# A Greening Europe? A Comparative Study of Environmental Activism, Public Opinion, and Party Competition in Europe

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# Abstract

What influences social actors' decisions to talk about and act for climate change? Political science research has focused on the drivers of environmental salience, yet the results are mixed. In this dissertation, I contribute to the discussion on environmental salience, and analyze four different aspects of environmental salience, through four independent research papers. I concentrate on Europe and study some determinants of environmental salience among the public and among political parties.

The first paper studies the impact of countries' global integration on individuals' participation in environmental organizations. I argue that people's political ideology conditions the positive effect of the global spread of environmental attitudes. Being on the right side of the ideological spectrum decreases the positive impact of global integration on environmental activism compared to being on the left side. The second paper analyzes the transnational influence of natural disasters on environmental attitudes. In one of the first comprehensive and systematic attempts, me and my co-authors explore whether there is a cross-border effect stemming from environmental disasters abroad on public opinion "at home". The third paper studies the Conference of the Parties (COP) and its influence on environmental attitudes of the local communities that host it. Non-governmental organizations, media sources, and protestors gather around the location of COPs, disproportionately affecting individuals who live in proximity to the event compared to more distant residents. The last paper focuses on party competition on environmental issues. I disentangle parties' responses to issue and non-issue owners and show that while mainstream parties de-emphasize environmental issues when green parties gain electoral support, they emphasize them when their mainstream competitors

highlight them. However, I also show that this positive influence is conditional on the success of green parties. In systems with strong green parties, rival parties' influence disappears.

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# Introduction

Climate change and environmental deterioration are undoubtedly among the most pressing issues of our time. Increasing $CO_2$ emissions, rising sea levels, air/water/ground pollution, natural disasters are just a few of the issues linked to climate change. Environmental issues have gained momentum in the public debate, and it seems there is an international consensus on the need to protect the environment. Governments collaborate under the umbrella of international organizations for mitigating and adapting to climate change. More than 190 nations are under the United Nations Framework Convention on Climate Change (UNFCCC) which is tasked with supporting global response to the threat of climate change[1]. In addition, the general public worries about climate change and demands political action. According to a worldwide study conducted by Gallup in 2021, 67% of people viewed climate change as a threat to their country[2].

Despite this ostensible consensus, research has shown that support for climate change mitigation is widespread but far from universal. Both the general public and political elites are divided over climate change issues. On the one hand, concerning the general public, research has shown that there is high variation on levels of concern across countries (Duijndam and van Beukering, 2021; Stokes et al., 2015) and substantial minorities continue to believe that climate change and its associated dangers are exaggerated (Hornsey et al., 2016; McCright et al., 2016b; Poortinga et al., 2011). On the other hand, political elites also respond differently to the threat of climate change. Research has identified growing differences among parties' agreement on climate change (Dunlap et al., 2016; Marquart-Pyatt et al., 2014; Zhou, 2016).

[1] https://unfccc.int/about-us/about-the-secretariat.

[2] https://wrp.lrfoundation.org.uk/LRF_2021_report_risk-in-the-covid-age_online_version.pdf.

Based on this background, this thesis concentrates on the debate around environmental salience. Salience was originally used by voting behavior scholars to designate the importance individuals attach to different issues when evaluating political candidates (Berelson et al., 1954). The term is still used to describe issue importance, and in effect greater salience means greater significance. Whether individuals consider environmental issues salient or not is of great importance because salience can both directly and indirectly affect the environmental political discourse and policy outcomes.

The direct effect of environmental salience on political discourse and policy outcomes is straightforward. Once a big part of the public puts weight on environmental issues, political parties have incentives to address them in accordance with their constituency to pursue election goals (Lax and Phillips, 2009; Wagner and Meyer, 2014b). As Ansolabehere and Iyengar (1994, 337) note, "by advertising on the major issues of the day, candidates are more likely to be seen as concerned, responsive, and informed". In addition, research has shown that the rise and fall of issue salience among individuals tend to correspond with changes in government policies at the national level (Bromley-Trujillo and Poe, 2020; Wlezien, 2005).

Salience, however, also affects the political discourse through indirect means and particularly through individuals' attitudes and behavior. Individuals undertake actions which in turn push politicians to focus on environmental issues. Voting parties that take pro-environmental stances or protesting for the urgency of climate policies can bring environmental issues to the centre of the political debate. In more details, individuals do not only place importance on issues, they also express preferences regarding them (Hatton, 2021). Preferences relate to the environmental solutions individuals would like to see and the type of action they would be willing to take. Research has shown that the increased salience of an issue is accompanied by increased knowledge of that issue, less likelihood of taking neutral positions and more likelihood to participate in politics (Weaver, 1991), protesting (Lee Fox and Schofield, 1989), and party support (Neundorf and Adams, 2018). In other words, there is a salience-attitude association. As individuals have stronger feelings for the importance of an issue, they tend to have more positive positions towards that issue. For instance, a person who believes climate change is among the most serious issues in their country is also more

likely to support adaptation and mitigation policies for tackling climate change and take action for its solutions. Based on this salience-attitude logic, the opposite can also be true. As individuals put less weight on environmental issues, they might be less keen to support environmental solutions and act for the protection of the environment.

Environmental salience can take different forms of manifestation. Once an issue is considered important by an individual, there is a broad range of behaviors which they can develop at the private and the public sphere (Dalton, 2015), like recycling, donating money, participating in environmental activism or voting for pro-environmental parties. The main difference between private and public behaviors is their impact in terms of magnitude (Stern, 2000). One the one hand, although private behaviors have direct environmental consequences, their actual environmental impact is small. Such behaviors have significant impacts only in the aggregate, when many people independently do the same thing. On the other hand, public behaviors affect the environment indirectly, by influencing public policies. These effects can be much larger in magnitude since public policies can change the behaviors of many people and organizations at once. Thus, public behavior, in the form of voting or participating in protest, can have strong impacts on mitigating climate change.

As a result, the focus of the thesis is twofold. First I focus on the importance of environmental issues among individuals and the manifestation of this importance through public behaviors. Understanding peoples' environmental attitudes and actions can have strong impacts on tackling climate change. They both signal the importance of the issue among the public. Although both have indirect effects since they do not directly ameliorate the environment, they affect the environment by influencing party discourse and policy outcomes with direct, large environmental effects (Bouman et al., 2020; Hagen et al., 2016). The literature on environmental attitudes and behaviors has offered valuable insights on the drivers of pro-environmental preferences. In particular, the literature has stressed individual (sociodemographic and socio-psychological characteristics) and national (economic, environmental) level characteristics that determine people's beliefs on climate change (Bechtel et al., 2019; Diamantopoulos et al., 2003; Hamilton and Saito, 2015; McCright and Dunlap, 2011; Gillham, 2008; Knight and Messer, 2012; Marquart-Pyatt, 2012; Oreg and Katz-Gerro, 2006;

Pisano and Lubell, 2017; Whittaker et al., 2005).

I build on this literature and expand it by studying international influences on environmental salience and public behaviors. International connectedness and international cooperation are important factors. International connectedness has facilitated the spread of pro-environmental ideas and transnational spillovers. Research has pointed out that directly experiencing the impacts of climate change can drive environmental attitudes by making climate change feel more real (Baccini and Leemann, 2021; Bergquist et al., 2019; Halder et al., 2020). However, the propagation of news regarding these disastrous impacts or the spread of pro-environmental ideas through environmental non-governmental organizations (ENGOs) can also have an indirect but equally strong effect on people's environmental attitudes. Moreover, international cooperation, like the organization of the annual Conference of the Parties (COP) has become the norm rather the exception. These international events, although purposed to affect states' behavior, can also affect individuals' preferences.

However, contextual influences are often filtered by individuals' predispositions. When it comes to environmental attitudes and behaviors, one of the most influential factors is political ideology (Hamilton, 2008). A large stream of the literature has shown that left-leaning individuals are more supportive of environmental policies compared to their right-leaning counterparts (Dunlap et al., 2001; Harring and Sohlberg, 2017; McCright et al., 2016b). Yet research has also highlighted that large-scale, localized events can elicit strong concentrated effects that are not conditioned by political ideology. Individuals often tend to reward or punish the incumbent after a disaster depending on their ability to handle the disaster (Gasper and Reeves, 2011; Healy and Malhotra, 2010). Moreover, Cutler (2016) finds that severe weather property damage moderates the relationship between political ideology and climate perceptions. These strong effects that surpass ideological differences occur because specific events – negative (natural disasters) or positive (international meetings) – are "easily observable variations" that "have been shown to affect political preference" (Druckman and Lupia, 2016, 15). Even if individuals are shortsighted (Healy and Malhotra, 2009), they can be persuaded and update their priors based on new evidence on the importance of climate change.

