, given that pride is positively associated with the willingness to engage in politically diverse discussion (Valenzuela and Bachmann, 2015) and that positively valenced emotions have also been linked to affective polarization (McLaughlin et al., 2020, I control for in-party pride and in-party hope. Additionally, recognising the possibility that intergroup discussion might induce expectancy violating emotions (Parsons, 2010) – negatively valenced emotions directed at the individual's in-party and positively valenced emotions directed at out-parties (Johnston et al., 2015) – and that these emotions have potential implications for affective polarization (McLaughlin et al., 2020), I fit a regression model that includes a set of expectancy violating emotions. However, the observed effect of anger when estimated in both of these expanded emotion models mirrors that from the model in which anger is the sole emotion measure (see supplementary materials section C.3.1 for results and an in-depth discussion).

4.6.2 CLPMs

Theories of emotion in political psychology often assume that emotions are causally prior to attitudes and behaviours (see, for example, Marcus et al., 2019). From this perspective, out-party anger is *a priori* assumed to precede affective polarization. However, recognising the argument that the relationship between emotions and affective polarization is potentially reciprocal (Berntzen et al., 2024; Webster and Albertson, 2022), I fit cross-lagged panel models to assess the relationship between out-party anger and affective polarization. Results, which are presented in supplementary materials section C.3.2, indicate that the relationship is a reciprocal one – the lagged effects of out-party anger on affective polarization, and lagged polarization on anger, are positive and significant. Importantly however, these results provide further support for the claim that out-party anger leads to increases in affective polarization.

4.6.3 Strength of Party Identification

One alternative explanation for the observed results is strength of party identification. Those in homogeneous networks might possess stronger party attachments, which could explain differences in the anger effect. I do not include strength of party identification in the main models as I view it as potentially post-treatment to anger. However, in a further robustness test (presented in supplementary materials section C.3.3), I estimate a model that includes strength of party identification. Results indicate that the results are robust to the inclusion of this additional covariate, indicating that unobserved differences in strength of party identification do not explain the heterogeneous consequences of anger between the two discussion groups.

4.7 Discussion

The results of this study provide support for the central argument that the nature of political discussion that an individual participates in moderates the impact of anger on affective polarization. Findings indicate that among those who discuss politics solely with co-partisans, out-party anger has a positive and statistically significant effect on affective polarization. Contrastingly, among those who discuss politics with out-partisans anger is unrelated to affective polarization. Importantly, comparisons of anger between the two groups indicate that both groups feel similar levels of anger, and exhibit similar variation in anger, over the study period. Thus, the key point of difference is in the attitudinal consequences of this anger.

I have proposed a constraint-based mechanism to explain this heterogeneity. Specifically, I have argued that among individuals who only discuss politics with co-partisans, the salience of values and norms emphasising political tolerance and civility is less than for those individuals who regularly discuss politics with out-partisans. Relatedly, the absence of political learning via cross-cutting discussion means that individuals in politically homogenous networks are more likely to possess heuristic stereotypes about out-groups within their knowledge structures. Consequently, individuals in homogenous networks are free from inter-personal constraint, meaning that feeling of anger lead to affective polarization. In contrast, those who discuss politics with out-partisans operate in social networks that are structured by greater degrees of social, normative and cognitive constraint. More likely to regularly encounter behavioural examples of inter-partisan tolerance, less likely to possess heuristic stereotypes about out-partisans, and more likely to face social sanctioning from the out-partisans in their network if prejudicial attitudes are expressed, those in politically diverse discussion networks operate in an attitudinal and behavioural space that is more constrained. Thus, when this group experiences anger, it does not translate to out-group hostility.

Findings regarding out-party dislike support this conceptual model. Results indicate that among those who discuss politics with co-partisans alone, anger has a positive effect on dislike toward out-parties, whereas anger is unrelated to out-party dislike among those who discuss politics with out-partisans. This pattern is consistent with the idea that discussion networks provide a form of social constraint that impacts the attitudinal consequences of anger. Diverting from expectations, results indicated that anger had no impact on dislike toward the respondent's least-liked party among either group. Ceiling effects provide a likely explanation for this. At the first wave, average dislike toward the least-liked party (across the whole study sample) is 9.53 on the 0-10 like-dislike scale. The extremely high levels of pre-existing dislike toward this party thus potentially prevents the observation of an anger effect.

This research makes several important contributions. Previous research on emotions and affective polarization has predominantly taken their effects to be uniform, rather than examining potential between-group heterogeneity (e.g. McLaughlin et al., 2020; Renström et al., 2023). Whilst Webster et al. (2022) examine gender- and ethnicity-based differences in the effect of anger on affective polarization, this study – to the best of my knowledge – represents the most sustained examination of the heterogeneous consequences of anger for affective polarization. Emotions are powerful antecedents of political behaviour (Lerner et al., 2003; Marcus et al., 2000) and politics are inherently emotional (Huddy et al., 2015; Valentino et al., 2011), with feelings of anger widespread in contemporary democracy (Webster et al., 2022). These findings, which shed light on the nuanced consequences and contextual dependencies of partisan anger, deepen understanding of an important antecedent of political behaviour. In doing so, they highlight the need to pay greater attention to context when studying anger and affective polarization. Processes of emotional response and political polarization are interactive, interpersonal and contextually dependent phenomena (Butler, 2017; Butler, 2022). As such, they must be analysed using approaches that recognise these complex interdependencies, as this study demonstrates.

Additionally, this study contributes to the literature on inter-group discussion and affective polarization. First, whilst extant research has focused on the direct effects of inter-group discussion on (reducing) affective polarization (e.g. Levendusky, 2023; Levendusky and Stecula, 2021; Santoro and Broockman, 2022), the findings of this study demonstrate that inter-group discussion can also have a indirect (and complementary) effect by moderating the effect of anger on affective polarization. Second, findings enhance the external generalizability of extant research on intergroup discussion and affective polarization. Much of this research (e.g. Amsalem et al., 2022; Levendusky and Stecula, 2021; Levendusky, 2023) has focused on the US context, which is somewhat distinct in its (increasing) levels of political hostility and division (e.g. Kalmoe and Mason, 2022). Extending research on political discussion and affective polarization to Britain enables a test of existing findings in an alternative political context. Third, the constraint-based mechanism proposed here offers a theoretical contribution to the extant literature on affective polarization and political discussion. Prior research has focused primarily on the direct effects of discussion (e.g. Levendusky, 2023; Rossiter, 2023; Santoro and Broockman, 2022). The indirect mechanism proposed here offers an important conceptual and empirical addition to this field.

The findings of this study also have substantive implications. First, in highlighting the pernicious consequences of homogenous political discussion, relative to cross-party conversation, this study serves as a renewed call to reverse the trends of sorting, social distance and geographic polarization that we are witnessing across many advanced democracies (Brown and Enos, 2021; Hobolt et al., 2021; Mason, 2015; Merkley, 2023). As partisans increasingly sort into distinct groups (Brown and Enos, 2021; Mason, 2015), political preferences become increasingly clustered in specific geographic areas (Jennings and Stoker, 2016; Maxwell, 2019) and the social distance between supporters of opposing parties grows (Robison and Moskowitz, 2019), intergroup contact and diverse political discussion becomes increasingly less likely. The findings of this study suggest that – if these trends continue – the polarizing consequences of anger will only amplify in significance.

It is important to note that the causal claims made in this article are, given the observational data being used to make them, only approximations. Whilst efforts have been taken to rule out alternative mechanisms and factors that might confound the relationship between political discussion type, anger and affective polarization, tests of this relationship that rely upon exogenous variation in political discussion are required to further validate this model. Additionally, the measurement of certain constructs is imperfect. Whilst the party like-dislike scores used in this study have been found to correlate with other indicators of affective polarization such as social distancing (Gidron et al., 2022), more direct measures of partisan animus would paint a more compelling picture of the relationship between anger and affective polarization. Additionally, whilst binary emotions measures have been employed in prior research (e.g. Vasilopoulos, 2018; Vasilopoulos et al., 2018) and I argue that such measures offer a conservative measure of variation in emotion (Bollen & Barb 1981) and are advantageous in offering a clear distinction for respondents (between feeling an emotion and not), replicating the present analysis with more fine-grained measures of emotion (such as those advocated for by Marcus et al. 2017) would strengthen these findings. Finally, the political discussion measure is limited to a maximum of three self-selected acquaintances for each respondent. Whilst this is an approach often employed in the literature on political discussion (e.g. Huckfeldt et al., 2004) and prior research indicates that respondent evaluations of the partisan composition of their networks are accurate (Mutz, 2002a), future research would benefit from a more comprehensive measure of political discussion networks and their heterogeneity, or a more objective means of determining network type.

However, working within the empirical constraints imposed by these limitations, this study – in my view – still presents compelling and robust evidence that inter-group discussion attenuates the polarizing consequences of out-party anger on affective polarization and provides initial support for the argument that variation in levels of social constraint, derived from one's peer network, explains this finding. Experimental tests that exogenously vary constraint, perhaps by raising or lowering the salience of social identities and norms that encourage tolerance, will be required to confirm this model.

5 Conclusion

Western European democracy is faced with a set of pressing questions. Why do voters appear to be growing evermore divided over cultural and moral issues? How can we understand the seemingly intractable political and attitudinal conflicts over pressing societal concerns such as climate change? What explains the increasing tendency of partisans to display dislike – even outright hostility – to those who support opposing parties? This thesis has addressed these and related questions from what I term a multidimensional perspective. Whilst the research contexts and questions have varied, each of the three studies within this project have approached political conflict in contemporary Western Europe by combining an individual-level analysis of the psychological micro-foundations of political attitudes and judgements with a broader, contextual approach in an attempt to understand how accompanying conditions – at the national level or in the individual's immediate social environment – shape individually-specific processes of polarization.

To do so, I have focused on three distinct processes of polarization at the individual level. First, the emergence of attitudinal conflicts (assumed to be) driven by predispositions or worldviews; second, heterogenous responses to threatening events and external stimuli, driven by identity-protective cognition or motivated reasoning; third, the role of anger in driving inter-group hostilities. And yet, despite this broad scope, findings are united by a common theme. Specifically, each empirical study demonstrates that the psychological processes underpinning polarization do not have uniform consequences. Instead, the impact of each of these polarizing factors – predispositions, reasoning and information processing, and anger – varies across individuals. Context, I have argued, hold the key to explaining this variation.

Taking each of these studies (and the psychological factor under examination) in turn helps explain this argument. Chapter 2 demonstrates that interplay of authoritarianism and socio-cultural attitudes appear much more dynamic than has long been assumed, aligning with recent scholarship across a number of national contexts (Bakker et al., 2021; Luttig, 2021; Osborne et al., 2021a). Contextual factors – whether it be the salience of relevant political issues or of politics in general (Bakker et al., 2021), elite cues (Luttig, 2021), or expressive desires to signal one's identity within social environments (Bakker et al., 2021) – have all been posited as an explanation for the observed dynamism of authoritarianism. Chapter 3 builds upon extant research on extreme weather and climate attitudes (e.g. Arias and Blair, 2024; Hazlett and Mildenberger, 2020) by identifying heterogeneities in partisan responses to extreme weather. Specifically, I demonstrate that levels of partisan-ideological sorting explain whether individuals choose to process such an event via partisan processes of identity-protective cognition. Partisan-ideological sorting is both an individual-level and system-level or collective phenomenon (Mason, 2015) – in other words, it is a contextual feature of a political environment – pointing again to the importance of context in understanding processes of polarization. Finally, examining contextual factors more proximate to the individual, chapter four demonstrates that the partisan makeup of an individual's political discussion network shapes the emotional underpinnings of affective polarization. Building upon extant research which has examined the standalone impact of anger on affective polarization (Renström et al., 2023; Webster et al., 2022), I show that the (affectively) polarizing consequences of anger are limited to those who only discuss politics with co-partisans. Thus, the question of whether anger drives inter-partisan hostility is determined, I argue, by the attitudinal diversity of those with whom one regularly discusses politics.

The unifying thread across each study and this thesis as a whole is that context matters for understanding polarization. More broadly, findings illustrate that a multidimensional approach which situates the individual in context holds the potential to reveal previously obscured heterogeneity within processes of attitudinal change, and highlight newfound complexity in the psychological underpinnings of polarization.

Furthermore, each individual study holds a number of important scholarly and substantive implications. The results from chapter two demonstrate that, contrary to long-held assumptions that personality dimensions and worldview beliefs like authoritarianism are stable traits (Ekehammar and Akrami, 2007; Caspi et al., 2005) and causally antecedent to political attitudes (Altemeyer, 1981; Feldman, 2003), changes in immigration preferences actually drive changes in authoritarianism. This central finding acts as a call to reconsider the influence of personality and individual differences on political behaviour. Specifically, in providing evidence of reverse causality, this study highlights the potential endogeneity of personality and political attitudes (Arceneaux et al., 2024). Evidence of endogeneity with regard to authoritarianism – along with that provided by the results of other studies (Bakker et al., 2021; Luttig, 2021; Osborne et al., 2021a) - suggests that the way we study this construct and its implications for politics needs to be reconsidered. There are a number of ways in which this new research agenda could be constituted.

First, authoritarianism research should place greater emphasis on the use of longitudinal and experimental designs, rather than relying upon the cross-sectional designs that have long dominated the literature (e.g. Dunn, 2015; Napier and Jost, 2008; Vasilopoulos and Lachat, 2018). If authoritarianism is a dynamic construct that changes *within* individuals over time, methods better suited to measuring such a construct should take precedence. Furthermore, as the findings of chapter two demonstrate, the observed relationship between authoritarianism and political preferences (and the conclusions we draw) change greatly depending on whether between-person or within-person processes are modelled. A greater focus on within-person designs is thus needed to properly understand authoritarianism as a dynamic construct and to avoid reaching misleading conclusions.

Secondly, authoritarianism research needs to pay greater attention – both conceptually and empirically – to the potential causes of this within-individual variation. One possible avenue – which chapter two begins to explore – is to more closely examine the role of contextual factors and the political information environment in shaping the relationship between personality and preferences (Bakker et al., 2021; Malka et al., 2014). Relatedly, research should examine the potential role of elite cues in driving within-person changes in authoritarianism. If authoritarian shifts among voters can be driven – at least in part – by elite cues (see Luttig, 2021), this suggests that the use of authoritarian communication styles and political rhetoric emphasising hostility toward out-groups (mainly immigrants) by political elites (Levitsky and Ziblatt, 2018; Bartels, 2023) could be driving authoritarian shifts among supportive voters. This possibility represents a radical reconstitution of the assumed process by which political attitudes are formed. The classic model of elite influence on behaviour, *mediated* by political predispositions (Zaller, 1992), potentially becomes a process by which elites *shape* predispositions. Whilst much further research is needed to investigate this possibility further, it holds sizeable implications for contemporary democracy and democratic health. The potentially pernicious impacts of authoritarian political leaders and candidates might encompass more than just the undermining of democratic institutions and the delegitimization of political opponents (Levitsky and Ziblatt, 2018' Bartels, 2023), but in prompting anti-democratic shifts among their supporters. Further testing of this process – across national contexts, and with a more explicit focus on the role of elites – is necessary.

The findings of this chapter, and the recognition that changes in authoritarianism can be driven by changes in policy preferences, also have substantive implications. Specifically, they help to explain the cultural backlash and seemingly rapid entrenchment of moral or value-based political conflict across many Western European democracies in recent years. As conflicts over questions of immigration and cultural diversity have grown more salient and hostile (Norris and Inglehart, 20199; Sobolewska and Ford, 2019) understanding what drives them becomes ever more important. Evidence of reverse causality regarding authoritarianism, which suggests that increasing hostility toward immigrants (and minorities or out-groups more generally) could trigger a broader authoritarian response among sections of mass publics, helps to explain these societal shifts. Furthermore, the proliferation of anti-immigrant, anti-minority rhetoric among far-right politicians (Rooduijn and Akkerman, 2017; Rydgren, 2008) and the mainstreaming of far-right policies and rhetorical appeals by opposing parties and the media (Abou-Chadi and Krause, 2020; Völker and Gonzatti, 2024), by exacerbating hostility toward out-groups, could be contributing to this growing value conflict by pushing certain sections of European populations toward authoritarianism.

Chapter three also has a number of important implications, both for the expanding scholarship on the antecedents of climate change attitudes and attitudinal responses to extreme weather, and more broadly for understanding the origins of partisan conflicts over societal issues. In demonstrating that partisan-ideological sorting appears to determine whether partisans utilise climate-sceptic cues in response to an extreme weather event, findings point to the importance of a previously unexplored moderator of the relationship between extreme weather events and climate attitudes. In tandem, this study has queried the (implicit) assumption – made in much of the extant literature – that partisan responses to extreme weather will be uniform. This is an important finding, as it offers a potential explanation for the inconsistency present in existing research on the attitudinal consequences of extreme weather. Some studies point to experiential learning and attitudinal updating from climate-sceptic partisans in response to extreme weather (e.g. Arias and Blair, 2024; Rüttenauer, 2024; Zanocco et al., 2019), whilst others provide evidence of politically motivated reasoning following the experience of an extreme weather event (e.g. Hazlett and Mildenberger, 2020; Usry et al., 2022). Variation in the strength of partisan-ideological sorting present in these samples provides a potential explanation for the differing conclusions reached by these studies.