Based on these findings of the literature, I study the influence of international connectedness and

international cooperation on environmental salience by also taking into account the role of political ideology. In all papers I include a discussion about the role of ideology on the specific outcome of interest but not in all papers ideology has the same theoretical weight. When I focus on specific events, like natural disasters or the COP, ideology is not in the forefront of my argument. These events can have concentrated impacts that go beyond ideological divides, so I expect ideology not to strongly moderate their effects. On the contrary, in cases where international connectedness is realized through long-term processes that are not visible by individuals, I expect ideology to matter to a great extend. Without specific, observable events to directly influence individuals, personal predispositions predominantly influence environmental attitudes and behaviors.

Second, I focus on environmental salience among elites, and in particular among political parties. Parties are at the epicentre of climate change politics. Understanding parties' decisions to highlight environmental issues is as important as understanding individual preferences. Even if individuals mobilize for the environment and are concerned about it, parties are the actors that ultimately decide to bring environmental issues in the policy debate. In addition, party competition heavily shapes government policy (Farstad, 2018); hence the last part of my dissertation turns the focus from the public to political parties.

Research has documented that there is a strong relationship between environmental salience among the public and parties' responses to climate change (Abou-Chadi et al., 2020; Adams et al., 2004; Spoon et al., 2014). Less investigated are the party system dynamics that affect parties' decision to talk about the environment. I add to this literature (Abou-Chadi, 2016; Green-Pedersen, 2019; Meguid, 2005) by highlighting the importance of rival parties' strategies.

I contribute to the debate of environmental salience among the public and parties by focusing on the European context. Europe represents a good case for three reasons. First, environmental salience in Europe shows significant variation (McCright et al., 2016a). Climate change has become more politicized (Carter and Clements, 2015) and thus disentangling the drivers of salience among both individuals and parties becomes extremely relevant. Second, the EU, under the European Green

Deal, aims to become climate-neutral by 2050[3]. If there is no domestic support, however, from both the public and political parties, this task might be difficult to achieve. Climate change mitigation requires behavioural change of all social actors (Bakaki and Bernauer, 2017); thus, salience sets important constrains on political attempts to tackle climate change. Lastly, the choice to focus on Europe was driven by data concerns. There is a plethora of data sources that focus on European countries for both public attitudes and parties' strategies. The data cover a long period and map environmental salience since the rise of environmental issues during the 1980s.

## Structure of the dissertation: Synopsis of the four papers

The dissertation is made of four substantial chapters/papers on interrelated, albeit different, issues of environmental salience. The first three papers focus on environmental attitudes of the general public. The last one focuses on environmental attitudes from a different perspective. It examines political parties' decision to highlight environmental issues.

### Paper 1: Does Global Integration Foster Environmental Mobilization? The Effect of Global Norms on Environmental Movement Participation

Paper 1 examines the effect of countries' global integration on individuals' participation in environmental movements. According to the world polity thesis (Boli and Thomas, 1997; Meyer et al., 1997), individuals from nations which are more integrated into the global society have a greater likelihood of expressing environmental concern and participating in environmental movements (Schofer and Hironaka, 2005). Since the '80s, and the emergence of the environmental debate, state and non-state actors have promoted the new norm of environmentalism which has started to become legitimized and be regarded as the appropriate type of thinking. This predominance of environmental issues at the international level affects individuals' perceptions about climate change by pushing them to increase their concern on environmental issues, which can lead to changes in attitudes.

However, I posit that this positive effect of countries' integration is mediated by people's predispositions, in particular their political ideology. The world society stimulates pro-environmental

[3]https://climate.ec.europa.eu/eu-action/climate-strategies-targets/2050-long-term-strategy_en

attitudes for individuals on each side of the ideological spectrum. Individuals on the left are more receptive to the world polity's messages and thus keener to participate in environmental organizations. Their general ideology is in accordance with the proposed solutions for the climate crisis. On the other hand, right-leaning individuals are more hesitant to participate in environmental activism due to their ideology's incompatibility with the policies for environmental reform that require market regulation and state intervention. In other words, I argue that global integration's effect is weaker on right wingers than on left wingers.

I test my hypothesis with a sample comprising 40 European countries between 1981-2020. The outcome variable is drawn from the European Values Survey (EVS) and measures respondents' participation in environmental organizations. I use three main independent variables. First, I use countries' global integration which is taken from the KOF Globalization Index. The Index measures countries' total globalization by combining its economic, social, and political one. Hence, I first test globalization's effect on environmental activism and then I disaggregate its total effect among its three types for capturing potential differences among them. Second, I use individuals' political ideology, which is also drawn from EVS and measures people's self-placement on the left-right scale. Finally, for directly testing the conditional effect of global integration, I use the cross-level interaction term of these two predictors. I employ multi-level model techniques for explaining my outcome variable.

The results support my expectation that globalization's effect on environmental activism is conditional on political ideology. While in a country with average levels of globalization the probability of participating in environmental organizations is 0.05 for individuals who place themselves on the left side of the ideological spectrum, in a country with increased levels of globalization this percentage increases to 0.08. On the other hand, for individuals who place themselves on the right side of the ideological spectrum, in a country with average levels of globalization the probability of participating in environmental organizations is 0.03, which increases only to 0.04 with increased levels of globalization. By disaggregating globalization to its three main – components economic, social, and political – I find clear differences among them. Social integration

has the largest effect on individuals while political globalization has a null effect.

## Paper 2: The Transnational Influence of Natural Disasters on Environmental Attitudes

Paper 2 focuses on the question: do natural disasters have a transnational influence on environmental attitudes abroad? An extensive literature has highlighted that the personal (local) experience with natural disasters can be a focal point that forms environmental views (Baccini and Leemann, 2021; Bergquist et al., 2019; Howe et al., 2014; Konisky et al., 2016; Li et al., 2011; Reser et al., 2014; Walker et al., 2011; Whitmarsh, 2008). Experience of an extreme environmental event induces that climate change is perceived as "more real, immediate, and local" (Carlton et al., 2016). Yet, natural disasters are not confined to state borders. Therefore, in addition to the local effect identified by previous research, the paper argues for a transnational-level influence, beyond domestic boundaries.

The argument is based on two interrelated mechanisms that pertain to the flow of information across borders as a necessary requirement for diffusion to emerge and people's processing of information on events in nearby states. That is, natural disasters in nearby countries prompt individuals to believe they could also be directly affected by such incidents in the future. Moreover, local media must report about those events in the first place to ensure that information reaches individuals; those media outlets are more likely to cover disasters in geographically proximate and neighboring countries as opposed to more distant states. Both mechanisms imply that people will be more aware of environmental disasters in proximate countries and will be more likely to develop feelings of fear, distress, and uncertainty due to these events. Ultimately, my co-authors and I argue that public opinion on the environment is likely affected as a result even if a disaster occurred in another nearby country.

We test the proposed cross-national influence of natural disasters on a sample of 32 European countries between 2002-2020. The outcome variable captures a country's environmental salience and the variable is built with the use of Eurobarometer data. Our main interest is to explore how people's perception of environmental salience is shaped by environmental disasters in other countries.

To this end, we estimate spatial-X models (Franzese and Hays, 2007, 2008; Plümper and Neumayer, 2010). In our case, Environmental Salience (dependent variable) is a function of environmental disasters in other countries and a weighting matrix specifies the subset of countries that should have an influence on the outcome. We capture this with the item $\mathbf{W}_x^{DisasterFatalities}$. This variable is the product of the weighting matrix based on state-to-state contiguity that we use to operationalize geographical proximity and a variable on disaster-related deaths.

Results provide support for the main hypothesis of the paper. At the minimum of the spatial item, which pertains to no disaster fatalities in neighboring states, on average, 6% of the population would indicate that the environment is one of the two most salient issues affecting their country. The point estimate of the predicted values increases to more than 10%, however, when raising $\mathbf{W}_x^{DisasterFatalities}$ to its sample maximum. We additionally calculate the higher-order effect of disaster fatalities in country *j* on its neighbor *i*, which feeds back and then influences others via direct and indirect links (Ward and Cao, 2012, pp. 1092-1094). The results further corroborate the existence of a transnational influence of natural disasters in nearby states.

## Paper 3: Glocal Governance: The Effect of COP Meetings on Local Environmental Attitudes

Paper 3 analyzes the effect of the UNFCCC Conference of the Parties (COP) on environmental attitudes of the local communities that host them. Past research has found that international organizations (IOs) and international cooperation does not only affect states (Fang and Stone, 2012; Gray, 2009; Keohane, 2005; Ovodenko and Keohane, 2012) but also other social actors, including the public (Bakaki and Bernauer, 2017; Bearce and Cook, 2018; Chapman, 2012; Greenhill, 2020; Tingley and Tomz, 2020, 2022; Wallace, 2019). This body of work has proposed the idea that IOs do not operate in a vacuum, rather they expand their influence on actors besides states.

I push forward the idea that IOs affect social actors by focusing on one specific tool of IOs, namely international meetings, and I stress that international meetings, like the COP, occur in a specific place at a specific time and therefore can have localized effects. International meetings

attract significant attention and a series of events accompany the main event – *i.e.*, negotiations. Local political authorities, social movements, and the media are among the most important actors that gather in the host city and surround the event. Therefore, on the one hand, through the arrangement of international meetings, IOs send signals to the public by legitimizing certain policy options (Bearce and Cook, 2018), such as climate mitigation or human rights protection. On the other hand, in addition to the effect that the negotiations can have on the public, the "side-events" publicize even more the message proposed by IOs and the participating states.