More generally, this finding highlights the value of examining individual- and system-level factors that potentially predispose individuals to engage in processes of identity-protective cognition and partisan motivated reasoning. Information processing and decision-making are inherently dynamic, individually-specific and contextually-specific processes (Druckman et al., 2013; Leeper and Slothuus, 2014). Paying greater attention to the influence of these conditioning factors will enable richer understanding of how partisans process information and respond to external stimuli in the political realm. Relatedly, in suggesting that individual-level processes of biased reasoning are influenced by macro-level changes in the composition of electorates, these findings emphasise the way in which political polarization is the product interlocking, interdependent processes across multiple levels of analysis (McCoy et al., 2018). In doing so, the need for a multidimensional approach to analysing polarization is once again underlined.

There are also several substantive implications to be taken from these findings. First, they point to the importance of political processes like partisan-ideological sorting in entrenching and exacerbating the divide over climate change. In doing so, these findings highlight a potential path to climate depolarization and environmental policy reform. Specifically, raising the salience of cross-cutting identities could aid efforts to reach an environmental consensus (as well as providing other depolarizing benefits – see Levendusky, 2023). Climate change and environmental reform are inherently transnational problems. Whilst this makes policy progress complex (Haarstad, 2014), it also raises potential avenues for progress. A problem that requires collective solutions could perhaps facilitate the development of collective, environmentally-oriented identities (e.g. Fielding and Hornsey, 2016). Given that evidence suggests that partisan conflict and hostility can be reduced by raising the salience of alternative, supra-partisan identities (Levendusky, 2023), this could have wider implications for political polarization - although the development of such identities may be hampered by the integration of environmental issues into pre-existing identity-based conflicts (Bliuc et al., 2015; Hornsey et al., 2016).

More broadly, in a world in which mature democracies seem divided over some of the most pressing societal problems, and in which partisan loyalty can at times trump scientific expertise – as the COVID-19 pandemic so concerningly illustrated (Charron et al., 2023; Rodriguez et al., 2022) – understanding the drivers of these processes of identity-protective reasoning and partisan cognition is vitally important. In pointing to partisan-ideological sorting as a potential risk factor in driving motivated reasoning, the findings of this study add to the growing scholarship demonstrating that the sorting of electorates into opposing electoral blocs, divided by ideology and demographic characteristics, has potentially pernicious consequences for democracy (Harteveld, 2021; Mason, 2015).

Chapter four also identifies previously unobserved heterogeneties in processes of polarization. This chapter, which demonstrates that the polarizing consequences of anger are not uniform but instead vary depending on the type of political discussion network that an individual inhabits, reveals newfound nuances in the relationship between anger and out-group hostility. First, underlining the argument made by modern psychological approaches to cognition and emotion that emotion and cognition are dependent on social context and inter-personal dynamics (Butler, 2017; Butler, 2022; Vlasceanu et al., 2018), this study demonstrates the need to study emotions and their attitudinal consequences within the contexts in which they are felt and expressed. In doing so, it acts as a more general call to examine context as a moderator of the relationship between anger and political attitudes, and to pay greater attention to the mechanism – such as contextual variation in social constraint – by which an individual's environment might shape the attitudinal consequences of emotional response.

In other words, these findings emphasise that processes of emotional response and cognition are part of wider, complex systems involving social interaction and other-regarding perceptions (Goldenberg, 2024; Vlasceanu et al., 2018). Understanding the role of anger in affective polarization thus requires recognition of this contextual dependency, and to the best of my knowledge, this study represents the first attempt to do so. As this chapter also demonstrates, paying attention to context also has empirical significance: contextual factors have important consequences for the relationship between anger and affective polarization. A renewed focus on context might thus reveal previously unrecognised nuances to the relationships between emotions and political attitudes and behaviours in other research areas.

Given the increasing geographic polarization of political preferences across many mature democracies (Brown and Enos, 2021; Furlong and Jennings, 2024; Jennings and Stoker, 2016; Maxwell, 2019), the central finding of chapter four – that attitudinal homogeneity in an individual's discussion network has potentially pernicious consequences for polarization and inter-group relations – is a concerning one. If, as evidence indicates, individuals are increasingly residing in politically homogenous localities, in which the people that they interact with on a daily basis share similar views to their own, then the findings of this study suggest that further entrenchment and exacerbation of affective polarization is likely to occur. In tandem, this evidence acts as a further call (see Levendusky and Stecula, 2021; Levendusky, 2023; Santoro and Broockman, 2022) for policymakers and those interested in democratic health to encourage and facilitate the proliferation of cross-cutting interactions in order to help address the affective division that increasingly structures Western European politics (and beyond).

This multidimensional approach has been put to the testbed of empirical assessment using a range of robust analytical strategies. Whilst the precise approach to addressing each research question and study has varied, each chapter has been united by a common underlying approach with several strengths. First, using panel data, I have analysed dynamic processes of polarization in action, tracking individual-level shifts in attitudes over time and the isolating the factors that underpin them. Given evidence that within-person modelling strategies are needed to analyse within-person processes (Brandt and Morgan, 2022), the focus on within-person change running throughout this thesis represents an appropriate empirical strategy. Using panel data has also enabled this research to exploit the great strength of repeated measures of individuals over time: using the individual as their own control in order to rule out the influence of time-invariant confounding factors on the relationships of interest (Allison, 2009). Whilst panel data does not provide a panacea to the issue of unobserved confounding - as no observational research strategy does - it goes a long way to ruling out the influence of confounding factors. Second, by using large-N observational studies to test the relationships and processes of interest, processes of polarization have been examined in the externally generalizable, 'real-world' contexts in which they occur, rather than in experimental environments that simulate these contexts. Relatedly, the large sample sizes involved in these studies provides sufficient statistical power to examine potentially heterogeneous processes of polarization between sub-groups.

No research is without limitations, and the imperfections of this thesis provide a research agenda for further study. Firstly, whilst the use of two national contexts is a strength, future research would benefit from replicating the results of these studies in alternative European democracies, to further enhance the external generalizability of extant findings. Beyond the national contexts studied here, other Western European nations have witnessed the rise of far-right politicians, value conflicts over socio-cultural issues like immigration, and increasing inter-group hostility on the basis of political views (Balcells and Kuo, 2023; Mondon, 2024; Weisskircher, 2020). Examining processes of polarization in these contexts – beyond existing studies – is thus an essential objective. Furthermore, on a more conceptual level, a complex set of interlocking national-level factors have implications for polarization, including elite behaviour (Banda and Cluverius, 2018), party characteristics and inter-party dynamics (Lupu, 2015) and aspects of the political-institutional structure (Gidron et al., 2020). Given the opportunity for between-country variation in processes of polarization that these national-level characteristics imply, extending these analyses to more countries within the Western European context would further strengthen the generalizability of results.

Furthermore, whilst the focus of this thesis has been the Western European context, Central and Eastern Europe has witnessed the rise of authoritarian-populist leaders and parties in recent years who have sought to undermine liberal democracy (Vachudova, 2020). This has occurred most obviously in Hungary and Poland, in which elected governments have pursed strategies of executive aggrandizement in order to undermine and weaken the democratic institutions of their respective countries (Holesch and Kyriazi, 2022). Whilst these two cases have received the most scholarly attention, concerns with democratic quality beset additional countries in Central and Eastern Europe (Cianetti, 2019), highlighting the importance of understanding anti-democratic trends and mass polarization beyond the continent's Western nations. Extending the scope of this research would further enhance the generalizability of these findings and also provide an opportunity to examine how an alternative historical context - the legacy of communist rule - shapes individual-level processes of polarization (as some extant research suggests it does – see Malka et al., 2014; Thorisdottir et al., 2007).

Methodologically, future empirical analysis on this topic would do well to utilise random assignment to examine the drivers of political polarization. Whilst the use of panel data across this thesis goes a long way to addressing concerns with unmeasured confounding, the use of either quasi-random assignment and natural experiments (with observational data) or experimental designs (either in surveys or lab-controlled settings) is required to derive estimates of the impact of polarizing factors, free of confounding influence. Such evidence would not supplant but complement the evidence derived from this thesis, as the combination of large-N observational results alongside experimental findings would provide evidence high in both external and internal validity.

Another related direction for potential future research is the use of longer time frames for analysis. Both socio-structural processes of economic change (Kriesi et al., 2006; Kriesi et al., 2012) and transformations of electorates, parties and political systems (e.g. Lupu, 2015; Mason, 2015) have been identified as contributors to contemporary political conflict. Both of these transformations are long-term processes, taking place over decades. Analytical strategies that make use of longer-term time series to track changes within and across systems and electorates over this larger time scale provide another possible lens through which processes of polarization can be understood, complementary to the shorter-term, within-individual processes of change that constitute the focus of this thesis.

Relatedly, future scholarship would benefit from the use of alternative and more comprehensive measures of the constructs and processes under study. Specifically, replicating the work of chapter 2 on authoritarianism and political attitudes with an alternative measure of authoritarianism (most appropriately the RWA scale: Altemeyer, 1981) would enhance confidence in our conclusions and demonstrate that the findings are not a product of the child-rearing values scale. Regarding chapter 3, the process of (heterogeneous) attitudinal change in response to flood exposure that this study details would be helpfully complemented by the use of laboratory experiments that more directly measure processes of motivated reasoning and/or Bayesian-style attitudinal updating in response to environmental threat. Finally, chapter 4 relies on self-reported emotion measures to test propositions regarding anger, political discussion and affective polarization (as observational research on emotions necessarily does – e.g. Marcus et al., 2000; Vasilopoulos et al., 2019). Replicating these findings in a laboratory setting in which anger could be experimentally induced would strengthen the findings of this study.

On a more general level, much of the quantitative research that approaches contemporary polarization from an identity-based perspective – including this thesis – relies on the use of researcher-imposed identities (via the kinds of survey questions with which identities are measured) or from the inferring of identity-based processes from these questions. Identities are complex and multifaceted, and individuals possess multiple identities which vary in salience, both between individuals and between contexts (Mullen et al., 1992; Roccas and Brewer, 2002). Research that relies on bottom-up processes of conceptualization in which identities are defined by the individuals who possess them (e.g. Zollinger, 2024a) provides a fruitful avenue for research on polarization, and might highlight absences and lacunae that the top-down, researcher-driven process dominating the field has yet to reveal.

All in all, this thesis constitutes the beginning of a process of analytical integration. Political attitudes – at both the individual and collective levels – are the product of numerous interlocking processes across multiple levels of analysis. The multidimensional approach to polarization which I have outlined and tested represents an attempt to recognise (both conceptually and empirically) this complexity, but it is by no means complete. With the trends of polarization and anti-democratic behaviour across Western Europe and the wider democratic world showing no sign of abating, future scholarship would do well to broaden and deepen this integration further, to arrive at both understanding and answers to these concerning phenomena.

Appendices

A Supplementary Materials: Chapter 2

A.1 Preliminary analysis

A.1.1 Panel structure

Table A.1.1 below presents descriptive information regarding the number of waves completed by each respondent. A majority of respondents (57%) participated in multiple waves.

Table A.1.1: Panel Structure

Wave	Frequency	Percentage
Wave 7	1913	15
Wave 14	1895	14
Waves 7, 10, 11 & 14	1805	14
Waves 10, 11 & 14	1029	8
Wave 10	999	8
Waves 7, 10, 11	860	7
Wave 11	802	6
Waves 10 & 11	673	5
Waves 7 & 10	527	4
Other patterns	2584	20

Note: Source: British Election Study Panel

A.1.2 Attrition analysis

Table A.1.2 below presents sample statistics for the study sample used in the random effects models - who participate in at least one wave - and the study sample used in the individual fixed effects models, who participate in at least two waves. As these mean values indicate, those who participate at multiple waves do not differ in any noticeable ways from the larger sample used in the random effects models.

Table A.1.2: Attrition Analysis

Variable	Full sample (random effects models) Mean	Observed more than once (fixed effects models) Mean
Male	0.47	0.48
Age	52.3	54.17
White	0.91	0.92
Non-white	0.09	0.08
Higher education	0.42	0.41
Income		
< £10,000	0.17	0.17
£10,000 - £19,999	0.23	0.23
£20,000 - £29,999	0.18	0.18
£30,000 - £39,999	0.1	0.1
£40,000 - £49,999	0.04	0.04
£50,000 - £69,999	0.03	0.03
£70,000+	0.02	0.02
Dont' know	0.23	0.23
Social grade		
A	0.14	0.14
B	0.19	0.19
C1	0.27	0.26
C2	0.17	0.17
D	0.1	0.1
E	0.12	0.13
Authoritarianism	0.43	0.44
Immigration scale	0.41	0.4
EU integration	0.38	0.37

Note: Source: British Election Study Panel

A.1.3 Measurement error

An observed score for a variable does not perfectly correspond to the true score for the construct being measured. Instead, the measurement of a construct introduces error, or a discrepancy between the true score and observed score (Prior, 2010, Wiley and Wiley, 1970). When estimating RI-CLPMs in *lavaan*, measurement error can be accounted for in the modelling procedure. To do so, we first fit measurement models for our measures of authoritarianism and policy preferences.

We begin with the assumption that a respondent's answer to a survey question, or observed score (X_{it}), is a function of their true or latent score (Y_{it}) plus measurement error (E_{it}):

$$X_{it} = Y_{it} + E_{it} \tag{A.1}$$

The relationship between the true scores over time is assumed to follow a Markovian or lag-1 process (Wiley and Wiley, 1970), meaning that true score values at time t are dependent only on the value of the true score at t_{-1}, plus a disturbance term (Z_{it}).

$$X_{it} = X_{it-1} + Z_{it} \tag{A.2}$$

The inclusion of a disturbance term indicates that the relevant policy preference at t_{-1} does not perfectly predict the same preference at t. For the single indicator policy items, the means of both the error term E_{it} (in equation 1) and disturbance term Z_{it} (in equation 2) are assumed to be zero, and both are assumed to be uncorrelated over time. Further, both the disturbance terms and error terms are assumed to be uncorrelated with the true scores, and with each other.

Making these assumptions, we fit a measurement model for each construct under study in the RI-CLPM procedure: authoritarianism, immigration preferences and support for European integration, with the observed score at t_{-1} predicting the observed score at t. These models provide reliability estimates for the measurement of policy preferences and authoritarianism at each wave. They also provide estimates of the stability of these constructs over time. We report these estimates in table A.1.3 below.

As the authoritarianism model has more free parameters than the policy preference models (due to the presence of multiple indicators for the latent construct), we are able to relax the assumption that the error terms are uncorrelated with each other. As the two models are nested, we conduct a chi-square test to determine whether the model in which the error terms are allowed to correlate fits the data better than the model in which they are assumed to be uncorrelated. Chi-square results indicate that the correlated-errors model best fits the data ($\Delta\chi^2[24] = 1345.9$, $p < 0.001$).

Table A.1.3: Stability and reliability of the study variables

Variable	Stability			Reliability			
	$\beta_{7\text{-}10}$	$\beta_{10\text{-}11}$	$\beta_{11\text{-}14}$	Wave 7	Wave 10	Wave 11	Wave 14
Authoritarianism	1.011	0.975	0.9	0.834	0.858	0.848	0.823
Immigration	1.031	1.024	0.975	0.829	0.845	0.853	0.872
EU integration	0.876	0.898	912	0.888	0.932	0.933	1

Note: Stability estimates refer to autoregressive coefficients from T_{-1} to T. Reliability estimates are ω for the three policy preference items (Hayes and Coutts, 2020) and ordinal α for the authoritarianism measure (in order to account for the binary nature of the individual items: see Zumbo et al., 2007; Zumbo and Kroc, 2019).

To account for measurement error in the RI-CLPMs and CLPMs, we fix the error variance of the each indicator i at time t using the following equation:

$$(1 - \omega_{it}) * var_{it} \tag{A.3}$$

Where ω is the reliability score for each indicator i at time t, and var is the observed variance of indicator i at time t. In doing so, we are able to account for error in the measurement of authoritarianism and policy preferences when estimating the autoregressive and cross-lagged relations between these constructs over time.[1]

A.1.4 Measurement invariance

A related issue is that of measurement invariance. When taking repeated measurements of a latent construct among individuals over time, it is important to determine that the survey items provide a consistent measure of the construct at each time point (Mackinnon et al., 2022; van de Schoot et al., 2012). Establishing this situation - termed measurement invariance - in the current research context provides an indication that observed changes in authoritarianism reflect actual changes in the latent construct rather than representing changes in the way that the respondents are interpreting and answering the child-rearing items over the survey waves.

To test for the measurement invariance of authoritarianism, we estimate a set of RI-CLPMs (using immigration preferences as the outcome variable), imposing new equality constraints on the random intercepts and within-unit components with each model (following the procedure advised by Mulder and Hamaker, 2021). We first estimate a configural model, which provides a baseline for comparison. This is followed by a model testing weak factorial invariance, which determines that authoritarianism factor loadings are stable over time, and finally for strong factorial invariance, which

[1]We recognise that when possessing multiple indicators for a latent construct, as we do for authoritarianism with the child-rearing items, a superior approach is to input these indicators directly into the *lavaan* model when specifying the latent variables. However, we encounter evidence that *lavaan* arrives at improper model solutions when attempting to use this approach, likely because the individual child-rearing items are binary. Consequently, we have to alter the estimation procedure to account for these binary items, using theta parameterization alongside a weighted least squares estimator (WLSMV). As Mulder and Hamaker (2021) note, models estimated in this way frequently suffer from non-identification, as we find to be the case. Consequently we instead adopt the two-step procedure detailed in section 1.3, first fitting measurement models to provide estimates of measurement error, and then inputting these reliability estimates into the RI-CLPMs and CLPMs directly.

tests the assumption that both factor loadings and intercepts for authoritarianism do not vary over time (Little et al., 2007).

Table A.1.4: Model fit comparisons for measurement invariance: Configural, weak factorial invariance and strong factorial invariance

Model	CFI	CFI diff.	RMSEA	SRMR
Configural	0.999	N/A	0.019	0.013
Weak FI	0.999	0.000	0.019	0.013
Strong FI	0.999	0.000	0.019	0.013
Note:	Standard errors in parentheses. *p<0.05; **p<0.01; ***p<0.001. Source: BESP			

To determine whether these assumptions are met, we avoid the chi-square test given its sensitivity to sample size (MacCallum et al., 2006; van de Schoot et al., 2012). Instead, we compare the compare CFI and RMSEA scores of each model (following Cheung and Rensvold, 2002 and Little et al., 2007). According to Cheung and Rensvold (2002), if the difference between the CFI score of a less constrained model and a model with higher-level constraints is less than or equal to -0.01, this indicates that the invariance assumption for the more constrained model has been met. Results of this test (above in table A.1.4) indicate that we can assume strong factorial invariance. Model fit comparisons provide no evidence of a decline in model fit as constraints are imposed, supporting the assumption that changes in observed scores for authoritarianism represent meaningful variation in authoritarianism.

A.1.5 Within-person variation in authoritarianism

Having established that overtime variation in authoritarianism likely reflects changes in the latent construct rather than variance in measurement, we now turn to the question of how much within-person variation in authoritarianism is present in the sample. This is an essential consideration when employing individual fixed effects because at the within-individual level, large amounts of over-time stability in a predictor can produce biased estimates (Clark and Linzer, 2015). To address this potential concern, we examine within-person variation in authoritarianism (over time) within the fixed effects sample. This information is presented below in table A.1.5 and reveals large amounts of within-person variation in authoritarianism, minimising this potential source of bias in the fixed effects estimates.

Table A.1.5: Within-person variation in authoritarianism over time

	Wave 7 to 10		Wave 10 to 11		Wave 11 to 14		Total	
	N	%	*N*	%	*N*	%	*N*	%
Increase	3637	31.79	2811	24.57	3029	26.48	9477	27.61
Stable	4456	38.95	5641	49.31	4585	40.08	14,682	42.78
Decrease	3347	29.26	2988	26.12	3826	33.44	10,161	29.61

Note: The top row corresponds to the number of individuals who report a higher score on the authoritarianism scale at T relative to T_{-1}; the middle row to the number who report the same score at both waves; the bottom row to the number who report a lower score at T relative to T_{-1}

A.2 Random and fixed effects results

Overleaf, we present full model output for the random effects and fixed effects models presented in table 1 and table 2 of the main results. Table A.2.1 reports random effects results for all outcomes, whilst table A.2.2 reports fixed effects results for all outcomes.

Table A.2.1: Authoritarianism, Political Attitudes, and Vote Choice in Great Britain (Random Effects)

Predictor	Immigration attitudes	EU integration	UKIP	Conservative	Labour
Authoritarianism	-0.161*** (0.006)	-0.125*** (0.007)	0.135*** (0.008)	0.129*** (0.009)	-0.089*** (0.008)
Age	-0.003*** (0.000)	-0.005*** (0.000)	0.003*** (0.000)	0.003*** (0.000)	-0.005*** (0.000)
Education (higher)	0.104*** (0.004)	0.099*** (0.006)	-0.104*** (0.007)	-0.043*** (0.008)	0.043*** (0.008)
Ethnicity (white)	-0.083*** (0.008)	-0.07*** (0.01)	0.043*** (0.011)	0.058*** (0.013)	-0.055*** (0.012)
Gender	-0.005 (0.005)	0.011† (0.006)	-0.05*** (0.007)	0.018* (0.008)	0.013 (0.008)
Social grade					
B	-0.004 (0.005)	-0.004 (0.006)	-0.005 (0.008)	-0.009 (0.009)	0.013 (0.009)
C1	-0.011* (0.005)	-0.01* (0.006)	0.009 (0.008)	-0.022* (0.009)	0.007 (0.009)
C2	-0.044*** (0.006)	-0.04*** (0.008)	0.044*** (0.009)	-0.062*** (0.011)	0.012 (0.01)
D	-0.035*** (0.007)	-0.034*** (0.009)	0.037*** (0.01)	-0.045*** (0.012)	0.019† (0.011)
E	-0.04*** (0.007)	-0.047*** (0.008)	0.034** (0.01)	-0.089*** (0.012)	0.028* (0.011)
Income					
£10,000 - £19,999	-0.007 (0.005)	-0.004 (0.006)	0.001 (0.008)	0.018† (0.009)	-0.009 (0.009)
£20,000 - £29,999	-0.005 (0.006)	-0.002 (0.007)	-0.011 (0.009)	0.037*** (0.01)	-0.022* (0.01)
£30,000 - £39,999	-0.004 (0.007)	0.006 (0.008)	0.003 (0.011)	0.063*** (0.012)	-0.02† (0.012)
40,000 - £49,999	-0.005 (0.008)	-0.001 (0.017)	-0.003 (0.013)	0.083*** (0.016)	-0.04** (0.015)
50,000 - £69,999	-0.011 (0.01)	-0.011 (0.013)	-0.008 (0.015)	0.11*** (0.018)	-0.032† (0.017)
£70,000+	-0.005 (0.013)	-0.001 (0.017)	0.015 (0.019)	0.129*** (0.023)	-0.09*** (0.02)
Don't know	-0.028*** (0.006)	-0.022** (0.007)	0.01 (0.009)	0.022* (0.01)	-0.03** (0.009)
Wave 10	0.032*** (0.003)	0.057*** (0.003)	-0.042*** (0.003)	0.042*** (0.004)	-0.036*** (0.004)
Wave 11	0.052 (0.003)	0.076*** (0.004)	-0.062*** (0.003)	0.085*** (0.004)	-0.012*** (0.004)
Wave 14	0.072*** (0.003)	0.1*** (0.003)			
Intercept	0.677*** (0.012)	0.692*** (0.015)	0.117*** (0.016)	0.124*** (0.021)	0.785*** (0.02)
Observations	20,092	21,144	15,796	15,538	15,534
Individuals	10,270	10,647	9009	8885	8887

Note: Entries are coefficients with robust standard errors (in parentheses). p <0.001***, p <0.01**, p <0.5*, p <0.1†. Source: BESP

Table A.2.2: Authoritarianism, Political Attitudes, and Vote Choice in Great Britain (Fixed Effects)

Predictor	Immigration attitudes	EU integration	UKIP	Conservative	Labour
Authoritarianism	-0.021***	-0.007	0.014	0.017	0.016
	(0.006)	(0.007)	(0.01)	(0.012)	(0.01)
Age	0.001	0.008*	0.003	0.000	-0.005
	(0.003)	(0.003)	(0.004)	(0.005)	(0.004)
Social grade					
B	0.002	-0.006	-0.008	0.019†	0.001
	(0.005)	(0.007)	(0.009)	(0.011)	(0.01)
C1	0.001	-0.005	0.005	-0.004	0.005
	(0.006)	(0.007)	(0.009)	(0.011)	(0.01)
C2	-0.009	0.002	0.008	-0.024†	0.007
	(0.006)	(0.008)	(0.011)	(0.014)	(0.012)
D	-0.007	0.004	0.007	0.008	0.002
	(0.008)	(0.009)	(0.013)	(0.015)	(0.014)
E	-0.002	-0.009	-0.02	0.013	-0.017
	(0.008)	(0.009)	(0.013)	(0.015)	(0.014)
Income					
£10,000 - £19,999	-0.002	-0.005	0.002	0.007	-0.015
	(0.006)	(0.007)	(0.01)	(0.012)	(0.011)
£20,000 - £29,999	-0.008	-0.017*	-0.007	0.01	-0.02
	(0.007)	(0.008)	(0.012)	(0.014)	(0.013)
£30,000 - £39,999	-0.006	-0.008	0.013	0.016	-0.004
	(0.008)	(0.01)	(0.014)	(0.017)	(0.015)
40,000 - £49,999	-0.01	-0.02†	0.012	-0.007	-0.004
	(0.01)	(0.012)	(0.017)	(0.021)	(0.019)
50,000 - £69,999	-0.01	-0.025†	-0.005	0.016	0.028
	(0.011)	(0.014)	(0.02)	(0.024)	(0.022)
£70,000+	-0.008	0.012	0.022	-0.027	-0.007
	(0.015)	(0.019)	(0.026)	(0.031)	(0.028)
Don't know	-0.009	-0.004	-0.003	-0.011	0.003
	(0.007)	(0.008)	(0.012)	(0.014)	(0.013)
Wave 10	0.03***	0.047***	-0.037***	0.046***	-0.037***
	(0.003)	(0.004)	(0.004)	(0.005)	(0.004)
Wave 11	0.045***	0.059	-0.06***	0.093***	-0.015**
	(0.004)	(0.005)	(0.005)	(0.006)	(0.006)
Wave 14	0.076	0.078***			
	(0.006)	(0.008)			
Intercept	0.306*	-0.063	0.14	0.369	0.703**
	(0.14)	(0.176)	(0.211)	(0.25)	(0.226)
Observations	23,402	24,612	18,310	18,012	17,999
Individuals	11,560	11,964	10,238	10,097	10,096

Note: Entries are coefficients with robust standard errors (in parentheses).
p <0.001***, p <0.01**, p <0.5*, p <0.1†. Source: BESP

A.3 CLPMs and RI-CLPMs: Preliminary Analysis

A.3.1 Choosing between the CLPM and RI-CLPM

The cross-lagged panel model (CLPM) has long been the traditional means of assessing reverse causation in psychological research. CLPMs involve the concurrent estimation of two equations, with x and y at time t regressed on x and y at $t_{\text{-}1}$ (Finkel, 1995). CLPMs offer the potential for Granger causal inference – if changes in lagged values of x predict changes in current values of y, then x is assumed to cause y (Gujarati and Porter, 2009).

However, Granger causality rests on the assumption that any potential confounding variables are included in the model. Accounting for all potential confounding in the CLPM is difficult, meaning that as an estimation strategy it is vulnerable to omitted variable bias (Hamaker et al., 2015). An additional concern with the CLPM is the inability to separate out between- and within-person processes, which can also bias the parameter estimates of the CLPM when these concurrent processes differ in either direction or magnitude (Berry and Willoughby, 2017b).

By directly addressing these concerns, the RI-CLPM has been posited as an alternative and superior strategy for estimating reciprocal relationships (Hamaker et al., 2015; Mulder and Hamaker, 2021). In the RI-CLPM, observed scores for each variable are decomposed into a random intercept and a latent factor. Through the inclusion of a random intercept, proponents of the RI-CLPM have argued that these models control for time-invariant confounding whilst modelling dynamics of within-individual change (assessed through cross-lagged relations between the latent factors), providing a superior estimation strategy to the CLPM (Hamaker et al., 2015; Mund and Nestler, 2019) with the potential for causal inference (Usami et al., 2019). Consequently, we employ RI-CLPMs to assess the reciprocal relationships between authoritarianism and policy preferences on the within-person level, whilst eliminating potential confounding driven by time-invariant factors.

However, we recognise the argument that the use of CLPMs provides alternative theoretical insight. The CLPM is able to assess between-person relations between variables in a way that the RI-CLPM, which decomposes observed scores into a within-unit component (used for the cross-lagged relations) and a random intercept, cannot (Lüdtke and Robitzsch, 2022; Orth et al., 2020). Estimating CLPMs therefore enables one to understand the nature of between-person effects of authoritarianism on political preferences and vice versa. In addition, the RI-CLPM is not an infallible procedure, with recent evidence pointing to potential concerns with the RI-CLPM as an estimation strategy. Specifically, the ability to control for unmeasured confounding in the RI-CLPM has been questioned (Lüdtke and Robitzsch, 2022), with some findings also suggesting that RI-CLPMs can produce cross-lagged parameter estimates that are downwardly biased (i.e., model parameters that underestimate the magnitude of the true relationship: see Bakker et al., 2021; Leszczensky and Wolbring, 2022). We take steps to address these concerns. First, we check for potential bias in the cross-lagged modelling procedure via lag-2 effects. Recent evidence suggests that presence of lagged effects at t_{-2} can bias RI-CLPM and CLPM parameters (Lüdtke and Robitzsch, 2022). We thus test for the presence of lag-2 effects by estimating CL2PMs, which include cross-lagged and autoregressive effects at t_{-1} and t_{-2}, for the relationship between (a) authoritarianism and immigration attitudes and (b) authoritarianism and support for European integration (table A.3.1). Results indicate the absence of cross-lagged effects at t_{-2}, suggesting that models are not impacted by this potential source of bias.

Table A.3.1: Cross-lagged regression parameters of the relationship between authoritarianism and policy preferences, including t_{-1} and t_{-2} lags

Outcome	**Predictor**	Immigration	EU integration
Wave 10			
Authoritarianism	$\text{Preference}_{t\text{-}1}$	-0.133*** (0.011)	-0.094*** (0.011)
Preference	$\text{Authoritarianism}_{t\text{-}1}$	-0.037*** (0.01)	-0.065*** (0.01)
Wave 11			
Authoritarianism	$\text{Preference}_{t\text{-}1}$	-0.079*** (0.021)	-0.032† (0.018)
	$\text{Preference}_{t\text{-}2}$	-0.014 (0.022)	-0.027 (0.018)
Preference	$\text{Authoritarianism}_{t\text{-}1}$	-0.033* (0.013)	-0.041** (0.013)
	$\text{Authoritarianism}_{t\text{-}2}$	-0.006 (0.014)	-0.012 (0.13)
Wave 14			
Authoritarianism	$\text{Preference}_{t\text{-}1}$	-0.021 (0.026)	-0.069** (0.025)
	$\text{Preference}_{t\text{-}2}$	-0.033 (0.026)	0.044† (0.025)
Preference	$\text{Authoritarianism}_{t\text{-}1}$	-0.03* (0.014)	-0.046 (0.013)
	$\text{Authoritarianism}_{t\text{-}2}$	-0.016 (0.014)	-0.005 (0.013)
Observations	13,085		

Note: Coefficients are standardized. Standard errors in parentheses.
p <0.001***, p <0.01**, p <0.5*, p <0.1†. Source: BESP.

In sum, whilst neither the RI-CLPM or CLPM offer a perfect solution for the estimation of reciprocal effects, we believe that the RI-CLPM presents a more productive avenue for examining the reciprocal relations between authoritarianism and political preferences for two reasons. First, the inclusion of a random intercept accounts for time-invariant influences on the relationship of interest, and thus minimises potential omitted variable bias. Second, the ability to decompose the relationship of interest into between-person and within-person components provides a more readily interpretable and arguably meaningful assessment of the influence of (within-person) changes in authoritarianism on political preferences, and vice-versa. However, given critiques of and potential concerns with the RI-CLPM (e.g. Lüdtke and Robitzsch, 2022; Bakker et al., 2021; Leszczensky and Wolbring, 2022), we also estimate CLPMs as an alternate means of analysing the relationship between authoritarianism and political preferences.

A.3.2 The RI-CLPM and CLPM procedure

To estimate the RI-CLPMs, observed scores for each construct were decomposed into two parts – a random intercept and a latent factor. Specifying a random intercept and modelling the relations between random intercepts accounts for the between-person components of the variables under study. In tandem, the latent factors account for the within-individual components of each variable. For each latent factor, we model the autoregressive relations (i.e., the effect of $X_{t\text{-}1}$ on X_t and $Y_{t\text{-}1}$ on Y_t) and the cross-lagged relations between them (i.e., the effect of $X_{t\text{-}1}$ on Y_t and $Y_{t\text{-}1}$ on X_t). The cross-lagged parameters represent the within unit effects of each construct: for example, the cross-lagged effect of $X_{t\text{-}1}$ on Y_t captures the degree to which a deviation from the individual's expected score for X at $t_{\text{t-1}}$ predicts a deviation in Y at time t. It is the cross-lagged parameters, representing the within-unit effects of authoritarianism on policy preferences and vice versa, that are of central interest in the RI-CLPMs (for a complete overview of the RI-CLPM procedure, see Hamaker et al., 2015; Mulder and Hamaker, 2021).