Empirically, I test my expectation by focusing on COPs that took place in European cities between 2003-2022 and I test their effect on environmental attitudes of the local populations. The analysis consists of two parts. First, I examine changes in environmental preferences before and after a COP by leveraging data from the Eurobarometer on people's views on the importance of climate change. By using a difference-in-differences design, I show that, in regions where the COP took place, environmental salience substantively increased. Second, I concentrate on one COP meeting – the one that took place in Glasgow in 2021 – and provide further evidence for the proposed effect. In the case study, I focus on individuals' intention to vote for the Green Party. I use individual level panel data drawn from the British Election Study and demonstrate that individuals who reside in Scotland increased their intention to vote for the Green Party. I also disaggregate the effect and use as treated units only individuals who live in the Glasgow area given that the negotiations and most of the side event took place there. I find a positive and significant effect on people's green voting intention.

## Paper 4: Party Competition on the Environment: Party System's Influence on Environmental Salience

Paper 4 moves the focus from the public to political parties. In this paper, I focus on party competition and in particular on mainstream parties' decision to emphasize environmental issues. I start by distinguishing between issue owners' influence - *i.e.*, parties that are considered to dominate the discourse on a specific issue and are perceived to be the most competent on that issue (Budge, 2015) – and non-issue owners' influence. Issue owners affects parties' decisions via its electoral success

whereas non-issue owners affect parties' decisions through the emphasis they put on the issue.

First, parties need to consider the influence of the issue owner, which in the case of environmental issues, are green parties. I argue that mainstream parties have a strategic incentive to drop the issue because green parties dominate the environmental debate and are considered the most competent in solving the issue (Abou-Chadi, 2016). The risk of partisan realignment toward green parties is high; hence, mainstream parties want to halt this vote increase by de-emphasizing the issues that make green parties strong.

Second, mainstream parties need to take into account the strategies of non-issue owners. The fact that rival parties that are not considered issue owners pay attention to environmental issues shows that the environment has gained momentum in the so-called party system agenda (Green-Pedersen and Mortensen, 2015). The more salient an issue is, the more important is for parties to take positions that appeal to the electorate. Thus, I argue that parties' emphasis on environmental issues is contingent on their mainstream competitors' emphasis on the environment.

The coexistence of issue owners and non-issue owners, and their corresponding opposite effect creates a clash between two potential strategies. Parties can be responsive to the party-system agenda by emphasizing environmental issues or they can instead try to decrease the electoral success of green parties by ignoring them. I argue that in systems where green parties are weak and do not gain electoral support, parties will be significantly influenced by their non-issue owner competitors. In systems, however, where green parties are considered electorally stronger, the influence of the mainstream competitors will be much weaker. Although parties want to be responsive to the issue that dominates the public agenda, they also recognize that competing on this issue dimension is a losing strategy.

I test the above theoretical expectations by examining the dynamics of party competition on environmental issues in Western Europe. The empirical analysis is based on party manifestos from 17 Western European countries in the period from 1980 to 2021. The data are drawn from the Comparative Manifesto Project. I focus on parties' emphasis on environmental issues, and I evaluate whether parties respond to non-issue owners' environmental emphasis, to green parties' past electoral

success, and if the effect of the non-issue owner is dependent on the issue owner.

The results are in line with my theoretical expectations. Issue owners and non-issue owners have a different effect on parties' decision to emphasize environmental issues. Green parties' vote share has a statistically significant negative effect on parties' choice to emphasize environmental issues. With an increase in green parties' electoral support, established parties decrease emphasis on environmental issues in their manifestos by 0.39. On the contrary, non-issue owner rivals have a positive and significant effect on parties' decision to talk about the environment. When other mainstream rivals increase their emphasis on environmental issues by a unit, parties will also increase their emphasis on the environment by 0.11. Lastly, results provide evidence that in systems where the issue owner is weak mainstream competitors' environmental emphasis is influential, but in system where green parties have larger support among the electorate this influence decreases and becomes insignificant.

## Research implications and contributions

The dissertation focuses on the debate regarding environmental salience. It approaches this issue by analyzing environmental salience of two different social actors: the public and political parties in the European context. In particular, in the first – longer – part of the dissertation (papers 1-3), I examine the influence of different international forces (*i.e.*, global integration, natural disasters abroad, the COP) on people's environmental attitudes and behaviors. I show that observable events have strong effects on both individual salience and behavior, like voting. In addition, I highlight the role of political ideology particularly when international influences are realized through long-term processes that are not visible by individuals. In the second part of the dissertation (paper 4), I focus on political parties and I disentangle the conditions that halt the spread of environmental salience among parties.

The dissertation makes several contributions. First, it adds to the literature on environmental attitudes. I show that states' interconnectedness aids the promotion of environmental attitudes among individuals. Even if people are not directly affected by the disastrous effects of climate change,

they are indirectly affected by them through the flow of information across countries. The public is influenced by the promotion of environmental ideas through the world polity and by natural disasters in nearby states. In addition, states' cooperation at the international level, through international negotiations, also affects individuals who are exposed to IOs messages. Moreover, it is without doubt that environmental attitudes are diverse. People might be concerned about climate change, they might protest, recycle, be willing to pay more taxes, or vote for green parties. Each behavior matters for tackling climate change; thus, understanding what drives them is of great importance. In the dissertation, I focus on three different types of environmental attitudes, namely, participation in environmental organization, environmental concern, and vote for green parties. By doing so, I contribute to the literature on environmental preferences, and I offer evidence of some potential drivers of these different types of environmental attitudes.

In addition, public opinion and attitudes positively correlate with policy outputs (Bakaki et al., 2020; Schaffer et al., 2022). Although politicians are those who ultimately make policy decisions, the public matters greatly as citizens' concerns can shape governments' environmental legislative actions. Hence, an important implication of this research is the analysis of potentially important routes to engagement with climate change and a window of opportunity to build political support for environmental mitigation policies.

The dissertation also contributes to the comparative climate policy literature. Political parties are at the heart of climate change politics, as party competition heavily shapes government policy, and national governments in turn remain central to policymaking on climate change (Farstad, 2018). Understanding why mainstream parties make climate change a more or less salient issue sheds light on opportunities and barriers to party competition and action on the issue.

# Paper 1

# Does Global Integration Foster Environmental Mobilization? The Effect of Global Norms on Environmental Movement Participation

**Abstract**

The paper examines the effect of global integration on participation in environmental movements. Countries' integration in the world society leads to the diffusion of environmental ideas among the public. However, I argue that not everyone is affected by it to the same degree. People's political ideology restrains the positive effect of the world environmental regime. Being on the right side of the ideological spectrum is expected to decrease the positive impact of global integration on environmental activism compared to being on the left side. The assumed incompatibility between economic prosperity and environmental reform exerts a strong influence on views and attitudes of right leaning individuals, who end up being more hesitant towards acting for the promotion of environmental protection, fearing the solutions associated with climate change. For testing my hypothesis, I use data from more than 120,000 individuals in 40 European countries in the period from 1981 to 2020, and I employ multilevel model techniques. The results support the expectation of this paper that global integration's effect on environmental mobilization is conditional on political ideology. Left-leaning individuals are the ones who are mostly influenced by their country's integration in the world society.

## 1.1 Introduction

Research suggests that there is a broad international consensus on the need to protect the environment (Crawley et al., 2020). Political efforts to deal with the global climate change problem though is processing at a pace far slower than scientists deem necessary for avoiding major climate changes (Bernauer, 2013), as many governments have lately failed to be on track for meeting their climate pledges[1]. As a response to this political deficiency, people around the globe decide to act on behalf of the environment by participating in environmental activism. Not everyone though feels inclined to act to the same degree. On the contrary, there are differences among individuals' climate change views and behaviors.

Studies have documented a political divide on climate change. Dunlap et al. (2016) show that there is an escalation of partisan polarization on environmental protection and climate change in the United States. Additionally, Poortinga et al. (2011) in a study of climate change scepticism among the British public find that respondents who self-identify with the Conservative party express greater levels of climate change scepticism. Similarly, Whitmarsh (2011) finds that respondents with right-of-center political views are significantly more sceptical of the reality and seriousness of climate change than are those who are affiliated with Labour, Liberal Democrats, Greens, and others.

The question that arises is why some people feel more inclined to participate in environmental movements compared to others. According to the world polity thesis (Boli and Thomas, 1997; Meyer et al., 1997), individuals from nations which are more integrated into the global society have a greater likelihood of expressing environmental concern and participating in environmental movements (Schofer and Hironaka, 2005). Since the '80s and the emergence of the environmental debate, state and non-state actors have adopted the new norm of environmentalism which has started to become legitimized and be regarded as the appropriate type of thinking. This predominance of environmental issues at the international level affects individuals' perceptions about climate change,

[1]"Climate Commitments Not On Track to Meet Paris Agreement Goals", *UNFCCC*, available at:https://unfccc.int/news/climate-commitments-not-on-track-to-meet-paris-agreement-goals-as-ndc-synthesis-report-is-published.

by pushing them to increase their concern on environmental issues, which can lead to changes in attitudes.