The conventional cross-lagged panel model differs from the RI-CLPM in a number of ways. Rather than decomposing observed scores into between-unit and within-unit components, the CLPM models autoregressive and cross-lagged relations between the observed scores for each variable. Due to the inclusion of an autoregressive effect, the cross-lagged parameters in this model represent an estimate of the effect of a deviation from the group mean in X at $t_{\text{-1}}$ on the change in Y at time t (Hamaker et al., 2015).

We standardize the observed scores for each variable and the latent variables in order to facilitate comparison between parameters and contextualise effect sizes alongside prior studies. As detailed in section A.1.3, we account for measurement error in authoritarianism and policy preferences by fixing the error variances of each indicator i at time t using the following equation[2]:

$$(1 - \alpha_{it}) * var_{it} \tag{A.4}$$

Following Mund et al. (2021), time-varying controls were modeled by including their observed scores at each wave as wave-specific controls. Whilst an alternative means of including controls is through decomposing each variable into a within- and between-component and modeling a multivariate RI-CLPM, attempting to model time-varying controls in this way led to convergence issues due to the complexity of the models. Consequently, the Mund et al. (2021) approach was used.

A.3.3 Equality constraints and model fit

A final modeling decision pertains to whether the autoregressive and cross-lagged parameters should be constrained to equality over time. To determine this, we fit an RI-CLPM in which the cross-lagged and autoregressive parameters are allowed to vary over time, and then fit a model in which these parameters are constrained to stability over time.

Comparison of model fit is used to determine whether these constraints should be imposed or if the parameters should be allowed to be time-heterogeneous. As the model fit statistics presented in table A.3.3 indicate, there is a negligible depreciation in model fit when stability constraints are imposed on the cross-lagged and autoregressive parameters. Consequently, we report RI-CLPM and CLPM results from the models with stability constraints in the main analysis. Results for models with time-varying effects are presented in section A.4 and A.5 of this document.

[2] To allow models with single-indicators for policy preferences to converge (economic redistribution and EU integration), we have to fix the error variance to 0 at the first timepoint in when estimating RI-CLPMs and CLPMs for these variables.

Table A.3.3: Fit statistics for models with time-varying and stable effects

	RI-CLPM						CLPM					
	Time-varying			Stable			Time-varying			Stable		
Model	CFI	RMSEA	SRMR	CFI	RMSEA	SRMR	CFI	RMSEA	SRMR	CFI	RMSEA	SRMR
Immigration	0.995	0.023	0.06	0.994	0.022	0.061	0.98	0.035	0.09	0.98	0.035	0.09
EU integration	0.994	0.022	0.057	0.993	0.024	0.064	0.979	0.035	0.09	0.978	0.035	0.09

Note: Source: British Election Study Panel

The above table also indicates that across three measures - CFI, SRMR and RMSEA - the RI-CLPMs display good fit to the data (Browne and Cudeck, 1992; Hu and Bentler, 1999b). In contrast, fit statistics indicate that the CLPMs provide inferior fit to the data. The superior fit of the RI-CLPMs provides an additional reason to have greater confidence in the RI-CLPM results over those of the CLPMs and for prioritising the RI-CLPMs in the subsequent analysis.

A.4 RI-CLPM results

A.4.1 Immigration attitudes

Results indicate that t_{-1} pro-immigration attitudes are negatively and significantly associated with authoritarianism (b = -0.047, SE = 0.022, $p < 0.05$). In the reverse direction, t_{-1} authoritarianism is negatively associated with support for immigration (b = -0.026, SE = 0.02, p = 0.202), but does not reach statistical significance.[3]

[3]When we estimate the time-varying covariate model with parameters constrained to equality over time (i.e., the fourth column of table 4.1.1), the variance of both random intercepts is negative and abnormally large (authoritarianism RI_{var} = -479.566, immigration RI_{var} = -1073.031. We thus fix the variance of the random intercepts to the same values as the unconstrained model.

Table A.4.1: Random-intercept cross-lagged regression parameters of the relationship between authoritarianism and attitudes to immigration

Outcome	**Predictor**	Time varying	Time-invariant
Wave 10			
Authoritarianism	$\text{Immigration}_{t\text{-}1}$	-0.111* (0.048)	-0.047* (0.022)
Immigration	$\text{Authoritarianism}_{t\text{-}1}$	0.018 (0.032)	-0.026 (0.02)
Wave 11			
Authoritarianism	$\text{Immigration}_{t\text{-}1}$	-0.064 (0.048)	-0.047* (0.022)
Immigration	$\text{Authoritarianism}_{t\text{-}1}$	-0.068* (0.032)	-0.026 (0.02)
Wave 14			
Authoritarianism	$\text{Immigration}_{t\text{-}1}$	-0.063 (0.043)	-0.047* (0.022)
Immigration	$\text{Authoritarianism}_{t\text{-}1}$	-0.052† (0.031)	-0.026 (0.02)
Observations		13,085	
Note:	Standard errors in parentheses. p <0.001***, p <0.01**, p <0.05*, p <0.1†. Source: British Election Study Panel		

A.4.2 EU attitudes

Results suggest that authoritarianism is unrelated to EU attitudes when accounting for potential confounding via the inclusion of individual fixed effects. However, we recognise that individual fixed effects do not offer a panacea for the assessment of relations between variables (Clark and Linzer, 2015). Consequently, we further probe the relationship between authoritarianism and attitudes to the EU by fitting RI-CLPM models.

We find evidence in support of a relationship between authoritarianism and attitudes to EU integration. Results indicate that authoritarianism at t_{-1} is a negative and significant predictor of EU attitudes (b = -0.068, SE = 0.018, $p < 0.001$). In the reverse direction, pro-EU attitudes at t_{-1} are negatively and significantly associated with authoritarianism (b= -0.051, SE = 0.018, $p < 0.01$).[4] In sum, results suggest

[4] As with immigration, when estimating the covariate model with parameters constrained to stability over time, the variance of the random intercepts estimated as negative and abnormally large (var = -57.949 for authoritarianism; var = -1337.444 for EU integra-

that authoritarianism shapes attitudes to European integration, and vice versa.

Table A.4.2: Random-intercept cross-lagged regression parameters of the relationship between authoritarianism and attitudes to EU integration

Outcome	**Predictor**	Time-varying	Time-invariant
Wave 10			
Authoritarianism	EU integration$_{t-1}$	-0.021 (0.037)	-0.051** (0.018)
EU integration	Authoritarianism$_{t-1}$	-0.03 (0.035)	-0.068*** (0.018)
Wave 11			
Authoritarianism	EU integration$_{t-1}$	-0.085 (0.056)	-0.051** (0.018)
EU integration	Authoritarianism$_{t-1}$	-0.08* (0.026)	-0.068*** (0.018)
Wave 14			
Authoritarianism	EU integration$_{t-1}$	-0.19*** (0.04)	-0.051** (0.018)
EU integration	Authoritarianism$_{t-1}$	-0.107*** (0.03)	-0.068*** (0.018)
Observations		13,085	

Note: Standard errors in parentheses. p <0.001***, p <0.01**, p <0.05*, p <0.1†. Source: British Election Study Panel

A.5 CLPM results

A.5.1 Immigration attitudes

Results from the RI-CLPM models provide further evidence for a relationship between authoritarianism and immigration preferences and suggest that this association is driven by immigration preferences on authoritarianism. We now turn to CLPMs.

Whilst recent evaluations argue for the superiority of the RI-CLPM over the traditional CLPM for the assessment of reciprocal effects (see Hamaker et al., 2015; Berry and Willoughby, 2017b; Usami et al., 2019), we recognise critiques of the RI-CLPM. Importantly, recent evidence identifies the potential issue of downward bias in

tion preferences). To address this issue, we constrain the variance of the random intercepts in the model with time-invariant parameters to the same values as in the model with time-varying parameters.

RI-CLPM estimates (Bakker et al., 2021; Leszczensky and Wolbring, 2022), meaning that our RI-CLPM results may downplay the true relations between authoritarianism and policy preferences. Consequently, we estimate CLPMs to further probe the relationship between authoritarianism and immigration preferences.

As the traditional CLPM does not include a random intercept and thus does not automatically account for time-invariant confounding, we include all socio-demographic covariates as controls: age, gender, education, ethnicity, social grade, and income. Again, we impose stability constraints as fit comparisons indicate that doing so has no depreciating impact on model fit (see table A.3.3, this document). Results indicate that $T_{\text{-}1}$ authoritarianism is negatively and significantly associated with support for immigration, approaching a large effect (b = -0.1, SE = 0.005, p < 0.001). In the other direction, authoritarianism at $T_{\text{-}1}$ is negatively and significantly associated with support for immigration (b = -0.049, SE = 0.004, p < 0.001), although this only constitutes a small effect.

Table A.5.1: Cross-lagged regression parameters of the relationship between authoritarianism and attitudes to immigration

Outcome	**Predictor**	Time-varying	Time-invariant
Wave 10			
Authoritarianism	Immigration$_{t\text{-}1}$	-0.109*** (0.012)	-0.1*** (0.005)
Immigration	Authoritarianism$_{t\text{-}1}$	-0.025* (0.01)	-0.049*** (0.004)
Wave 11			
Authoritarianism	Immigration$_{t\text{-}1}$	-0.102*** (0.011)	-0.1*** (0.005)
Immigration	Authoritarianism$_{t\text{-}1}$	-0.063***(0.009)	-0.049*** (0.004)
Wave 14			
Authoritarianism	Immigration$_{t\text{-}1}$	-0.089*** (0.012)	-0.1*** (0.005)
Immigration	Authoritarianism$_{t\text{-}1}$	-0.056*** (0.01)	-0.049*** (0.004)
Observations		13,085	
Note:	Standard errors in parentheses. p <0.001***, p <0.01**, p <0.05*, p <0.1†. Source: British Election Study Panel		

A.5.2 EU attitudes

Regarding attitudes to the EU, results indicate that lagged authoritarianism is negatively and significantly associated with support for integration with the EU (b = -0.055, SE = 0.005, $p < 0.001$). In addition, lagged EU attitudes are negatively and significantly associated with authoritarianism (b = -0.068, SE = 0.005, $p < 0.001$). Both cross-lagged paths represent medium-sized effects (Orth et al., 2020).

Table A.5.2: Cross-lagged regression parameters of the relationship between authoritarianism and attitudes to EU integration across baseline and time-varying covariate models

Outcome	**Predictor**	Time-varying	Time-invariant
Wave 10			
Authoritarianism	EU integration$_{t-1}$	-0.081*** (0.011)	-0.068*** (0.005)
EU integration	Authoritarianism$_{t-1}$	-0.052*** (0.01)	-0.055*** (0.005)
Wave 11			
Authoritarianism	EU integration$_{t-1}$	-0.054*** (0.01)	-0.068*** (0.005)
EU integration	Authoritarianism$_{t-1}$	-0.051*** (0.008)	-0.055*** (0.005)
Wave 14			
Authoritarianism	EU integration$_{t-1}$	-0.069*** (0.011)	-0.068*** (0.005)
EU integration	Authoritarianism$_{t-1}$	-0.056*** (0.009)	-0.055*** (0.005)
Observations		13,085	

Note: Standard errors in parentheses. p <0.001***, p <0.01**, p <0.05*, p <0.1†. Source: British Election Study Panel

A.6 Moderation analysis: Political engagement and the information environment

A.6.1 Between-person estimates

In a first set of models, we assess whether political engagement moderates the between-person relationship of authoritarianism and political attitudes. In other words, we assess whether the relationship between authoritarianism and attitudes is stronger among engaged individuals than among less-engaged individuals. We do so using two approaches - random effects regression models and CLPMs.

Random effects

Turning first to opposition to immigration, results indicate that the interaction of authoritarianism and engagement is negative and highly significant (b = -0.101, SE = 0.02, p < 0.001). Probing this interaction further with marginal effects, results indicate that at low levels of political engagement (1 SD below the mean), authoritarianism is negatively and significantly associated with political engagement (b = -0.128, SE = 0.008, p < 0.001). At high levels of political engagement (1 SD above the mean), authoritarianism is again negatively and significantly associated with political engagement, but at a greater magnitude (b = -0.179, SE = 0.007, p < 0.001).

Regarding EU integration attitudes, the interaction term of authoritarianism and political engagement is negative and highly significant (b = -0.159, SE = 0.029, p = 0.001). Probing this interaction via marginal effects, results indicate that authoritarianism is negatively associated with support for EU integration at both low levels of political engagement (b = -0.081, SE = 0.011, p < 0.001) and at high levels (b = -0.16, SE = 0.009, p < 0.001). As with immigration preferences, the magnitude of this relationship is greater at high levels of political engagement, suggesting that engagement amplifies the potential influence of authoritarianism on EU preferences as well as immigration preferences.

Finally, results from the PTV score models indicate that political engagement moderates the relationship between authoritarianism and the propensity to vote for all three parties. Marginal effects results reveal that at high levels of engagement, authoritarianism is positively and significantly associated with support for UKIP (b

= 0.17, *SE* = 0.011, $p < 0.001$) and support for the Conservative Party ($b = 0.19$, *SE* = 0.01, $p < 0.001$), as well as being negatively associated with support for the Labour Party (b = -0.11, *SE* = 0.01, $p < 0.001$). At low levels of engagement (1 *SD* below the mean), authoritarianism is again positively and significantly associated with both support for UKIP ($b = 0.11$, *SE* = 0.01, $p < 0.001$) and the Conservatives ($b = 0.05$, *SE* = 0.01, $p < 0.01$), and again negatively associated with support for the Labour Party (b = -0.05, *SE* = 0.01, $p < 0.001$). As with policy preferences, the magnitude of each coefficient is significantly larger for highly engaged individuals. Taken together, these results suggest that politically engaged respondents are better able to adopt political preferences that align with their dispositional characteristics, with engaged authoritarians displaying greater opposition to immigration and European intergation, along with greater support for parties of the right and reduced support for Labour (a party of the center-left).

Table A.6.1a: Random effects regression of political attitudes on authoritarianism, moderated by political engagement

Predictor	Allow more immigrants	EU integration	UKIP PTV	Conservative PTV	Labour PTV
Authoritarianism	-0.085*** (0.015)	-0.014 (0.022)	0.055* (0.024)	-0.071* (0.029)	-0.008 (0.026)
Engagement	0.153*** (0.013)	0.105*** (0.017)	0.007 (0.018)	-0.143*** (0.023)	0.117*** (0.024)
Authoritarianism* engagement	-0.101*** (0.021)	-0.159*** (0.029)	0.12*** (0.033)	0.283*** (0.038)	-0.108*** (0.036)
Age	-0.003*** (0.000)	-0.005 (0.000)	0.002*** (0.000)	0.003*** (0.000)	-0.005*** (0.000)
Education (higher)	0.098*** (0.004)	0.097*** (0.006)	-0.107*** (0.007)	-0.041*** (0.009)	0.04*** (0.008)
Ethnicity (white)	-0.083*** (0.008)	-0.07*** (0.01)	0.04*** (0.01)	0.058*** (0.013)	-0.055*** (0.013)
Gender	0.004 (0.005)	0.015* (0.006)	-0.044*** (0.007)	0.017* (0.008)	0.019* (0.008)
Social grade					
B	-0.003 (0.005)	-0.003 (0.006)	-0.005 (0.008)	-0.01 (0.009)	0.013 (0.008)
C1	-0.008 (0.005)	-0.012† (0.006)	0.01 (0.008)	-0.023* (0.01)	0.009 (0.008)
C2	-0.041*** (0.006)	-0.04*** (0.009)	0.045*** (0.009)	-0.064*** (0.011)	0.014 (0.01)
D	-0.031*** (0.007)	-0.032*** (0.009)	0.04*** (0.011)	-0.046** (0.013)	0.021† (0.011)
E	-0.037*** (0.007)	-0.046*** (0.008)	0.037** (0.011)	-0.089*** (0.013)	0.03* (0.013)
Income					
£10,000 - £19,999	-0.007 (0.005)	-0.003 (0.006)	0.000 (0.008)	0.017† (0.01)	-0.009 (0.009)
£20,000 - £29,999	-0.005 (0.006)	-0.001 (0.007)	-0.012 (0.009)	0.036** (0.011)	-0.022* (0.01)
£30,000 - £39,999	-0.004 (0.007)	0.006 (0.009)	0.002 (0.01)	0.062** (0.013)	-0.02† (0.012)
40,000 - £49,999	-0.005 (0.008)	-0.000 (0.011)	-0.004 (0.013)	0.083*** (0.015)	-0.041** (0.015)
50,000 - £69,999	-0.011 (0.01)	-0.012 (0.013)	-0.008 (0.015)	0.114*** (0.024)	-0.032† (0.018)
£70,000+	-0.008 (0.013)	-0.003 (0.017)	0.015 (0.02)	0.133*** (0.024)	-0.095*** (0.02)
Don't know	-0.027*** (0.006)	-0.021** (0.007)	0.01 (0.009)	0.02* (0.011)	-0.032** (0.01)
Wave 10	0.034*** (0.003)	0.057*** (0.003)	-0.042*** (0.004)	0.042*** (0.004)	-0.036*** (0.004)
Wave 11	0.052*** (0.003)	0.076*** (0.004)	-0.063*** (0.004)	0.085*** (0.004)	-0.013** (0.004)
Wave 14	0.074*** (0.003)	0.1*** (0.004)			
Intercept	0.571*** (0.015)	0.618*** (0.02)	0.114*** (0.02)	0.229*** (0.027)	0.701*** (0.026)
Observations	20,073	21,119	15,781	15,520	15,517
Individuals	10,264	10,639	9004	8877	8881

Note: Entries are coefficients with robust standard errors (in parentheses). p <0.001***, p <0.01**, p <0.05*, p <0.1†. Source: British Election Study Panel

Multiple-group CLPMs

Next, we fit multiple-group CLPMs to assess whether the relationship between authoritarianism and attitudes to either immigration or the EU are moderated by engagement. Here, we follow the procedure outlined by Mulder and Hamaker (2021). First, we divide the sample into two groups: highly engaged citizens (those above the median value for political engagement) and low engaged citizens (those below the median value for political engagement). Doing so leaves us with groups of 5595 highly-engaged individuals and 4745 in the low-engagement group. Then, for each outcome, we fit a multiple group CLPM in which the model parameters for each group are allowed to differ, followed by a multiple group CLPM in which the model parameters for the two groups are constrained to equality. As the two models are nested, conducting a χ^2 test of differences allows us to assess whether the unconstrained model fits the data better than the constrained model, and thus determine whether the cross-lagged and autoregressive parameters for highly engaged respondents differ from low-engaged respondents.

Turning first to immigration preferences, results from the chi-square difference test indicate that the unconstrained model offers significantly better fit to the data ($\Delta\chi^2[12] = 31.61$, $p < 0.01$), suggesting that cross-lagged effects differ between the engaged and less-engaged. Consequently, we examine differences between the two groups. To ease comparison of the two groups, we constrain the cross-lagged effects to stability over time.[5] Results are presented below in table A.6.1b.

[5] Model comparisons indicate that imposing stability constraints has little impact on model fit. For high engagement, the unconstrained model: AIC = 183862.004; CFI = 0.971; RMSEA = 0.043; SRMR = 0.087. For the constrained model: AIC = 183907.886; CFI = 0.971; RMSEA = 0.043; SRMR = 0.087. For low engagement, the unconstrained model: Low engagement, unconstrained: AIC = 138671.369; CFI = 0.98; RMSEA = 0.033; SRMR = 0.094. For the constrained model: AIC = 138691.011; CFI = 0.98; RMSEA = 0.033; SRMR = 0.095

Table A.6.1b: Multiple-group cross-lagged regression parameters of the relationship between authoritarianism and attitudes to immigration across respondents high and low in political engagement

Outcome	Predictor	High engagement	Low engagement
Authoritarianism	$\text{Immigration}_{t\text{-}1}$	-0.102*** (0.008)	-0.088*** (0.001)
Immigration	$\text{Authoritarianism}_{t\text{-}1}$	-0.046*** (0.006)	-0.048*** (0.009)
Note:	Standard errors in parentheses. p <0.001***, p <0.01**, p <0.05*, p <0.1†. Source: British Election Study Panel		

Results from these models indicate that among the politically engaged, authoritarianism at $t_{\text{-}1}$ is negatively and significantly associated with support for immigration (b = -0.046, SE = 0.006, p < 0.001). For those low in political engagement, $t_{\text{-}1}$ authoritarianism is again negatively and significantly associated with support for immigration (b = -0.048, SE = 0.009, p < 0.001). In the reverse direction, among the politically engaged, immigration preferences at $t_{\text{-}1}$ are negatively and significantly associated with authoritarianism at t (b = -0.102, SE = 0.008, p < 0.001). Among the less engaged, $t_{\text{-}1}$ immigration preferences are also negatively and significantly associated with authoritarianism (b = -0.088, SE = 0.01, p < 0.001). As these results indicate, the size of the cross-lagged effects are broadly similar for those high and low in political engagement, suggesting that engagement does not moderate the relationship between authoritarianism and immigration preferences.

Turning next to EU attitudes, we again begin by fitting a multiple-group CLPM with unconstrained differences. We then fit a model in which the two groups are constrained to equality. Results from the chi-square difference test indicate that the unconstrained model offers significantly better fit to the data ($\Delta\chi^2[12] = 57.29$, $p < 0.001$), suggesting that cross-lagged effects differ between the engaged and less-engaged. In table A.6.1c, we present the cross-lagged effects of the relationship between authoritarianism and attitudes to EU integration for respondents both high and low in political engagement. Again, we constrain the cross-lagged effects to stability over time.[6]

Table A.6.1c: Multiple-group cross-lagged regression parameters of the relationship between authoritarianism and EU attitudes across respondents high and low in political engagement

Outcome	**Predictor**	High engagement	Low engagement
Authoritarianism	EU attitudes$_{t\text{-}1}$	-0.085*** (0.007)	-0.045*** (0.009)
EU attitudes	Authoritarianism$_{t\text{-}1}$	-0.058*** (0.006)	-0.043*** (0.008)
Note:	Standard errors in parentheses. p <0.001***, p <0.01**, p <0.05*, p <0.1†. Source: British Election Study Panel		

Results show that among the politically engaged, authoritarianism at $t_{\text{-}1}$ is negatively and significantly associated with support for EU integration (b = -0.058, SE = 0.006, p $<$ 0.001). Among the less politically engaged, $t_{\text{-}1}$ authoritarianism is again negatively and significantly associated with EU integration support (b = -0.043, SE = 0.008, p $<$ 0.001). In the reverse direction, among the politically engaged, support for EU integration at $t_{\text{-}1}$ is negatively and significantly associated with authoritarianism at t (b = -0.085, SE = 0.007, p $<$ 0.001). For those low in political engagement, $t_{\text{-}1}$ support for EU integration is also negatively and significantly associated with authoritarianism (b = -0.045, SE = 0.009, p $<$ 0.001). Comparing effect sizes, it appears that the cross-lagged effect of EU attitudes on authoritarianism is larger among the politically engaged. However, the cross-lagged effects in the reverse direction are similar in size for both high-engaged and low-engaged respondents.

Summary

Taking the results of the random effects models and multiple-group CLPMs together, results suggest that political engagement amplifies the relationship between author-

[6]Model comparisons indicate that imposing stability constraints has little impact on model fit. For high engagement, the unconstrained model: AIC = 185432.045; CFI = 0.971; RMSEA = 0.043; SRMR = 0.087. For the constrained model: AIC = 185568.195; CFI = 0.97; RMSEA = 0.043; SRMR = 0.088. For low engagement, the unconstrained model: AIC = 141245.976; CFI = 0.98; RMSEA = 0.034; SRMR = 0.094. For the constrained model: AIC = 141302.346; CFI = 0.979; RMSEA = 0.034; SRMR = 0.094.

itarianism and social attitudes. Results from the EU attitudes CLPM interestingly suggest that engagement particularly amplifies the path from EU attitudes to authoritarianism, which fits with the idea that this relationship may be driven by expressive motivations (Bakker et al., 2021.

A.6.2 Within-person estimates

The results from the random effects models and CLPMs suggest that among the politically engaged, the relationship between authoritarianism and attitudes is stronger than among the less engaged. In other words, engaged authoritarians are more opposed to immigration, the EU and the Labour Party, and more supportive of the Conservatives and UKIP. Whilst the results are informative, the process by which engagement is assumed to amplify the relationship between authoritarianism and social attitudes is a within-person one, with engaged individuals using elite cues to match their policy preferences with their political dispositions. As such, a more appropriate test of this relationship is to use models that directly measure within-person dynamics. Consequently, we fit hybrid models and multiple-group RI-CLPMs, to assess whether the within-person effect of authoritarianism (and potentially of attitudes on authoritarianism) is moderated by engagement.

Hybrid models

We begin with hybrid models. Hybrid models (or random effects within-between models) provide estimates of time-varying predictors, net of individual heterogeneity, whilst retaining the capacity to estimate the effect of stable covariates (Bell et al., 2019). Effectively, these models enable us to assess the impact of within-person changes in authoritarianism on political attitudes, and whether this effect varies with political engagement. This approach is superior to an individual fixed effects approach as it enables a direct estimate of the between-person effect of engagement, which is important as we are interested in differences *between* those high and low in engagement, rather than the within-person effects of changes in engagement over time.

In functional terms, the hybrid model is a random effects model in which the time-varying predictors of interest are decomposed into a person-centred score, which corresponds to the within-person effect of the variable of interest, and an individual-level mean which captures the time-invariant component of the variable of interest (and thus corresponds to the between-person effect). By including the interaction term of political engagement and the person-centred authoritarianism scores (for each individual), we can assess whether the within-person effect of authoritarianism on support for economic redistribution varies with political engagement.

Results are presented below in table A.6.1. Across all five outcomes, the interaction term of the within-person effect of authoritarianism and political engagement is non-significant. Results thus indicate that whilst between-person differences exist between authoritarians high and low in political engagement, the within-person effects of authoritarianism on political preferences are not conditioned by engagement.

Table A.6.1: Random effects within-between regression of political attitudes on authoritarianism, moderated by political engagement

Predictor	Allow more immigrants	EU integration	UKIP PTV	Conservative PTV	Labour PTV
WP Authoritarianism	-0.017 (0.024)	0.022 (0.038)	0.35 (0.039)	-0.04 (0.047)	0.031 (0.042)
BP Authoritarianism	-0.344*** (0.008)	-0.289*** (0.01)	0.294*** (0.011)	0.259*** (0.014)	-0.21*** (0.013)
Engagement	0.082*** (0.008)	0.01 (0.011)	0.087*** (0.014)	0.014 (0.016)	0.047** (0.015)
WP Authoritarianism* engagement	-0.01 (0.03)	-0.038 (0.051)	-0.034 (0.053)	0.089 (0.064)	-0.026 (0.058)
Age	-0.003*** (0.000)	-0.005 (0.000)	0.002*** (0.000)	0.003*** (0.000)	-0.005*** (0.000)
Education (higher)	0.074*** (0.005)	0.077*** (0.006)	-0.088*** (0.007)	-0.026** (0.009)	0.024** (0.008)
Ethnicity (white)	-0.088*** (0.008)	-0.074*** (0.01)	0.05*** (0.01)	0.062*** (0.013)	-0.058*** (0.013)
Gender	-0.003 (0.003)	0.008 (0.006)	-0.038*** (0.007)	0.023** (0.008)	0.014† (0.008)
Social grade					
B	-0.001 (0.005)	-0.002 (0.006)	-0.007 (0.008)	-0.01 (0.009)	0.015† (0.008)
C1	-0.007 (0.005)	-0.012† (0.006)	0.008 (0.008)	-0.024* (0.01)	0.01 (0.008)
C2	-0.035*** (0.006)	-0.035*** (0.007)	0.039*** (0.009)	-0.068*** (0.011)	0.019† (0.01)
D	-0.024*** (0.007)	-0.027** (0.009)	0.032*** (0.011)	-0.051** (0.013)	0.027* (0.011)
E	-0.029*** (0.007)	-0.04*** (0.008)	0.03** (0.011)	-0.094*** (0.013)	0.035* (0.013)
Income					
£10,000 - £19,999	-0.004 (0.005)	-0.000 (0.006)	-0.002 (0.008)	0.015 (0.01)	-0.007 (0.009)
£20,000 - £29,999	-0.003 (0.006)	-0.000 (0.007)	-0.013 (0.009)	0.036** (0.011)	-0.022* (0.01)
£30,000 - £39,999	-0.003 (0.007)	0.009 (0.008)	-0.001 (0.01)	0.06*** (0.012)	-0.018 (0.012)
40,000 - £49,999	-0.008 (0.008)	-0.002 (0.011)	-0.004 (0.013)	0.083*** (0.015)	-0.041 (0.015)
50,000 - £69,999	-0.016 (0.01)	-0.014 (0.012)	-0.005 (0.015)	0.115*** (0.018)	-0.035† (0.018)
£70,000+	-0.011 (0.013)	-0.004 (0.017)	0.015 (0.02)	0.131*** (0.024)	-0.096*** (0.02)
Don't know	-0.025*** (0.005)	-0.018** (0.007)	0.007 (0.009)	0.02† (0.011)	-0.029** (0.009)
Wave 10	0.034*** (0.003)	0.057*** (0.003)	-0.042*** (0.004)	0.04*** (0.004)	-0.036*** (0.004)
Wave 11	0.05*** (0.003)	0.075*** (0.004)	-0.061*** (0.004)	0.086*** (0.004)	-0.014** (0.004)
Wave 14	0.08*** (0.003)	0.106*** (0.004)			
Intercept	0.692*** (0.013)	0.747*** (0.017)	-0.001 (0.019)	0.065** (0.024)	0.8*** (0.022)
Observations	20,073	21,119	15,781	15,520	15,517
Individuals	10,264	10,639	9004	8877	8881

Note: Entries are coefficients with robust standard errors (in parentheses). p <0.001***, p <0.01**, p <0.05*, p <0.1†. Source: British Election Study Panel

Multiple group RI-CLPMs

Next, we fit multiple group RI-CLPMs. This allows us to assess whether engagement moderates the within-person relations between authoritarianism and social attitudes in a specific direction. We again follow the multiple-group procedure outlined by Mulder & Hamaker 2021.

Turning first to immigration preferences, the chi-squared difference test indicates that the unconstrained model - in which cross-lagged and autoregressive effects for high and low engaged respondents are allowed to differ - fits the data no better than the model in which these effects are constrained to equality ($\Delta\chi^2[12] = 16.337$, $p = 0.17$). Implementing the same test for EU attitudes, results again indicate that model fit for the unconstrained model is no better than the constrained model ($\Delta\chi^2[12] = 14.131$, $p = 0.292$). This test therefore suggests that the reciprocal within-person relationships between authoritarianism and immigration preferences, and authoritarianism and EU attitudes, are not moderated by political engagement.

In the immigration model, the covariance of the random intercepts for highly engaged respondents (RI_{cov} = -0.465, SE = 0.013, $p < 0.001$) is significantly larger than for respondents low in political engagement (RI_{cov} = -0.305, SE = 0.014, $p < 0.001$). In the EU attitudes model, the same pattern emerges, with the covariance of the random intercepts for engaged respondents (RI_{cov} = -0.386, SE = 0.013, $p < 0.001$) larger than for less engaged individuals (RI_{cov} = -0.191, SE = 0.014, $p < 0.001$). Given that the random intercepts capture the between-person association between the constructs under study, these differences provide further evidence that the between-person relations of authoritarianism and social attitudes are amplified by political engagement.

B

Supplementary Materials: Chapter 3

B.1 Preliminary analysis

B.1.1 Sample comparisons

Table B.1.1: Sample comparisons of study sample and full sample

Variable	Study sample	Full sample	Variable	Study sample	Full sample
Fossil fuels			Education		
Strongly disagree	5.36	5.63	*None/ elementary school*	7.95	7.2
Disagree	9.54	9.03	*Upper secondary*	27.25	30.52
Disagree somewhat	9.49	9.2	*University/college*	64.79	62.28
Neither agree nor disagree	13.68	14.5	Income		
Agree somewhat	11.77	11.95	*<150,000*	2.97	6.95
Agree	17.02	17.78	*150,000-300,000*	13.94	12.77
Strongly agree	33.14	31.91	*300,001-400,000*	16.44	15.55
Climate concern			*400,001-500,000*	19.46	18.69
Not at all concerned	3.5	3.7	*500,001-600,000*	16.44	17.18
Not very concerned	16.6	14.95	*600,001-700,000*	11.72	11.03
Slightly concerned	38.87	33.74	*700,001-1,000,000*	12.94	12.18
Very concerned	31.02	32.66	*> 1,000,000*	6.1	5.65
Extremely concerned	10.02	14.95	Party ID		
Ideology	0.5	0.49	*Christian Democrats*	3.39	3.49
Age			*Conservative Party*	26.25	23.32
29 or younger	4.88	9.01	*Progress Party*	9.28	8.63
30-39	9.33	11.8	*Liberal Party*	3.34	4.22
40-49	16.12	16.01	*Socialist Left*	8.27	9.05
50-59	19.51	21.17	*Centre Party*	11.13	10.11
60-69	27.15	23.01	*Green Party*	3.82	4.52
70-79	19.45	16.22	*Labur Party*	20.25	22.04
80+	3.61	2.79	*Red Party*	5.89	5.18
Gender			*Would not vote*	1.8	2.25
Male	52.7	50.81	*Would cast a blank vote*	2.07	2.58
Female	47.3	49.19	*Not entitled to vote*	2.49	2.72
Observations	1886	16,229	Observations	1886	16,229

As this comparison of means indicates, the study sample and the total sample correspond closely on most variables. However, on average the study sample is somewhat less concerned about climate change than the total sample, with a larger proportion of younger and lower income respondents. I argue these differences do not undermine the validity of estimates. The difference in climate change concern between study sample and total sample is unproblematic, as I am investigating individual-level changes in this variable over time. It is the individual-level variance of this measure that is central to my analysis, not aggregate-level differences. Whilst demographic differences mean that findings should be generalised to the Norwegian context with caution, the sample size enables a comparison of different partisan groups – the core aim of this study.