However, I posit that this positive effect of integration is mediated by people's predispositions, and in that case by people's political ideology. The world society stimulates pro-environmental attitudes for individuals on each side of the ideological spectrum. Individuals on the left are more receptive to the world polity's messages and thus keener to participate in environmental organizations. Their general ideology is in accordance with the proposed solutions for the climate crisis. On the other hand, right-leaning individuals are more hesitant to participate in environmental activism due to their ideology's incompatibility with the policies for environmental reform that require market regulation and state intervention. In other words, global integration's effect is weaker on right wingers than on left wingers. As a result, while the latter participate much more in environmental organizations the former remain hesitant, and the "action gap" between them gets larger.

Empirically, I test my expectation by examining the effect of countries' global integration on participation in environmental organizations. I leverage data from the European Values Study (EVS)[2] and model participation in environmental organizations by more than 120,000 individuals between 1980 and 2020. I show that integration's effect on individuals' decisions to participate in environmental organizations is conditional on their political ideology. While both sides of the ideological spectrum are positively affected by global integration, the effect on left-leaning individuals is much larger in magnitude. In other words, the strong influence of globalization on left-leaning individuals pushes them towards environmental action and leaves right-leaning individuals behind.

Understanding the reasons individuals decide to support and act about the environmental is crucial. Public support for climate action is of high importance, since individuals' perceptions are significant for governments to credibly commit to global public policy, including climate policy (Klenert et al., 2019; Stadelmann and Eder, 2020). Additionally, by examining the ways global integration affects people's decision to participate in environmental activism, this paper contributes

[2]The data are available at: https://europeanvaluesstudy.eu.

first to social theory by integrating global integration and social movement theories, and second to empirical research on environmental attitudes. It expands the research on environmental attitudes by taking into consideration international influences.

## 1.2 Why do people mobilze for the environment?

Environmental mobilization is a multidimensional concept. It involves a broad range of behaviors which develop at the private and the public sphere (Dalton, 2015), like recycling, having an environmental-friendly lifestyle, signing petitions, donating money, or participating in environmental organizations. In this paper, I focus on the latter type of environmental activism, which is also characterized as "political activism" for the environment. Participation in social movements, like the environmental one, is seen as a taken-for-granted part of the repertoire of citizens' political activities (Schussman and Soule, 2005) and many scholars have argued that activities of social movements are part of the normal political process (Putman, 2000).

The question of what spurs people to engage in environmental activism has been widely examined and it inspires ongoing debate (Brechin, 2010). Research on the determinants of environmental attitudes primarily focuses on country and individual level characteristics. At the individual level, investigations of participation in environmental movements focus predominantly on sociodemographic and social-psychological variables which explain environmental behaviour (Marquart-Pyatt, 2012; Oreg and Katz-Gerro, 2006; Diamantopoulos et al., 2003). Three of the most accepted ideas regarding social movement participation theory are: biographical availability, structural availability, and political ideology. Biographical availability is defined as 'the absence of personal constraints that may increase costs and risks of movement participation such as full-time employment, marriage, and family responsibilities' (McAdam, 1986). Individuals who are younger, not married and have no children are more likely to be members of social movements. Structural availability refers to the presence of interpersonal networks which facilitate recruitment to activism (Schussman and Soule, 2005). People rarely participate in movements, unless they are motivated by others who presumably

are members of the movement. Last but not least, scholars have pointed out that political ideology influences individuals' propensity to participate in social movement activities (Hamilton and Saito, 2015; McCright and Dunlap, 2011; Whittaker et al., 2005). Studies show that left-leaning individuals tend to participate more in environmental social movements than their right-leaning counterparts.

At the context level, a substantial body of social movement scholarship focuses on the local and national context shaping the rise of collective action. Political opportunity structures, resource infrastructures, and the ability to convert grievances into strong mobilisation (Edwards and McCarthy, 2004; Tarrow, 2011) are the main frameworks that are used for explaining differences in movement participation across nations. The above frameworks have also been applied frequently to the environmental context (Gillham, 2008; Mertig and Dunlap, 2001). Additionally, some studies expand the focus from the domestic to the international arena. They highlight the diffusion of environmental ideas and the ways it helps explain individuals' perceptions and actions about the environment. In particular the world polity thesis highlights the influence of global pro-environmental ideas on individuals' actions through the world society (Givens and Jorgenson, 2013; Hadler and Haller, 2011).

## 1.3 Global integration and the spread of environmental ideas

Global integration is a process that erodes national boundaries, integrates national economies, cultures, technologies, and governance, and produces complex relations of mutual interdependence (Norris, 2000). Among others, Keohane and Nye (2000, p.4) highlight three dimensions of the globalization process: political, social, and economic. Political globalization is characterized by a diffusion of government policies; social globalization is expressed as the spread of ideas, information, images, and people; economic globalization includes long distance flows of goods, capital, and services as well as information and perceptions that accompany market exchange.

This international interdependence is regarded as a powerful drive of domestic change, and there is a consensus that diffusion can be defined as a consequence of interdependence (Gilardi, 2013). We

can observe diffusion in many different political phenomena; among others, between policies (Quinn and Toyoda, 2007), institutions (Polillo and Guillén, 2005), war (Buhaug and Gleditsch, 2008), election campaign strategies (Boas, 2010), and individuals (Kalatzi Pantera et al., 2022). Hence, diffusion can take place between countries or among a wide range of private and public actors, and it can lead to the spread of policy models, institutional settings, and ideational frameworks.

Emulation is the main mechanisms that explains the diffusion of ideas[3]. Emulation is one of the main mechanisms that are used for explaining policy diffusion (*e.g.*, Franzese and Hays, 2008; Simmons et al., 2006), and it can be understood as norm diffusion. According to Finnemore and Sikkink (1998), norm dynamics follow a three-stage process. First, new types of behavior are put on the radar by norm entrepreneurs with the support of organizational platforms. When a sufficient number of social actors have taken up the new norm, a critical point is reached which pushes norm dynamics into their second stage, namely “norm cascade". In this stage norms are promoted in a socializaiton process. Finally, if this process is strong enough, norms might become so deeply accepted that they end up being taken for granted as an appropriate type of behavior (“internalization stage").

This idea of emulation is closely related to the idea of the world polity. It was developed in the sociological literature (Boli and Thomas, 1997) and it draws attention to the global cultural diffusion of accepted institutional structures and modes of thinking, and it highlights the isomorphism in culture across different countries. The central proposition is that many national institutions, organizations, and policies “derive from worldwide models constructed and propagated through global cultural and associational processes" (Meyer et al., 1997, 144-145). It is a neo-institutional approach that describes the construction of the nation-state as an institution in the world society. Based on this perspective, the nation-state is seen as a rational actor with culturally acceptable goals, that is formed by cultural and associational processes at the global level (Givens and Jorgenson, 2013). Understanding nation-states in this way has parallels to understanding the construction of

[3]Although there are three more plausible mechanisms - learning, competition, and coercion -, I argue that they do not explain how the spread of ideas occurs but primarily how the spread of policies occurs (for an overview, see Gilardi, 2013).

individuals in the world polity as well. Like nation-states, individuals are constructed by the world polity as rational actors with culturally constructed goals.

By combining this two theoretical ideas it is plausible that the world polity influences also individuals via emulation. Individuals, similarly to states, can emulate by copying the behavior of others, which was promoted by the world society and is regarded as highly acceptable. At the environmental context, the world polity presents the environment as an interconnected global ecosystem that is being threatened, and scholars have identified a world environmental regime that encourages and promotes environmental concern at the global, state, and individual level. Discussions of the world polity and the world environmental regime are often at the level of the nation-state (Longhofer and Schofer, 2010; Shandra et al., 2009). However, there are some studies that focus on world polity's influence on individuals (Hao, 2016; Jorgenson and Givens, 2014). By using multilevel analyses, the above studies show that individual-level concern is shaped by global-level forces of the world polity and its framing of the issue. Just like states which are constructed as entities responsible for protecting the environment, individuals are constructed as rational actors with the personal responsibility to protect the environment.

Dominant actors in the world polity are NGOs and states. NGOs are seen as both products of and the most important carriers of the world polity that diffuse progressive global models (Clark, 2008). Pellow (2007) in an analysis of social movements resistance to global toxins, emphasized the role of a key NGO, Greenpeace International, in raising awareness of the global nature of environmental degradation. Furthermore, states have become highly involved in the world polity. Their participation in international organizations and agreements serves as evidence of their adoption of a wider system of values, beliefs, and organising principles (Frank et al., 2000). As states become integrated into the world society, they are more exposed to the diffusion of pro-environmental ideas and environmental concern (Jang and Luo, 2000). Put differently, states by participating actively in the world society have passed to the second stage of the emulation process, where the protection of the environment is a promoted goal.

Therefore, individuals from nations which are more integrated into the global society have a

greater likelihood of expressing environmental concern and participating in environmental movements (Schofer and Hironaka, 2005). Since the '80s and the emergence of the environmental debate, norm entrepreneurs have highlighted the importance of fighting climate change. State and non-state actors have adopted the new norm which has started to become legitimized and be regarded as the appropriate type of thinking. This predominance of environmental issues at the international level affects individuals' perceptions about climate change by pushing them to increase their concern on environmental issues, which can lead to changes in attitudes, including engaging actively in environmental activism.

There is a plausible concern that the direction of the proposed association is reverse, meaning that individuals' increased participation in environmental movements could influence a country's global integration. Although I acknowledge this concern, I argue that in the case of the environmental movement, it is more plausible that global integration affects individuals. The opposite direction entails a process where a micro-level phenomenon – *i.e.,* individual protest behavior – affects a macro-level one – *i.e.,* countries' global integration. This is likely to happen in cases where participation in movements is widespread. Participation in the environmental movement, however, still remains relatively low. According to data from the European Values Survey (which I use for the empirical analysis of my study), 6% of individuals in the sample are members of environmental organizations in Europe between 1980 and 2020. It would be difficult for a movement that is actively supported by 6% of the population to affect country's global integration.

I therefore expect countries' global integration to influence individuals' participation in environmental movements. However, individual predispositions play a crucial role in shaping attitudes. According to Wood and Vedlitz (2007, p.556) "people process information about issues through a filter containing a range of variables relating to their predispositions", and among them political ideology is considered as one of the most prevailing ones (Hamilton, 2008). Against this background, I push forward the argument made by the world polity thesis, and I stress the mediating role that predispositions, and in the case of environmentalism political ideology, have in receiving messages from the international community.

### 1.3.1 Political ideology as a mediator

The left-right distinction of political ideology can be understood as a "superissue" (Kostelka and Rovny, 2019) that encapsulates major conflicts which are present in the political system (Inglehart, 1990, p.273). The left-right scale summarizes positions on a wide range of issues, like individuals' class or other social characteristics (Freire, 2006), a set of cultural or post-material issues (Inglehart, 1990), such as gender equality, immigration, multiculturalism, lifestyle choices and quality of life, or economic issues (Hellwig, 2014). Research suggests that even though the economic sub-dimension associated with the left-right scale varies across time (de Vries et al., 2013) and space (Rovny and Edwards, 2012), it still presents a regularity. Indeed, there are longstanding presumptions that the Left favors greater government control of the economy, whereas the Right seeks a free market, with few restrictions in economic activity (Jou and Dalton, 2017).

In the specific context of environmentalism, ideological orientation is regarded as one of the most important factors in explaining environmental attitudes. Numerous studies find that right leaning individuals are more hesitant than their left leaning counterparts to embrace environmental attitudes (*e.g.*, Greenhill et al., 2014; Hamilton and Saito, 2015; Hinich et al., 2013; Liu et al., 2014; McCright and Dunlap, 2013). The assumed reason behind the ideological divide on environmentalism is largely being driven by ideological concerns (Feygia et al., 2010) regarding economic issues. Questions about environmental reform triggers an assumption about a trade-off between the environment and economic concerns, where environmentalism is commonly asserted to represent a challenge to the traditional emphasis on economic prosperity (Dunlap et al., 2001).

Campbell and Kay (2014) proposed a solution aversion model for explaining why people are divided over scientific evidence about certain problems, like environmental ones. They argue that some solutions associated with problems are more aversive to individuals who hold an ideology that is incompatible with or even challenged by the solution. The above model may also be used for explaining differences in individuals' willingness to participate in environmental movements. In this specific situation, some people will be hesitant to participate in environmental movements, to the degree that the existence of the problem of climate change implies solutions that are perceived as

harmful for the economy. For instance, regulations that have potential environmental benefits are sometimes presented as harmful to the economy and can be referred to as "job killers"[4]; thus, it is difficult for individuals to accept solutions that are not in accordance with their broader ideological views.

Therefore, the relationship between global integration and environmental activism is mediated by the way individuals perceive the solutions which are proposed about environmental reform. Integration promotes pro-environmental ideas through diffusion processes. The world polity presents the environment as a global public good that is being threatened and it promotes the need for companies' regulation. Environmentalism's association with solutions that create market regulation generates scepticism among right leaning individuals. As for the other side of the ideological spectrum, individuals on the left embrace easier environmental reform because it is compatible with their ideological belief that the market economy can be regulated, and the government should play a bigger role in society (Harring and Sohlberg, 2017). I do not argue that individuals of the right are not positively affected by global integration, rather that this influence is much smaller than on leftist individuals. As a result, given that right leaning individuals are usually less pro-environmental to begin with, the fact the global integration's effect is smaller on them widens the "action gap" between left and right.

*Hypothesis*: The further to the right individuals are, the lower the impact of global integration on their willingness to participate in environmental activism.

[4]"EPA Orders Power Plants to Clean Up Interstate Emissions", *New York Times*, available at: https://archive.nytimes.com/www.nytimes.com/gwire/2011/07/07/07greenwire-epa-orders-power-plants-to-clean-up-interstate-87138.html.

## 1.4 Research design

### 1.4.1 Data

The sample of my analysis consists of all European countries included in the European Values Survey (EVS) which was conducted over the period 1981-2020[5]. While there are several past studies that examine environmental activism in the European context (*e.g.*, Botetzagias and van Schuur, 2012; Gillham, 2008; Telesiene and Gross, 2017), these studies do not include international linkages into their analysis. This paper seeks to fill this gap by examining integration's influence on people's willingness to participate in the European environmental movement. The main hypothesis is tested with a sample comprising 40 countries at five different time points in line with the five waves of the EVS, which in total includes more than 120,000 individuals[6].

As a dependent variable I use the EVS question of whether respondents participate in environmental conservation or animal welfare organizations[7]. The use of the EVS data is considered a reasonable estimate of green activism because it counts individual membership in environmental groups across many European countries over time. If a person participates in environmental organizations, the variable is coded as 1, and 0 otherwise. In general, over time there is an increase in environmental movement participation across Europe. While during the first wave of the EVS only 3.7% of respondents were members of environmental organizations, during the fifth wave more than 7.7% participated in environmental activism. However, participation is not equal across nations, and there is high variability. In some countries like Belgium, Luxembourg, Sweden, Switzerland, Netherlands, more than 10% of respondents were environmental activists, with activists in Netherlands reaching

[5]There are five waves of the EVS (1st wave: 1981-1984, 2nd wave: 1990-1993, 3rd wave: 1999-2001, 4th wave: 2008-2010, 5th wave: 2017-2020).

[6]See Appendix Table A.1 for a list of countries and waves of data collection.

[7]In four of the five waves of the EVS, the question is worded as follows: "Please look carefully at the following list of voluntary organizations and activities and say... which if any, do you belong to? [Do you belong to] conservation, environmental, or animal rights groups?". In the 3rd wave of the EVS, the question was divided in two parts: "... [Do you belong to] conservation, the environment, ecology groups?" and "[Do you belong to] animal rights group?" For having the same variable across all waves, the answers from those questions were recoded into a unique variable. In more detail, I created a dichotomous variable which was coded as 1 if the answer to each of the above question was "yes", and 0 if the answer was "no".

almost 28%. On the contrary, in some countries like Belarus, Bosnia, Moldova, Portugal, Russia, Ukraine, environmental activism does not exceed 3%.

In my analysis, I use three key independent variables, namely global integration, political ideology, and their interaction term. I measure countries' global integration through the KOF Globalization Index[8]. This index was initially developed by Dreher (2006). It measures three main dimensions of globalization: economic, social, and political[9]. Economic globalization is measured through variables that capture the trade and financial relations of states. Social integration refers to the interpersonal and informational flows across borders. Political integration includes the diffusion of political institutions.

I run several models for analyzing the suggested conditional effect that countries' global integration can have on individuals. Because the KOF Index includes yearly measures of globalization, whilst my dataset is organized according to the five waves of the EVS, I recoded the original yearly measurements by identifying the mean globalization of each country for every EVS wave in which each country participated.

First, I use a measure of countries' *de facto* total globalization which pulls together the three main types of globalization: economic, political, social. By doing so, I see the overall effect that integration have on individuals' participation on environmental organizations. Second, I want to disentangle globalization's effect and capture potential differences of its three types; thus, I run some additional analysis using the three dimensions that best capture the *de facto* interdependence among states. The world polity thesis suggests that the diffusion of ideas is facilitated through global social networks. From the three types of global integration, social integration is the one that better captures this diffusion of ideas. With higher levels of social integration, pro-environmental ideas are more easily spread. If my argument is correct, social integration should have the largest effect compared to the other two types.