B.1.2 Cross-national comparisons of partisan sorting over climate change

To calculate partisan sorting over climate change, I utilise data from the Environment IV module of the International Social Survey Programme, collected between 2020 and 2023. This is a cross-national dataset across 28 countries and made up of over 40,000 respondents, containing detailed information on environmental attitudes. I limit the sample to EU and G7 countries, leaving a sample of 17 countries and 26,196 respondents. To calculate partisan sorting over climate change, I calculate the association between party identification (assessed using self-reported vote choice at the most recent national election) and two climate attitudes: climate change belief and climate change concern. As both party identification and the climate attitude variables are categorical, I calculate Cramer's V scores (an approach used in prior research to assess sorting: see Harteveld, 2021). Calculating a specific Cramer's V score for belief and concern provides an estimate of the association between party identification and each climate attitude - the stronger the association, the more that particular party identities are associated with particular climate beliefs, indicating that partisans have sorted along climate positions. Calculating an average across these two scores provides an estimate of partisan sorting in each country, presented below in table B.1.2.

Table B.1.2: Partisan sorting over climate change: Cramer's V scores

Country	Cramer's V: Climate belief	Cramer's V: Climate concern	Average (mean)
Austria	0.13	0.14	0.13
Croatia	0.2	0.18	0.19
Denmark	0.2	0.24	0.22
Finland	0.2	0.21	0.21
France	0.16	0.18	0.17
Germany	0.23	0.21	0.22
Hungary	0.14	0.18	0.16
Italy	0.21	0.18	0.19
Japan	0.15	0.13	0.14
Lithuania	0.17	0.18	0.18
Norway	0.27	0.23	0.25
Slovakia	0.28	0.23	0.25
Slovenia	0.14	0.15	0.15
Spain	0.26	0.24	0.25
Sweden	0.18	0.19	0.19
Switzerland	0.23	0.25	0.24
United States	0.42	0.41	0.41

Note: Data is taken from ISSP Module "Environment IV".

Cross-national comparisons of the Cramer's V scores above indicate two important findings. First, the US exhibits greater levels of partisan sorting over climate change than other countries in the data (0.41 compared to an average across all countries of 0.21), further demonstrating its outlier status. Second, Norway bears much closer resemblance to the average partisan sorting score across all countries than the US (0.25 compared to the 0.21 cross-national average).

B.1.3 Cross-national comparisons of party-level polarization

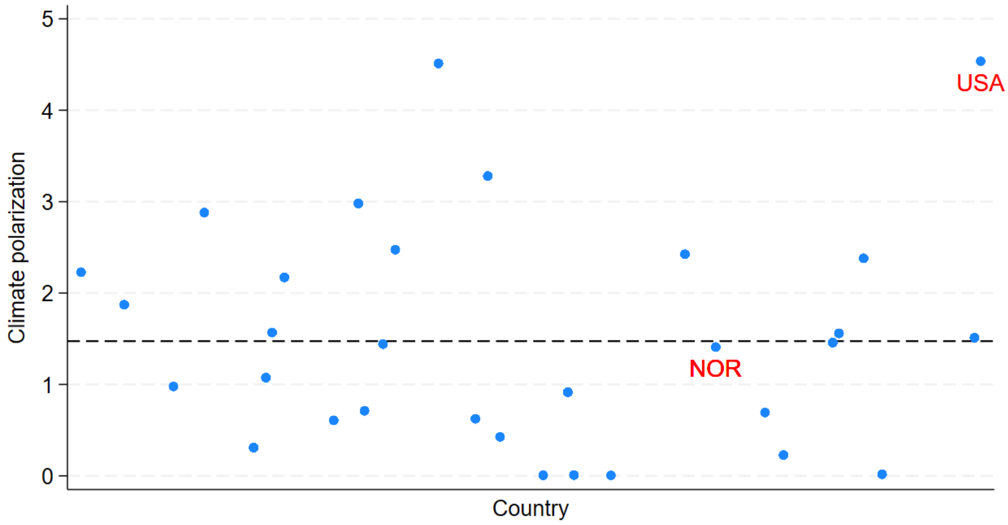
Another contextual characteristic with implications for partisan decision-making is party-level polarization. Furthermore, party-level polarization over climate change is another point of difference between Norway and the US. To demonstrate this, I rely on data from the 2019 Global Party Survey (Norris and Inglehart, 2019). This is an expert survey that assesses party positions on a number of ideological dimensions, encompassing 1043 parties across 163 countries. Included in the survey is question that quantifies party positions on the issue of environmental protection on a 0 ('strongly favours environmental protection') to 10 ('strongly opposes environmental protection') scale. Using this variable and restricting the sample to EU and G7 countries (N = 31), I code a measure of party system polarization over climate change, using the Dalton's (2008) polarization index.[1] The equation for the index is as follows:

$$PI_k = \sqrt{[\sum_{p=1} VS_p * ([P_{pk} - \overline{P_k}]/5)^2]} \tag{B.1}$$

where P_{pk} refers to the climate policy position of party $_p$ in country $_k$, $\overline{P_k}$ refers to the mean climate policy position of parties in country $_k$, and VS_p refers to the vote share of party $_p$ in the most recent national election. This index provides a climate polarization score from 0 to 10 for each country, weighted by party vote share at the most recent election, with higher scores representing more polarized party positions on climate. Climate polarization scores are presented below in figure B.1.3a.

[1]Due to missing data, Poland was excluded.

Figure B.1.3a: Party polarization on climate change, by country

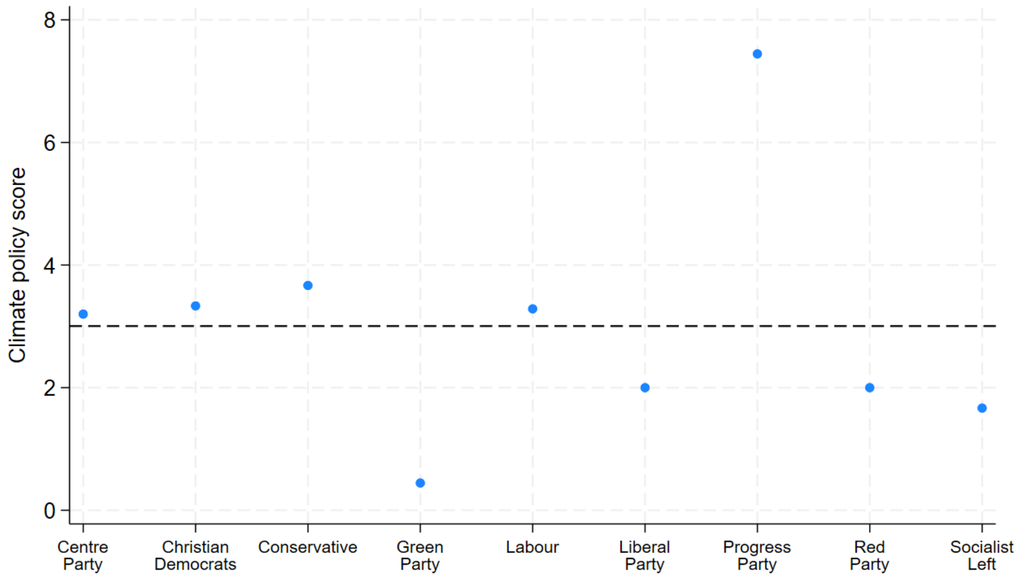


Note: Data comes from the 2019 Global Party Survey. Higher scores indicate greater party polarization over climate change. The sample consists of all EU and G7 countries, excluding Poland due to missing data. Scores for Norway and the USA are highlighted.

As the above figure demonstrates, the US (along with Hungary) is the country in which party positions over climate change are most polarized, with a score of 4.54 on the polarization index. In contrast, Norway is much less polarized, with a score of 1.41. The mean polarization score across countries is 1.47. These results indicate that party-level polarization over climate change in Norway is less pronounced than in the US.

Turning now to a comparison of parties within Norway, figure B.1.3b plots the environmental policy positions of each of Norway's main parliamentary parties, again using the same GPS survey measure of party positions on the issue of environmental protection. As the plot below indicates, the majority of Norwegian parties coalesce around the mean position on climate change, favouring environmental protection. The two exceptions are the Green Party, which is more strongly supportive of environmental protection than all others parties, and the Progress Party, which is more strongly opposed to environmental protection. Importantly, whilst the data indicates that these two parties offer more extreme stances on environmental issues, they are supported by a minority of the Norwegian population (together accounting for 18.43% of the popular vote in the 2017 parliamentary election, the closest election to the study period and GPS data). The electoral significance of these two parties and their climate positions is captured in the cross-national party-level polarization measure, which is weighted by vote share.

Figure B.1.3b: Party polarization on climate change, by country



B.1.4 Balance tests and lagged regressions

A self-reported and subjective measure of flood experience raises the potential issue of endogeneity. Effectively, individuals who perceive climate change as threatening or desire environmental reform may be more likely to believe or recall that they have experienced flooding, driven by politically motivated reasoning in line with their pre-existing climate beliefs. The reverse is also possible: individuals who are sceptical about the existence of or threat posed by climate change may instead be less likely to believe or recall an experience of flooding, again driven by motivated perception. Whilst one cannot entirely rule out this issue without an objective measure of flood experience, balance tests and lagged regressions can establish whether it impacts the measure of flood experience.

If motivated reasoning and prior-attitude bias was influencing self-reported flood experience, one would expect to see differences on observed covariates between those who report flood experience and those who do not - particularly in relation to climate concern and fossil fuel policy attitudes. Importantly, these differences should exist *prior* to flooding. I assess this by conducting balance tests, comparing observed scores for all study variables between those between those who experienced flooding and those who did not, at wave 11. This wave was taken just one month prior to the first flooding in April 2018, so provides a temporally proximate test of potential sample imbalances. However, as table B.1.4a below indicates, there are no statistically nor substantively significant between the two groups across all observed covariates. These similarities support the assumption that motivated reasoning, driven by prior climate beliefs, does not bias the flood experience measure.

Table B.1.4a: Balance tests of the treatment and control groups

Variable	M (treated)	M (control)	Difference	p-value
Climate concern	0.53	0.51	0.02	0.32
Fossil fuel pol. attitudes	0.67	0.66	0.01	0.81
Ideology	0.51	0.5	0.01	0.5
Party ID				
Christian Democrats	0.04	0.04	0.001	0.97
Conservative Party	0.26	0.29	0.03	0.44
Progress Party	0.12	0.09	0.03	0.2
Liberal Party	0.05	0.04	0.01	0.65
Socialist Left	0.07	0.08	0.01	0.62
Centre Party	0.09	0.11	0.02	0.67
Green Party	0.04	0.04	0.001	0.98
Labour Party	0.16	0.19	0.03	0.5
Red Party				
Income				
< 400,000 KR	0.36	0.33	0.03	0.55
400,000 - 700,000 KR	0.44	0.47	0.03	0.56
> 700,000 KR	0.19	0.19	0.001	0.98
Education				
No higher education	0.36	0.36	0.001	0.85
Higher education	0.64	0.64	0.001	0.85
Gender				
Male				
Female				
Age				
29 or younger	0.07	0.05	0.02	0.23
30 - 39	0.07	0.1	0.03	0.33
40 - 49	0.18	0.16	0.02	0.53
50 - 59	0.22	0.19	0.03	0.33
60 - 69	0.28	0.27	0.01	0.85
70 - 79	0.16	0.2	0.04	0.31
80+	0.02	0.04	0.02	0.16
Note:	The treatment condition is comprised of 129 respondents, while the control condition is comprised of 837 respondents.			

Lagged regressions can provide a further empirical test of this issue. If individuals were self-selecting into the treatment condition because of prior climate attitudes, lagged values of climate concern and fossil fuel attitudes would be expected to predict responses to the flood experience question.

To test this, I estimate lagged regressions of self-reported flood experience at wave 14 on climate concern and fossil fuel policy attitudes at wave 11, in table B.1.4b and B.1.4c. Significant coefficients would indicate that prior climate attitudes shape perceptions of flood experience among the study sample. However, both coefficients are non-significant predictors of flood experience, suggesting that motivated reasoning and perceptions of weather experience are not introducing bias into the measure of flood experience.

Table B.1.4b: OLS regression of within-person flood experience on lagged climate change concern

IV	Within-person flood experience				
	b	*SE*	5% CI	95% CI	*p*-value
Climate change concern	0.08	0.11	-0.14	0.31	0.452
Intercept	-2.05	0.26	-2.55	-1.54	<0.001
Note:	Source: Norwegian Citizen Panel				

Table B.1.4c: OLS regression of within-person flood experience on lagged fossil fuel policy attitudes

IV	Within-person flood experience				
	b	*SE*	5% CI	95% CI	*p*-value
Fossil fuel pol. attitudes	0.01	0.05	-0.09	0.1	0.884
Intercept	-1.9	0.22	-2.33	-1.46	<0.001
Note:	Source: Norwegian Citizen Panel				

In sum, whilst a subjective measure of flood experience cannot completely eliminate the issue of potential endogeneity driven by motivated reasoning, balance tests and lagged regressions provide, in my view, evidence that endogeneity is not a statistical concern in the present study, and is unlikely to be influencing the results.

B.2 Results

Table B.2.1 below presents model output corresponding to figure 2 in the main text.

Table B.2.1: GLS regression of the effect of flood experience on climate change concern and fossil fuel policy attitudes, across baseline, covariate and interaction models

Variable	Climate concern			Fossil fuel policy attitudes		
	Baseline model	Covariate model	Interaction model	Baseline model	Covariate model	Interaction model
Flood exp						
Within-person	0.09*** 0.02	0.09*** (0.02)	0.08† (0.04)	-0.01 (0.02)	-0.01 (0.02)	0.01 (0.04)
Between-person	0.02 (0.04)	0.05 (0.04)	0.05 (0.04)	0.01 (0.06)	0.03 (0.05)	0.03 (0.05)
Ideology		-0.27*** (0.04)	-0.27*** (0.04)		-0.41*** (0.05)	-0.4*** (0.06)
PID						
Christian Democrats		-0.06* (0.02)	-0.06* (0.02)		-0.01 (0.04)	-0.01 (0.04)
Conservative Party		-0.02 (0.02)	-0.02 (0.02)		-0.01 (0.02)	-0.01 (0.02)
Progress Party		-0.09*** (0.02)	-0.1*** (0.02)		-0.06† (0.04)	-0.06† (0.04)
Liberal Party		0.07* (0.04)	0.07* (0.04)		0.05 (0.04)	0.05 (0.04)
Socialist Left		0.07*** (0.02)	0.07** (0.02)		0.11*** (0.03)	0.12*** (0.03)
Centre Party		-0.04* (0.02)	-0.04* (0.02)		0.06** (0.03)	0.06** (0.02)
Green Party		0.11*** (0.03)	0.12*** (0.03)		0.19*** (0.03)	0.2*** (0.03)
Red Party		0.05* (0.03)	0.05† (0.03)		0.12*** (0.03)	0.13*** (0.02)
Flood exp. x PID						
Christian Democrats			0.09 (0.07)			0.01 (0.09)
Conservative Party			0.01 (0.05)			0.00 (0.05)
Progress Party			0.05 (0.07)			-0.00 (0.06)
Centre Party			-0.03 (0.06)			-0.05 (0.06)
Liberal Party			0.05 (0.09)			-0.09 (0.07)
Socialist Left			-0.05 (0.1)			-0.06 (0.05)
Green Party			-0.12* (0.05)			-0.05 (0.05)
Red Party			0.05† (0.03)			-0.16 (0.12)
Age		0.00 (0.00)	0.00 (0.00)		0.00 (0.00)	0.01* (0.01)
Female		0.06*** (0.01)	0.06*** (0.01)		0.07*** (0.02)	0.07*** (0.02)
Degree		0.1*** (0.01)	0.1*** (0.01)		0.03† (0.02)	0.03† (0.02)
< 400,000 KR		0.01 (0.01)	0.01 (0.01)		0.01 (0.01)	0.01 (0.01)
> 700,000 KR		0.02 (0.01)	0.02 (0.01)		-0.01 (0.02)	-0.01 (0.02)
Intercept	0.56*** (0.01)	0.6*** (0.03)	0.6*** (0.03)	0.73*** (0.05)	0.74*** (0.04)	0.73*** (0.05)
N	966	966	966	966	966	966

Note: Entries are coefficients with robust standard errors (in parentheses). $p < 0.001$***, $p < 0.01$**, $p < 0.5$*, $p <$
Note: 0.1. Reference categories are: PID – Labour Party; income – 400,000KR - 700,000KR; Source: NCP

To better understand the interaction of flood experience and partisanship, I calculate marginal effects estimates of the impact of flood experience on each outcome, among supporters of each major Norwegian Party. These marginal effects, along with standard errors, are presented below in table B.2.2.

Table B.2.2: Marginal effects estimates of flood experience on climate change concern and fossil fuel policy attitudes, moderated by partisanship

Variable	Climate concern		Fossil fuel policy attitudes	
	β	*SE*	β	*SE*
Christian Democrats	0.17**	0.05	0.02	0.09
Conservative Party	0.08*	0.03	0.02	0.03
Progress Party	0.13*	0.06	0.01	0.05
Liberal Party	0.13	0.09	-0.08	0.06
Socialist Left	0.14*	0.06	-0.05	0.04
Centre Party	0.05	0.04	-0.04	0.05
Green Party	-0.04	0.03	-0.04	0.03
Labour Party	0.08†	0.04	0.01	0.04
Red Party	0.08	0.07	-0.15	0.12
Note:	Entries are marginal effects estimates with delta standard errors. $p < 0.001$***, $p < 0.01$**, $p < 0.5$*, $p < 0.1$†. Source: NCP.			

Turning first to climate concern, results indicate that flood experience is positively associated with climate concern among supporters of the majority of Norwegian political parties. Of particular interest, results indicate that Progress Party supporters (b = 0.13, SE = 0.06, $p < 0.05$) and Conservative Party supporters (b = 0.08, SE = 0.08, $p < 0.05$) both become more concerned about climate change following flood experience, consistent with experiential learning. The one exception is the negative marginal effect for Green Party supporters (b = -0.04, SE = 0.03, p = 0.14). This is a somewhat surprising finding, given that the Green Party is Norway's most climate-conscious party. This is perhaps driven by ceiling effects - at the pre-flood wave, the mean climate concern score among Green Party supporters is 0.7 (on a 0-1 scale).

Regarding fossil fuel policy attitudes, results are consistent with the conclusion that flood experience has little impact on this outcome. The marginal effect of flood experience is non-significant among supporters of all parties, and close to zero for many.

Next, I assess the potential influence of partisan-ideological sorting. Given that previous results indicate that flood experience only leads to changes in climate concern - not fossil fuel attitudes - I focus on this outcome. To assess whether sorting influences partisan responses to flood experience, I re-estimate the climate concern interaction model presented in table B.2.1, but with two additions. First, I add the three-way interaction of flood experience, partisanship and the individual-specific measure of partisan-ideological sorting, along with the requisite lower-order interactions and the standalone sorting variable. Second, given that the sorting measure captures ideological differences from each respondents party-ideology score, this measure may be correlate with ideological extremity. To address this possibility I include an individual-specific measure of ideological extremity, derived by transforming ideological self-placement into a measure of distance from the midpoint of the ideology scale (coded 0-1). Table B.2.3 below presents the complete model output for this regression.

To provide a more readily interpretable assessment of this three-way interaction, I calculate marginal effects for the effect of flood experience among supporters of each Norwegian party at three levels of the sorting variable: 1 *SD* below the mean, the mean and 1 *SD* above the mean. These marginal effects are presented below in table B.2.4.

Table B.2.3: GLS regression of the effect of flood experience on climate change concern, including the interaction of flood experience, partisanship and partisan-ideological sorting

Variable	β	SE
Flood exp		
Within-person	-0.15	0.2
Between-person	0.04	0.04
Ideology	-0.22***	0.05
PID		
Christian Democrats	0.23	0.22
Conservative Party	0.02	0.16
Progress Party	0.00	0.16
Liberal Party	-0.35	0.36
Socialist Left	0.41†	0.22
Centre Party	0.08	0.19
Green Party	0.43†	0.25
Red Party	-0.02	0.23
Flood exp. x PID		
Christian Democrats	0.58*	0.24
Conservative Party	0.26	0.36
Progress Party	0.96**	0.34
Centre Party	0.03	0.34
Liberal Party	-0.208***	0.2
Socialist Left	0.18	0.29
Green Party	-0.88**	0.33
Red Party	0.21	0.23
Partisan-ideological sorting	0.2	0.13
Flood exp. x sorting	0.26	0.21
PID x sorting		
Christian Democrats	-0.34	0.25
Conservative Party	-0.05	0.18
Progress Party	-0.14	0.19
Centre Party	-0.14	0.22
Liberal Party	0.49	0.41
Socialist Left	-0.37	0.24
Green Party	-0.34	0.28
Red Party	0.08	0.25
Flood exp. x PID x sorting		
Christian Democrats	-0.6*	0.26
Conservative Party	-0.3	0.44
Progress Party	-1.06**	0.38
Centre Party	-0.06	0.39
Liberal Party	2.24***	0.21
Socialist Left	1.01**	0.3
Green Party	-0.34	0.32
Red Party	-0.2	0.27
Age	0.00	0.00
Female	0.05***	0.01
Degree	0.09***	0.01
< 400,000 KR	0.01	0.01
> 700,000 KR	0.01	0.02
Intercept	0.4***	0.13
Observations	1766	
N	918	
Note:	Entries are coefficients with robust SEs (in parentheses). $p < 0.001$***, $p < 0.01$**, $p < 0.5$*, $p < 0.1$†. Ref cats are PID - Labour Party; income - 400,000-700,000kr. Source: NCP.	

Table B.2.4: Marginal effects estimates of flood experience on climate change concern, moderated by partisanship and partisan-ideological sorting

Variable	-1 *SD*		Mean		+1 *SD*	
	β	*SE*	β	*SE*	β	*SE*
Christian Democrats	0.18**	0.06	0.14*	0.06	0.11	0.07
Conservative Party	0.09**	0.03	0.08†	0.05	0.08	0.08
Progress Party	0.19**	0.06	0.11†	0.06	0.03	0.07
Liberal Party	-0.3***	0.01	-0.05***	0.01	0.2***	0.01
Socialist Left	-0.05	0.09	0.08	0.07	0.21***	0.05
Centre Party	0.03	0.04	0.05	0.04	0.07	0.06
Green Party	-0.03	0.04	-0.04	0.03	-0.05	0.03
Labour Party	0.05	0.05	0.08†	0.04	0.11*	0.05
Red Party	0.1†	0.06	0.11	0.07	0.12	0.09
Note:	Entries are marginal effects estimates. $p < 0.001$***, $p < 0.01$**, $p < 0.5$*, $p < 0.1$†. Source: NCP.					

B.3 Robustness checks

B.3.1 Ordered logit replications

Table B.3.1: Ordered logit replication of the effect of flood experience on climate change concern and fossil fuel policy attitudes

Variable		Climate concern			Fossil fuel policy attitudes	
	Baseline model	Covariate model	Interaction model	Baseline model	Covariate model	Interaction model
Flood exp						
Within-person	1.31*** (0.24)	1.27*** (0.25)	1.23*** (0.57)	-0.00 (0.24)	-0.04 (0.25)	0.21 (0.53)
Between-person	0.42 (0.6)	0.7 (0.5)	0.7 (0.5)	-0.08 (1.09)	0.22 (0.82)	0.27 (0.83)
Ideology		-3.93*** (0.57)	-3.92*** (0.57)		-6.55*** (0.96)	-6.5*** (0.97)
PID						
Christian Democrats		-0.76* (0.36)	-0.81 (0.35)		-0.15 (0.56)	-0.28 (0.58)
Conservatives		-0.18 (0.28)	-0.19 (0.28)		-0.04 (0.32)	-0.05 (0.32)
Progress Party		-1.33*** (0.35)	-1.36*** (0.35)		-0.47 (0.47)	-0.48 (0.48)
Liberal Party		1.12* (0.5)	1.08* (0.51)		0.7*** (0.58)	0.71 (0.59)
Socialist Left		1.01** (0.31)	0.98** (0.3)		2.8*** (0.62)	3*** (0.64)
Centre Party		-0.59* (0.28)	-0.57* (0.28)		0.99** (0.36)	0.98* (0.36)
Green Party		1.64*** (0.42)	1.69*** (0.42)		5.26*** (0.83)	5.37*** (0.84)
Red Party		0.75† (0.37)	0.73† (0.44)		2.63*** (0.57)	2.83*** (0.62)
Flood exp. x PID						
Christian Democrats			1.12 (0.94)			0.29 (1.49)
Conservatives			-0.08 (0.74)			0.08 (0.71)
Progress Party			0.55 (0.99)			-0.07 (0.88)
Liberal Party			0.83 (1.64)			-1.62* (0.67)
Socialist Left			0.95 (1.17)			-3.45* (1.65)
Centre Party			-0.54 (0.8)			-0.36 (0.94)
Green Party			-1.8* (0.7)			-0.65 (0.71)
Red Party			-0.21 (1.13)			-3.11 (2.33)
Age		0.03 (0.06)	0.03 (0.06)		0.17† (0.09)	0.18† (0.09)
Female		0.84*** (0.18)	0.85*** (0.18)		1.03*** (0.29)	1.04*** (0.3)
Degree		1.36*** (0.2)	1.36*** (0.2)		0.54† (0.31)	0.53† (0.3)
$<$ 400,000 KR		0.15 (0.18)	0.14 (0.18)		0.09 (0.21)	0.08 (0.21)
$>$ 700,000 KR		0.26 (0.21)	0.26 (0.21)		-0.27 (0.3)	-0.27 (0.3)
N	966	966	966	966	966	966

Note: Entries are coefficients with robust standard errors (in parentheses). $p < 0.001$***, $p < 0.01$**, $p < 0.5$*, $p < 0.1$†. Reference categories are: PID – Conservative Party; income – 400,000KR - 700,000KR. Source: NCP.

B.3.2 Placebo Test

The results presented in chapter 3, section 2 support the theorised expectation that through processes of experiential learning, individuals who experience flooding update their attitudes (in a Bayesian-like process) to reflect this novel experience. This assumption also implies that the attitudinal effect would be specific to climate change and would not influence other political outcomes. I thus conduct a placebo test to validate the assumption that observed attitudinal changes are driven by flood experience and experiential learning, rather than unobserved factors or processes, through replicating the main analysis with a different political outcome: support for income redistribution. If the impact of flood experience operates in the theorised manner, the two should be unrelated. The income redistribution variable is reverse coded, so that negative coefficients correspond to support for redistributing income. Results from this placebo test - presented below in table 3.2 - indicate that flood experience is unrelated to attitudes to income redistribution ($b = 0.01$, $SE = 0.01$, $p = 0.21$), supporting the assumption that flood experience induces changes in climate concern through the mechanism of experiential learning and climate-specific attitudinal updating, rather than a more general shift in political attitudes.

Table 3.2: Placebo test of the relationship between flood experience and support for income redistribution (reverse coded)

Variable	Baseline model	Covariate model
Flood exp		
Within-person	0.01 (0.01)	0.02 (0.01)
Between-person	-0.01 (0.04)	-0.03 (0.03)
Ideology		0.36*** (0.03)
PID		
Christian Democrats		-0.03 (0.02)
Progress Party		-0.01 (0.02)
Liberal Party		-0.01 (0.02)
Socialist Left		-0.1*** (0.02)
Centre Party		-0.07*** (0.02)
Green Party		-0.08*** (0.02)
Labour Party		-0.05** (0.02)
Red Party		-0.08*** (0.02)
Age		-0.01 (0.00)
Female		-0.02 (0.01)
Degree		0.02* (0.01)
Income		
< 400,000 KR		-0.01 (0.01)
> 700,000 KR		0.04 (0.01)
Intercept	0.36*** (0.04)	0.26*** (0.03)
N	966	966
Note:	Entries are coefficients with robust standard errors (in parentheses). $p < 0.001$***, $p < 0.01$**, $p < 0.5$*, $p < 0.1$†. Reference categories are: PID – Conservatives; income – 400,000KR - 700,000KR. Source: NCP.	

B.4 Follow-up analysis: education and attitudes to fossil fuel extraction

Climate change and its required solutions are hugely complex, involving a wide variety of actors with competing interests and no immediate means of assessing the impact of policy solutions on the problem (Weaver et al., 2023). In this regard, climate change is perhaps the prototypical example of a 'wicked problem' (Head and Alford, 2015). Such complexity breeds uncertainty, and an absence of knowledge about climate change solutions is a source of inaction (Gifford, 2011). Such uncertainty or lack of understanding presents a possible explanation for the absence of a relationship between flood experience and support for limiting the extraction of fossil fuels: if individuals fail to make the connection between fossil fuel extraction and climate change then they are unlikely to adjust their responses to this variable following flood exposure.

To explore this possibility, I assess whether education conditions the impact of flood experience on fossil fuel attitudes. Better educated individuals are more likely to possess the knowledge and cognitive capacity required o make the link between climate change and fossil fuel extraction. If a failure to make the connection between fossil fuel extraction and the threat posed by climate change explains the null results, I would anticipate that flood experience leads to increased support for limiting fossil fuel extraction among the more educated, but not among those possessing lower levels of education. To test this possibility, I re-estimate the fossil fuel attitude model (i.e. the model depicted in the right-hand side of figure 1 in the manuscript) but add the interaction term of education and the within-person component for flood experience. I generate this interaction term using the procedure outlined by Schunck (2013).

Results, which are presented below in table B.4.1, provide no evidence that education moderates the impact of flood experience on fossil fuel attitudes. To better understand this interaction I calculate marginal effects (alongside delta standard errors). For both those who do not possess a degree ($b = 0.01$, $SE = 0.06$, $p = 0.93$) and those who do possess a degree ($b =$

-0.01, $SE = 0.03$, $p = 0.86$), flood experience is unrelated to fossil fuel policy attitudes. These results thus provide no evidence in support of the possibility that the null results for fossil fuel attitudes are driven by complexity and a failure to link fossil fuel extraction to climate change.

Table B.4.1: GLS regression of the effect of flood experience on fossil fuel policy attitudes, moderated by education

Variable	*b*	*SE*
Flood exp		
Within-person	0.01	0.06
Between-person	0.03	0.05
Education	0.03†	0.02
Flood exp. x Education	-0.01	0.04
Ideology	-0.41***	0.05
PID		
Christian Democrats	0.00	0.04
Progress Party	-0.05†	0.03
Liberal Party	0.06	0.04
Socialist Left	0.12***	0.03
Centre Party	0.07**	0.03
Green Party	0.2***	0.03
Labour Party	0.01	0.02
Red Party	0.13***	0.03
Age	0.01†	0.01
Female	0.07***	0.02
Degree		
$< 400,000$ *KR*	0.01	0.01
$> 700,000$ *KR*	-0.01	0.02
Intercept	0.73***	0.05
Obs	1932	
N	966	
Note:	Entries are coefficients with robust standard errors (in parentheses). $p < 0.001$***, $p < 0.01$**, $p < 0.1$†. Reference categories are: PID – Cons-; ervatives; income – 400-700,000KR. Source: NCP.	

C

Supplementary Materials: Chapter 4

C.1 Preliminary analysis

C.1.1 Sample characteristics

Table C.1.1 below presents mean scores for all variables used in the main analysis, comparing the discussion network sample with the entire BESP sample who provide non-missing information on the out-party anger and affective polarization variables.

Whilst the discussion sample is broadly similar to the larger sample, some differences can be observed. In particular, the discussion sample is slightly more affectively polarized, consumes slightly more political news and possesses higher levels of education, on average, than the broader sample. These differences are perhaps unsurprising - political discussion is associated with higher levels of political engagement (Eveland and Hively, 2009) and participatory activities like discussion are positively associated with education (Nie et al., 1996). Whilst these differences mean that generalizing beyond those who discuss politics from this data should be done with caution, I do not view this as a limitation. Rather, the goals of this study are to make comparisons between different types of discussion networks, rather than generalizing to those who do not discuss politics at all.