The data on people's political ideology are drawn by the EVS. Individuals were asked to place

[8]You can find the data here: https://kof.ethz.ch/en/forecasts-and-indicators/indicators/kof-globalisation-index.html.

[9]For detailed information regarding the measurements used for building the indicators, see: https://ethz.ch/content/dam/ethz/special-interest/dual/kof-dam/documents/Globalization/2022/KOFGI_2022_variables.pdf.

themselves on a scale which ranges from 1 to 10, with 1 referring to extreme left political views and 10 referring to extreme right political views. In the Appendix (Figure C.1, and Figure C.2), I re-estimate the models by using the dichotomous variable instead of the continuous one and the results remain the same. Finally, because my theoretical argument highlights that the effect of global integration on environmental movement participation is conditional on political ideology, in the empirical analysis I use the cross-level interaction term of these two predictors.

I also include a series of covariates at the individual and country levels to control. On one hand, prior studies identify multiple individual level predictors of environmental activism. In particular, gender (McCright and Xiao, 2014; Xiao and Dunlap, 2007), age (Marquart-Pyatt, 2007), economic status (Peisker, 2023; Weckroth and Ala-Mantila, 2022), education (Franzen and Vogl, 2013), marital status (Schussman and Soule, 2005), and post-materialistic values (Inglehart, 1990) play a role in shaping people's environmental perceptions and attitudes. On the other hand at the country level, first I control for environmental degradation which is considered an additional source of environmental concern that creates strong incentives for environmental action (Dunlap and Mertig, 1997; Pisano and Lubell, 2017). $CO_2$ emissions were chosen as the measure for ecological degradation because they are widely used in previous studies (e.g. Hao, 2016; Knight and Messer, 2012). The data are measured in metric tons per capita and are drawn by the World Bank database[10], which documents $CO_2$ emissions that stem from the burning of fossil fuels and the manufacture of cement. The data also include $CO_2$ produced during consumption of solid, liquid and gas fuels, and gas flaring. In the analysis, I use the logarithm of $CO_2$, for normalizing the variable's positively skewed distribution. Second, I include a variable which captures the freedom of association and assembly across countries. The indicator was derived from the Global State of Democracy Indices[11] and it measures the strength of actual national government practices protecting human rights. Summary statistics are reported in Appendix Table A.2.

[10] https://databank.worldbank.org/source/world-development-indicators.
[11] https://www.idea.int/gsod-indices/dataset-resources.

### 1.4.2 Methodology

I use multilevel model techniques for explaining my outcome variable because my analysis relies on a combination of individual and country level data, and I have to specify a cross-level interaction (Bell and Jones, 2015). Multilevel models have the merit of providing accurate estimates of statistical uncertainty and significance and they avoid the risk associated with ignoring some level of analysis (Subramanian et al., 2009). In addition, they allow researchers to simultaneously control for individual and contextual level variables (Raudenbush and Bryk, 2002) and to explore a richer range of relationships between the different levels. In my case, respondents *ijk* are nested in country-waves *jk* and countries *k*. Waves and countries each have random intercepts ($v_k$ and $u_{jk}$ respectively) and these intercepts are distributed normally, with mean 0. Because of the inclusion of the cross-level interaction term, in the Appendix Table D.1 and Table D.2, I also run models that include a random coefficient for the lower-level variable of the interaction term – in this case political ideology.

In particular, this data structure allows me to analyze both within and between effects of time-varying country level variables (Christmann, 2018; Duijndam and van Beukering, 2021; Fairbrother, 2013, 2014). This simultaneous but separate analysis of within and between effects of longitudinal cross-sectional relationships provides a direct investigation of social change without assuming that the longitudinal relationship is the same as the cross-sectional one (Fairbrother, 2014). The REWB (Random Effects Within-Between) model can be presented as:

$$y_{ijk} = \beta_0 + \beta_1 x_{ijk} + \beta_2 x_{jkM} + \beta_3 \bar{x}_k + \beta_4 time + v_k + u_{jk} + e_{ijk} \tag{1.1}$$

The model is a hierarchical three-level model. The individual level variables are captured in the vector $x_{ijk}$. The time-varying country level variables are decomposed and enter in the equation with two distinct forms. The between components ($\bar{x}_k$) captures persistent cross-country differences. The within component ($x_{ijM}$) is a country-wave variable and captures variation around the mean for every wave-year. This variable is orthogonal to the country mean and represents the change over time within a country. A linear variable for time is also included to account for the possibility

of spurious correlations between the within-country estimates and common time trends inherent in the data (Fairbrother, 2014). Finally, I also re-centre the variables to the mean in order to help convergence of the models.

## 1.5 Empirical findings

### 1.5.1 The effect of global integration

First, I test the main argument of the paper by focusing on the combined effect of global integration. Table 1.1 presents the results only relative to the variables of interest[12]. All models decompose the overall effect of the country-level variable – *i.e.*, globalization – into its cross-sectional (between) and its longitudinal (within) parts.

Table 1.1: Country integration and individual participation in environmental organizations

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Ideology | −0.074*** | −0.064*** | −0.051*** | −0.062*** | −0.052*** |
| | (0.005) | (0.006) | (0.007) | (0.006) | (0.007) |
| Global Integration (between) | 0.060*** | 0.076*** | 0.072*** | 0.044*** | 0.059*** |
| | (0.013) | (0.014) | (0.014) | (0.017) | (0.017) |
| Global Integration (within) | 0.000 | 0.000 | 0.000 | 0.001 | 0.001 |
| | (0.004) | (0.004) | (0.005) | (0.005) | (0.005) |
| Global Integration (between) * Ideology | | −0.003*** | −0.003*** | | −0.003*** |
| | | (0.001) | (0.001) | | (0.001) |
| Num.Obs. | 135 715 | 135 715 | 107 692 | 105 196 | 105 196 |
| AIC | 59 735.8 | 59 719.9 | 46 824.2 | 45 995.1 | 45 984.1 |
| BIC | 59 804.5 | 59 798.4 | 46 968.0 | 46 167.3 | 46 165.9 |
| Random Intercepts | × | × | × | × | × |
| Individual-level controls | | | × | × | × |
| Country-level controls | | | | × | × |

* p < 0.1, ** p < 0.05, *** p < 0.01

Models 2, 3, and 5 condition the effect of global integration on individuals' political ideology. Following Lenz and Sahn (2021), in Table 1.1 I add the controls in a step-wise manner. Model 1 includes only the variables of interest and model 2 includes the variables of interest plus their interaction term. In model 3 I add controls at the individual level, and in model 4-5 I add controls at

[12]Full disclosure of all estimates is provided in Appendix Table B.1.

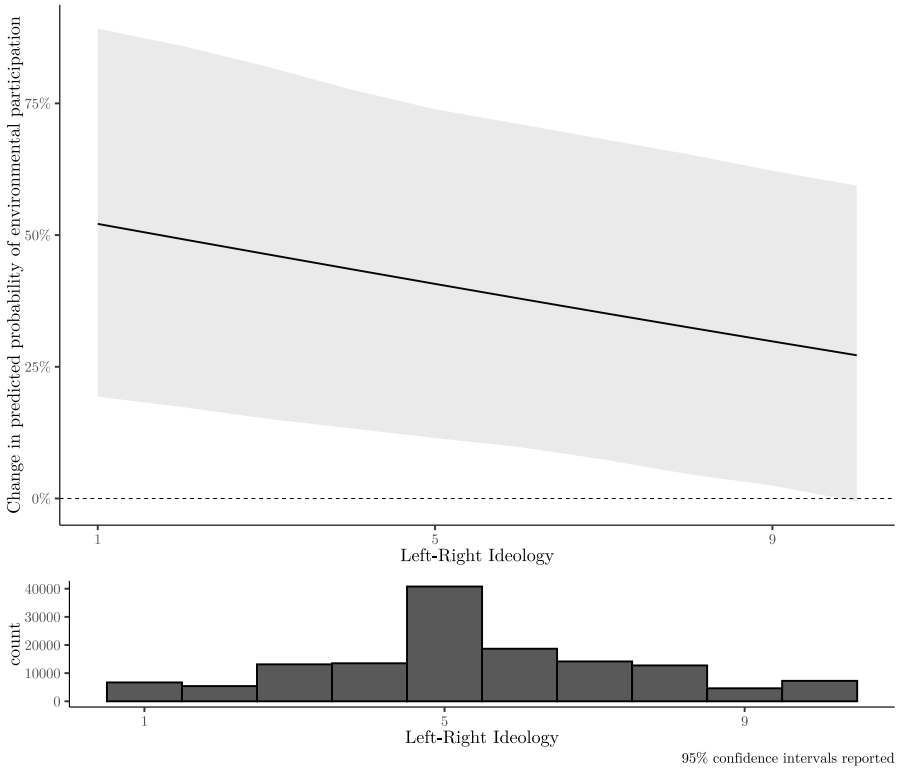
the country level.

First, by dividing globalization's effect in its longitudinal and cross-sectional component, we observe that only the cross-sectional aspect of global integration is significant (Model 1 and 4). In countries that are more globally integrated individuals are more likely to be part of the environmental movement. This positive association between global integration and environmental movement participation illustrates world polity's positive influence on the development of pro-environmental attitudes.

However, the main hypothesis of the paper focuses on the interaction between ideology and global integration. In the models, I include an interaction term between the cross-sectional component of global integration and left-right ideology. By doing this, I compare individuals across countries with different globalization levels. Due to the complexity of the results' interpretation in multiplicative models (Brambor et al., 2006), I compute the marginal effect of globalization at different groups of ideology. In particular, I measure the change in the predicted probability of participating in environmental organizations when comparing a country with an average level of global integration to a country with levels of global integration increased by one standard deviation from the mean at given groups of ideology. I also compute 95% confidence intervals of this estimated difference simulating 1000 draws from its sampling distribution.

Figure 1.1 shows the results based on the estimates of model 5 in Table 1.1. The second graph included in the figure shows the distribution of the mediator variable (Hainmueller et al., 2019). Overall, the results of interest confirm my hypothesis. When global integration of a country increases by one standard deviation, the predicted probability that an individual will participate in environmental organizations changes conditionally on their political ideology. Extreme leftist individuals from countries with higher global integration have 52% higher probability of participating in environmental movements than leftist individuals in less integrated countries. People who place themselves on the medium of the ideological spectrum and reside in countries with higher globalization levels increase their probability of environmental movement participation by 40%. Lastly, for individuals on the right side of the ideological spectrum the change in the probability

Figure 1.1: The effect of global integration on environmental activism conditional on political ideology



of participating in environmental movements lies between 27% and 37%, and it is insignificant for individuals of the extreme right.

Substantively, this means that while in a country with average levels of globalization the probability of participating in environmental organizations is 0.05 for individuals who place themselves on the left side of the ideological spectrum, in a country with increased levels of globalization the probability increases to 0.08. On the other hand, for individuals who place themselves on the right side of the ideological spectrum, in a country with average levels of globalization the probability of participating in environmental organizations is 0.03, whereas in a country with increased levels of globalization this percentage increases to 0.04. In other words, in more globalized countries the "action gap" between the two sides of the ideological spectrum gets larger.

### 1.5.2 The effect of the different aspects of global integration

Second, I disentangle globalization's effect and capture potential differences of its three types (economic, social, and political). Table 1.2 presents the results only relative to the variables of interest[13].

Like the models presented in Table 1.1, all models decompose the overall effect of the country-level variables into their cross-sectional (between) and their longitudinal (within) parts. For each aspect of global integration, I estimate two models: one that only includes the within and between component of each type, and one that add the interaction term between the between component and political ideology. By examining the three types of global integration separately, we find some differences among them. Economic integration has a positive effect on environmental movement participation in both its within and between specification. As economic integration within a country increases people tend to participate more in environmental organizations. Additionally, cross-sectionally, when a country is more integrated in the economic society, people also increase their probability of participating in environmental movements. Moving on to social and political integration, we see that only its within component is significant and positive associated to green

[13]Full disclosure of all estimates is provided in Appendix Table B.2.

Table 1.2: Country integration and individual participation in environmental organizations (types of integration)

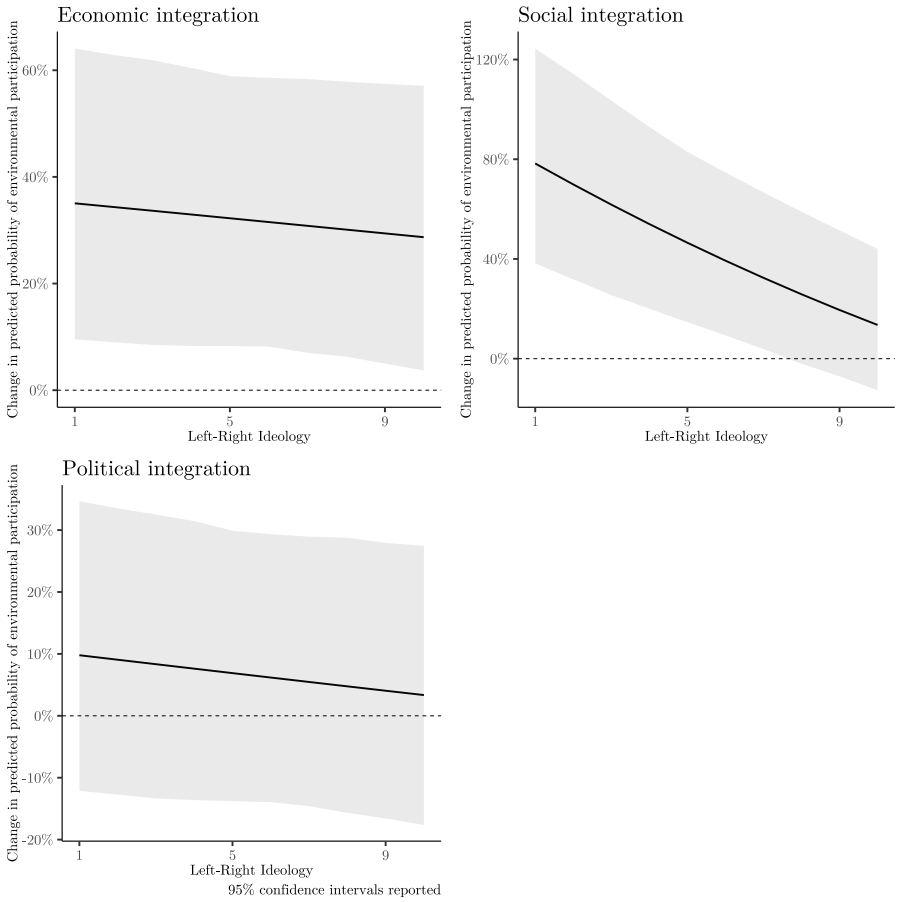
| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| Ideology | −0.061*** | −0.060*** | −0.060*** | −0.060*** | −0.040*** | −0.060*** |
| | (0.006) | (0.006) | (0.006) | (0.007) | (0.007) | (0.006) |
| Economic Integration (within) | 0.006* | | | 0.005 | | |
| | (0.004) | | | (0.004) | | |
| Economic Integration (between) | 0.026** | | | 0.030*** | | |
| | (0.011) | | | (0.011) | | |
| Social Integration (within) | | −0.004 | | | 0.000 | |
| | | (0.004) | | | (0.005) | |
| Social Integration (between) | | 0.053*** | | | 0.081*** | |
| | | (0.012) | | | (0.017) | |
| Political Integration (within) | | | −0.003 | | | −0.004 |
| | | | (0.003) | | | (0.004) |
| Political Integration (between) | | | 0.015** | | | 0.007 |
| | | | (0.008) | | | (0.009) |
| Economic Integration (between) * Political Ideology | | | | −0.001 | | |
| | | | | (0.001) | | |
| Social Integration (between) * Political Ideology | | | | | −0.007*** | |
| | | | | | (0.001) | |
| Political Integration (between) * Political Ideology | | | | | | −0.001 |
| | | | | | | (0.000) |
| Num.Obs. | 107 692 | 107 692 | 107 692 | 105 196 | 105 196 | 105 196 |
| AIC | 46 842.9 | 46 834.6 | 46 846.3 | 45 994.5 | 45 933.8 | 46 000.7 |
| BIC | 46 977.1 | 46 968.8 | 46 980.5 | 46 176.2 | 46 115.5 | 46 182.4 |
| Random Intercepts | × | × | × | × | × | × |
| Individual-level controls | × | × | × | × | × | × |
| Country-level controls | × | × | × | × | × | × |

* p < 0.1, ** p < 0.05, *** p < 0.01

movement participation.

Models 4, 5, and 6 are the models which focus on the conditional role of political ideology. For the different types of global integration, I compute the marginal effect of each type at different groups of ideology in the same way as I computed the marginal effect for the overall effect of global integration. Figure 1.2 present the results obtained based on the estimates of model 4, 5, and 6 accordingly.

Figure 1.2: The effect of integration types on environmental activism conditional on political ideology




Overall, the results demonstrate clear differences among the three types. As predicted, social integration has the largest effect on individuals. The probability of participating in environmental organizations for individuals on the left-side of the ideological spectrum increases between 53% - 78%. Substantively, this means that in a country with an average social integration, there is a 0.05 probability that extreme leftists individuals will participate in environmental organizations. However,

in a country where its social integration increases by one standard deviation, the probability increases to 0.09. Moving from the left to the right side of the ideological spectrum we see a clear decrease in the magnitude of the effect, and individuals on the extreme right seem not to be influenced by countries' social integration. The "action gap" between left and right is substantively large and whereas the probability of environmental participation in a more globalized country for the left lies between 0.065 - 0.08, for the right this percentage drops to 0.03 - 0.04. The effect of economic integration is also conditional on ideology, but the difference is much milder. While the change in the predicted probability for an individual of the extreme left is 35%, the change for an individual of the extreme right is 28%. Lastly, the effect of political integration is not significant.