Table C.1.1: Sample characteristics

Variable	Main BESP sample		Discussion sample	
	Mean	SD	Mean	SD
Out-party anger	0.37	0.28	0.38	0.26
Affective polarization	2.8	0.97	2.86	0.95
Partisan news consumption	1.37	0.99	1.49	0.97
Neutral news consumption	1.53	0.98	1.66	0.95
Perceived ideological polarization	0.55	0.18	0.55	0.17
Sociodemographics				
Age	55		55	
Gender (% female)	41.76		44.53	
Education (% degree-educated)	46.95		52.05	
Ethnicity (% white)	92.43		92.89	
Region				
Greater London	11.94		10.74	
Rest of England	58.48		43.75	
Scotland	19.29		30.31	
Wales	10.3		15.2	
Observations	11,033		1927	

C.1.2 Measuring affective polarization

I measure affective polarization using the weighted spread of like-dislike score measure proposed by Wagner, 2021. First, I calculate the mean like-dislike score for each individual:

$$\overline{Like_{it}} = \sum_{p=1}^{P} (v_{pt} * like_{ipt})$$

Where v_{pt} is the vote share of each party p at election t, multiplied by the like score given by individual i to party p at time t. This individual-specific mean is then used to calculate the weighted spread score for each individual:

$$Spread_{it} = \sqrt{\sum_{p=1}^{P} v_{pt}(like_{ipt} - \overline{like_{it}})^2}$$

This measure provides an individual-specific affective polarization score at each wave, whilst accounting for the multi-party nature of political competition in the UK (which a simple difference score cannot). Furthermore, by weighting based on vote share, this measure accounts for the relative political importance of each party. It is important to note that the parties used to calculate the spread score measure vary by country: the SNP only contest Scottish seats and Plaid Cymru only contest Welsh seats, so like-dislike scores for these two parties are limited to Scotland and Wales respectively.

In addition to affective polarization, I calculate measures of its two constituent aspects: in-party like and out-party dislike. In-party like is defined as the like score for the party that each respondent votes for in the 2015 election. Alongside this, I employ two measures of out-party dislike. The first is a single-party measure, measuring change in score toward the least-liked party. The second measure is a multi-party measure of out-party dislike, using the average affect score toward all parties other than the one the respondent voted for, weighted by vote share. Out-party dislike measures are reverse coded so that a positive score corresponds to an increase in out-party dislike.

Table C.1.2 presents the mean affective polarization scores in the sample at the pre-election wave and the post-election wave, along with the change from pre- to post-election. This table also presents corresponding statistics for in-party like and out-party dislike. As the table indicates, mean post-election affective polarization scores are higher than scores measured pre-election. This change appears predominantly driven by in-party like, with out-party dislike exhibiting a small decrease at the aggregate level over the 2015 election campaign.

Table C.1.2: Affective polarization scores, pre- and post-election: 2015, 2017 and 2019

Variable	2015 Election		
	Pre *M*	Post *M*	Δ
Aff. pol	2.71	2.82	0.11
IP like	7.48	7.88	0.4
OP dislike (single party)	9.45	9.42	-0.03
OP dislike (multi-party)	8.34	8.3	-0.04
Note:	Δis change from wave 4 to 6.		

C.1.3 Measuring discussion networks

To assess the moderating influence of discussion network type, I use a binary measure. The two categories correspond to a) those who report only discussing politics with supporters of their in-party (homogenous discussion) and b) those who report discussing politics with supporters of out-parties (inter-group or diverse discussion). This approach differs from similar studies (e.g. Amsalem et al., 2022) in that it excludes those who do not discuss politics. The survey asks respondents to skip these discussion questions if they do not discuss politics, so those with non-responses to these questions could be treated as individuals who do not discuss politics. This assumption would however ignore other potential reasons for missingness (of which there are many: see Newman, 2014) and the data suggests that making such an assumption is problematic. Over 80% of the sample who provide party like-dislike scores at wave 4 do not answer the discussion questions at the same wave. However, an alternative question on the number of the last seven days that a respondent has discussed politics indicates that on 11.68% of respondents have not discussed politics in the last seven days.[1] This disparity indicates that other reasons for missingness are at play and those who do not answer the discussion questions should not be treated as individuals who do not discuss politics. Consequently, I employ a binary approach to the question of whether the nature of political discussion moderates the relationship between partisan emotions and affective polarization.

An additional concern with this measure of discussion networks is that it relies upon self-assessments of discussant political affiliation, which leaves the measure vulnerable to potential bias and inaccuracies in the evaluation of the partisanship of discussants. Following the logic of Huckfeldt et al. (2004), I suggest that the objective or actual political beliefs of discussants are arguably less important for intergroup relations than the perceptions that each discussant has about the political beliefs and affiliations of the other(s). Given that the mechanisms by which intergroup discussion is assumed to attenuate the polarizing consequences of anger are about individual perceptions, it is perhaps the perceived political affiliation of discussants that matters more than objective political beliefs. Consequently, the possible perceptual biases present in this measure of political discussion type do not undermine the subsequent analysis.

C.1.4 Measuring perceived ideological polarization

To measure perceived ideological polarization among parties, one of the confounders included in the main models, I use the weighted measure proposed by Wagner (2021). At both the pre- and post-election wave of the BES,

[1]This question cannot be used to identify those who do not discuss politics as the timeframe of the two questions differ: the discussion questions used in the analysis refer to discussion in general, whereas this question is limited to the last seven days.

voters assess the ideological positions of the major parties in Britain on 0-10 scales. With these scores I calculate an individually-specific measure of party polarization at each wave. I first calculate an individual-specific mean score for party ideological positions:

$$\overline{position_{it}} = \sum_{p=1}^{P}(v_{pt} * position_{ipt})$$

Where v_{pt} is the vote share of each party p at election t, multiplied by the ideological position score given by individual i to party p at time t. I then calculate an individual-specific measure of party-system polarization using the following formula:

$$Ideological\ polarization_{it} = \sqrt{\sum_{p=1}^{P} v_{pt}(position_{ipt} - \overline{position_{it}})^2}$$

This measure is then scaled from zero to one before inclusion in the models.

C.2 Results

C.2.1 Hybrid models explained

To assess whether the polarizing consequences of out-party anger are conditional on political discussion type, I employ hybrid models (otherwise known as random effects within-between models). Hybrid models are, in practical terms, random effects models in which time-varying covariates are decomposed into a person-centred score and individual-level mean (see Howard 2015 for an overview of this procedure). The person-centred score is calculated by subtracting the mean of an individual's observed scores on that variable from each observation of the variable, and thus represents the deviation (at each wave) from the individual's mean score over time. The value of the person-centred score equates to the within-individual variation of the corresponding variable, producing estimates that are equivalent to those produced by a model that includes individual fixed effects (Bell and Jones, 2015). In other words, the person-centred scores for anger in a hybrid model represent estimates of the effect of within-person changes in anger. The other product of this decomposition process, the individual-level mean, represents the time-invariant component of the variable (i.e., the between-person effect of anger). As hybrid models are estimated in a random effects framework, they also enable estimation of stable, time-invariant predictors. Discussion network information is measured at wave 4 and treated as time-invariant, so a hybrid model enables differences between those with homogeneous and heterogeneous discussion networks to be estimated.

To analyse this relationship, I regress affective polarization on out-party anger (decomposed into within-person and between-person components), the discussion network indicator, the interaction of anger and this discussion indicator, and controls. Controls are necessary in this process because, although the within-person effect of anger is equivalent to an individual fixed effects estimate (i.e, net of all time-invariant confounding), the between-person effect of one's discussion network is vulnerable to omitted variable bias (see Bell et al., 2019). Sociodemographic characteristics are included as controls and are assumed to be time-invariant, so are not decomposed before entering into the equation. Covariates that are assumed to exert time-varying influence on affective polarization (perceived party-level ideological polarization and media consumption) are decomposed into within-person and between-person components. Doing so ensures that the potentially confounding influence of these variables are accounted for when estimating the within-person effects of anger.

All models are estimated in Stata 18, using a random effects GLS regression with robust standard errors (clustered at the individual level). Following Schunck (2013), the use of the # operator and the margins command to analyse interactions is avoided. Interactions are instead calculated manually prior to being entered in the model, and the *lincom* command is instead used to calculate marginal effects.

C.2.2 Model results

Table C.2.2: The effect of out-party anger on affective polarization, moderated by political discussion

	Affective polarization		Out-party dislike				In-party like	
	Model I		Model II		Model III		Model IV	
Variable	β	SE	β	SE	β	SE	β	SE
WP OP anger	0.34*	0.14	0.21	0.21	0.68***	0.18	-0.11	0.32
Diverse discussion	-0.24***	0.05	-0.14*	0.06	-0.78***	0.07	-0.33*	0.1
WP OP anger * discussion network	-0.4*	0.19	-0.22	0.27	-0.55*	0.23	0.04	0.4
BP OP anger	0.68***	0.12	1.32***	0.16	1.48***	0.15	0.61*	0.24
Degree-educated	-0.04	0.05	0.07	0.06	-0.00	0.07	-0.17	0.11
Female	-0.08	0.05	0.03	0.06	-0.05	0.07	0.00	0.11
White	0.02	0.1	0.08	0.14	0.05	0.13	-0.26	0.2
Region								
Greater London	-0.11	0.09	-0.14	0.12	0.03	0.11	-0.36†	0.19
Scotland	-0.15	0.08	0.32***	0.08	-0.07	0.1	0.3†	0.15
Wales	-0.15	0.06	0.21**	0.07	-0.03	0.08	-0.13	0.12
Age	0.00	0.00	-0.00	0.00	-0.00	0.00	0.00	0.00
WP Perceived ideo. polarization	1***	0.28	0.34	0.26	-0.2	0.2	1.68**	0.6
BP Perceived ideo. polarization	2.42***	0.2	1.32***	0.26	0.83**	0.26	2.31***	0.36
WP Partisan media	0.02	0.03	0.02	0.05	-0.01	0.04	0.05	0.07
BP Partisan media	0.08*	0.04	-0.00	0.04	0.09†	0.05	0.22**	0.07
WP Neutral media	0.05	0.03	-0.00	0.05	-0.01	0.05	0.07	0.07
BP Neutral media	0.09*	0.04	-0.01	0.04	-0.01	0.05	0.12†	0.07
Winner (national)	0.11*	0.05	-0.1	0.06	-0.09†	0.05	0.14	0.1
Winner (local)	-0.02	0.05	0.08	0.05	0.09†	0.05	-0.02	0.09
Wave (6)	0.1**	0.03	-0.00	0.04	-0.11**	0.03	0.22	0.07
Intercept	1.13***	0.19	8.24***	0.29	7.59***	0.25	6.13***	0.36
Observations	1609		1609		1609		1609	
N	859		859		859		859	
Note:	Entries are OLS coefficients, with SEs clustered at the individual level. p < 0.001***, p < 0.01**, p < 0.5*, p < 0.1†. Source: BESIP.							

C.3 Robustness Checks

C.3.1 Additional emotions

Emotions covary (Marcus et al., 2006) and - of particular relevance to the present study - fear often correlates with anger (e.g. Marcus et al., 2019). As a result Marcus et al. (2019) argue that fear must be included in as a covariate in order to accurately estimate the attitudinal consequences of anger. Thus, in a first additioanl model, I estimate the conditional effect of anger on affective polarization, including fear as a covariate. I also include in-party pride and in-party hope, recognising (a) that that pride is positively associated with the willingness to engage in politically diverse discussion (Valenzuela and Bachmann, 2015) and (b) that positively valenced emotions have also been linked to affective polarization (McLaughlin et al., 2020.

In a second model, I include expectancy violating emotions - negatively valenced emotions directed at the individual's in-party and positively valenced emotions directed at out-parties (Johnston et al., 2015). Given that intergroup discussion potentially induces expectancy violating emotions (Parsons, 2010) and past evidence indicates that such emotions are associated with affective polarization (McLaughlin et al., 2020), expectancy violating emotions might impact the observed relationship between anger and affective polarization.

However, results from both models - presented below in table C.3.1 - indicate that the general trend observed in the main models persists when additional emotions are included as covariates.

Table C.3.1: The effect of emotions on affective polarization, moderated by political discussion

	Additional emotions		Expectancy-violating emotions	
Variable	β	SE	β	SE
WP OP anger	0.37*	0.14	0.39**	0.14
Diverse discussion	-0.19***	0.05	-0.19***	0.05
WP OP anger * discussion network	-0.42*	0.19	-0.42*	0.19
BP OP anger	0.49***	0.12	0.52***	0.12
WP OP fear	0.04	0.09	0.06	0.09
BP OP fear	-0.05	0.15	-0.01	0.15
WP IP pride	0.17***	0.05	0.15**	0.05
BP IP pride	0.51***	0.07	0.47***	0.07
WP IP hope	-0.01	0.05	-0.03	0.05
BP IP hope	0.39***	0.07	0.34***	0.08
WP IP anger			-0.15	0.14
BP IP anger			-0.32	0.21
WP IP fear			-0.24	0.18
BP IP fear			-0.2	0.24
WP OP pride			-0.17	0.21
BP OP pride			0.23	0.39
WP OP hope			0.01	0.12
BP OP hope			0.09	0.18
Degree-educated	-0.03	0.05	-0.03	0.05
Female	-0.08	0.05	-0.07	0.05
White	0.02	0.1	0.02	0.1
Region				
Greater London	-0.08	0.08	-0.06	0.08
Scotland	-0.18*	0.07	-0.18*	0.08
Wales	-0.14*	0.06	-0.14*	0.06
Age				
WP Perceived ideo. polarization	1.04***	0.27	1.02***	0.26
BP Perceived ideo. polarization	2.33***	0.19	2.33***	0.19
WP Partisan media	0.02	0.03	0.02	0.03
BP Partisan media	0.07†	0.04	0.07	0.04
WP Neutral media	0.04	0.03	0.04	0.03
BP Neutral media	0.08*	0.04	0.07	0.04
Winner (national)	0.1*	0.05	0.1*	0.05
Winner (local)	-0.01	0.05	-0.01	0.05
Wave (6)	0.08*	0.03	0.09**	0.03
Intercept	0.74***	0.2	0.76***	0.2
Observations	1609		1609	
N	859		859	
Note:	Entries are OLS coefficients, with SEs clustered at the individual level. p < 0.001***, p < 0.01**, p < 0.5*, p < 0.1†. Source: BESIP.			

C.3.2 Cross-Lagged Panel Models

I fit cross-lagged panel models to assess whether anger precedes affective polarization or vice versa. CLPMs offer the potential for Granger causal inference – if changes in lagged values of x predict changes in current values of y, then x is assumed to cause y (Gujarati and Porter, 2009). However, Granger causality rests on the assumption that any potential confounding variables are included in the model. Accounting for all potential confounding in the CLPM is difficult, meaning that as an estimation strategy it is vulnerable to omitted variable bias (Hamaker et al., 2015). Consequently, the CLPM results presented here should be interpreted as suggestive - rather than definite - evidence of causal direction.

With these caveats in mind, I present CLPM results below in table C.3.2. Here, post-election affective polarization scores are regressed on out-party anger measured pre-election, along with pre-election affective polarization (i.e., a lagged dependent variable). Simultaneously I regress post-election anger on pre-election affective polarization and the lagged emotion measure. To facilitate the comparison of coefficients, both variables are beta-standardized before fitting the model.

Table C.3.2: Cross-lagged panel models: out-party anger and affective polarization

Predictor	Outcome	β	SE
Anger			
Pre-election anger	Post-election affective polarization	0.02*	0.01
Pre-election affective polarization	Post-election anger	0.07***	0.01
Note:	Coefficients are beta-standardized. $p < 0.05$*, $p < 0.001$***. Source: BESIP		

Results indicate that the relationship between anger and affective polarization is reciprocal. Pre-election out-party anger is positively and significantly associated with post-election affective polarization (b = 0.02, SE = 0.01, $p < 0.05$). In the reverse direction, pre-election affective polarization is positively and significantly associated with out-party anger (b = 0.07, SE = 0.01, $p < 0.001$).

C.3.3 Strength of Party Identification

Table C.2.2: The effect of out-party anger on affective polarization, moderated by political discussion

Variable	β	SE
WP OP anger	0.35*	0.15
Diverse discussion	-0.16**	0.05
WP OP anger * discussion network	-0.37*	0.19
BP OP anger	0.39**	0.12
Degree-educated	-0.04	0.05
Female	-0.08	0.05
White	0.09	0.11
Region		
Greater London	-0.03	0.08
Scotland	-0.16*	0.07
Wales	-0.13*	0.06
Age		
WP Perceived ideo. polarization	1.02**	0.29
BP Perceived ideo. polarization	2.15***	0.19
WP Partisan media	0.01	0.03
BP Partisan media	0.03	0.04
WP Neutral media	0.05	0.03
BP Neutral media	0.06	0.04
WP PID strength	0.19***	0.05
BP PID strength	0.48***	0.04
Winner (national)	0.12	0.05
Winner (local)	-0.04	0.04
Wave (6)	0.09**	0.03
Intercept	0.51**	0.19
Observations	1609	
N	859	
Note:	Entries are OLS coefficients, with SEs clustered at the individual level. $p < 0.001$***, $p < 0.01$**, $p < 0.5$*, $p < 0.1$†. Source: BESIP.	

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