## 1.6 Conclusion

Existing literature offers well-developed arguments and empirical evidence for why individuals participate in environmental movements. Country level factors as well as individual level characteristics have an impact on environmental activism. However, the way that global integration affects individuals' environmental attitudes is not well documented in past research. This paper addresses this gap in the literature by examining the effect of global integration on environmental attitudes, with an empirical focus on how globalization influences individuals' willingness to participate in environmental movements.

I developed a theoretical argument which highlights that global integration's effect is conditional on political ideology. The key point for understanding the effect of globalization on people's willingness to participate in environmental movements is to highlight the importance of people's broader political ideology. The analysis indicates that the globalization process, which includes the globalization of environmentally friendly ideas, shapes attitudes at the individual level. Countries' integration in the world society leads to diffusion of environmental concern which also affects individuals. However, people's predispositions and particularly their political ideology can restrain the positive effect of the world environmental regime. The assumed incompatibility between

economic prosperity and environmental reform exerts a strong influence on views and attitudes of right leaning individuals, who end up not acting for the promotion of environmental protection fearing the solutions associated with climate change. On the contrary, the world polity pushes left leaning individuals to act on behalf of the environment, because for them the solutions associated with environmental reform do not create any hesitancy.

The empirical analysis is based on a dataset that combines information on individual and country level predictors of environmental activism from 1981 to 2020. The results support the main argument of the paper. First, the results demonstrate that global integration's effect is conditional on political ideology. Although the marginal effect of globalization on environmental activism is statistically significant and positive for both sides of the ideological spectrum, the effect decreases substantively for right leaning individuals, and becomes insignificant for people of the extreme right. Second, the results show some clear differences among the different aspects of global integration. Social integration has the most distinct effect on individuals, with individuals of the left between much more affected by the social interdependence of states than individuals on the right. Economic integration has also a positive but smaller effect. Lastly, the paper offers some insight regarding the expansion of the environmental divide among individuals with different political ideologies. Because global integration influences more individuals on the left than individuals on the right, the "action gap" between them widens.

Overall, the study highlights how concerns about environmental consequences are linked to an ideological commitment to laissez-faire economics. Perceptions about environmental degradation are bound to economic views. In the future, developing discourse around aspects of environmental concerns that address economic benefits may be fruitful for environmental movement organizations (Schor, 2010). This can be seen in some contexts where an ecological modernization framing has become more prevalent than the binary opposition of "economy versus environment" (Harring et al., 2011).

Finally, the findings suggest interesting questions that are worth pursuing in future research. Due to global integration, nations becoming increasingly integrated, and given such shifts, globalization's

effects on environmental attitudes should be better emphasized and understood. First, it would be useful to move beyond the study of European countries and examine the effect of globalization in other countries from the developed world as well. Second, this research addresses only one aspect of environmental attitudes, *i.e.*, participation in environmental movements. Further research could build on the present paper and study the effect of globalization on other forms of environmental attitudes, like adapting an environmental-friendly lifestyle or donating money and signing petitions. Moreover, it is worth delving more into the different aspects of global integration and understanding better the reasons behind their different effect on environmental attitudes.

# Appendix 1.A Descriptive statistics

Table A.1: Countries participated in each wave of EVS

| Country name | First wave | Second wave | Third wave | Fourth wave | Fifth wave |
|---|---|---|---|---|---|
| Albania | | | | 1,534 | 1,430 |
| Austria | | 1,460 | 1,522 | 1,510 | 1,644 |
| Belarus | | | 1,000 | 1,500 | 1,548 |
| Belgium | 1,145 | 2,792 | 1,905 | 1,509 | |
| Bosnia & Herzegovina | | | | 1,512 | 1,695 |
| Bulgaria | | 1,033 | 1,000 | 1,500 | 1,540 |
| Croatia | | | 1,003 | 1,498 | 1,486 |
| Cyprus | | | | 999 | |
| Czechia | | 2,108 | 1,902 | 1,793 | 1,745 |
| Denmark | 1,182 | 1,030 | 1,023 | 1,507 | 3,358 |
| Estonia | | 1,007 | 1,005 | 1,518 | 1,304 |
| Finland | | 588 | 1,017 | 1,134 | 1,164 |
| France | 1,200 | 1,002 | 1,615 | 1,501 | 1,865 |
| Germany | 1,304 | 3,437 | 2,034 | 2,051 | 2,157 |
| Greece | | | 1,111 | 1,498 | |
| Hungary | | 999 | 998 | 1,513 | 1,514 |
| Iceland | 927 | 702 | 968 | 808 | 1,614 |
| Ireland | 1,214 | 1,000 | 986 | 982 | |
| Italy | 1,348 | 2,018 | 2,000 | 1,519 | 2,277 |
| Latvia | | 903 | 1,013 | 1,506 | |
| Lithuania | | 1,000 | 1,018 | 1,499 | 1,447 |
| Luxembourg | | | 1,211 | 1,609 | |
| Malta | 455 | 371 | 1,002 | 1,497 | |
| Moldova | | | | 1,551 | |
| Netherlands | 1,198 | 1,017 | 1,002 | 1,552 | 2,404 |
| North Macedonia | | | | 1,494 | 1,086 |
| Norway | 1,051 | 1,239 | | 1,090 | 1,120 |
| Poland | | 980 | 1,095 | 1,479 | 1,352 |
| Portugal | | 1,185 | 1,000 | 1,553 | 1,212 |
| Romania | | 1,103 | 1,146 | 1,489 | 1,559 |
| Slovakia | | 1,125 | 1,331 | 1,509 | 1,432 |
| Slovenia | | 1,035 | 1,004 | 1,366 | 1,075 |
| Spain | 2,303 | 2,637 | 1,200 | 1,497 | 1,209 |
| Sweden | 954 | 993 | 1,015 | 1,174 | 1,186 |
| Ukraine | | | 1,195 | 1,507 | 1,612 |

Table A.2: Summary statistics

| | Mean | SD | Min | Max |
|---|---|---|---|---|
| Parictipation in Env. Org. | 0.06 | 0.23 | 0.00 | 1.00 |
| Total Integration | 71.87 | 11.04 | 39.21 | 89.88 |
| Economic Integration | 64.80 | 15.84 | 22.96 | 92.07 |
| Social Integration | 70.97 | 11.80 | 29.19 | 90.35 |
| Political Integration | 79.81 | 16.34 | 34.69 | 96.70 |
| Political Ideology | 5.42 | 2.17 | 1.00 | 10.00 |
| CO2 per capita | 8.00 | 3.35 | 1.18 | 22.18 |
| Freedom of Assembly | 0.77 | 0.13 | 0.27 | 1.00 |
| Sex | 1.54 | 0.50 | 1.00 | 2.00 |
| Age | 46.47 | 17.66 | 15.00 | 108.00 |
| Marital Status | 0.59 | 0.49 | 0.00 | 1.00 |
| Education | 6.87 | 2.89 | 0.00 | 10.00 |
| Employment | 0.55 | 0.50 | 0.00 | 1.00 |
| Income | 1.98 | 0.80 | 1.00 | 3.00 |
| Post-materialistic Values | 1.87 | 0.63 | 1.00 | 3.00 |

# Appendix 1.B Full tables of main results

Table B.1: Country integration and individual participation in environmental organizations

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Left-Right Ideology | −0.074*** | −0.064*** | −0.051*** | −0.062*** | −0.052*** |
| | (0.005) | (0.006) | (0.007) | (0.006) | (0.007) |
| Global Integration (within) | 0.000 | 0.000 | 0.000 | 0.001 | 0.001 |
| | (0.004) | (0.004) | (0.005) | (0.005) | (0.005) |
| Global Integration (between) | 0.060*** | 0.076*** | 0.072*** | 0.044*** | 0.059*** |
| | (0.013) | (0.014) | (0.014) | (0.017) | (0.017) |
| Global Integration * Ideology (between) | | −0.003*** | −0.003*** | | −0.003*** |
| | | (0.001) | (0.001) | | (0.001) |
| CO2 per capita (log) (within) | | | | 0.096 | 0.105 |
| | | | | (0.119) | (0.119) |
| CO2 per capital (log) (between) | | | | 0.090 | 0.090 |
| | | | | (0.249) | (0.249) |
| Freedom of Assembly (within) | | | | −1.681*** | −1.700*** |
| | | | | (0.377) | (0.374) |
| Freedom of Assembly (between) | | | | 1.205 | 1.238 |
| | | | | (1.046) | (1.011) |
| Sex | | | 0.106*** | 0.112*** | 0.110*** |
| | | | (0.026) | (0.026) | (0.026) |
| Age | | | 0.009*** | 0.008*** | 0.008*** |
| | | | (0.001) | (0.001) | (0.001) |
| Marital Status | | | −0.019 | −0.020 | −0.019 |
| | | | (0.029) | (0.029) | (0.029) |
| Education | | | 0.113*** | 0.113*** | 0.113*** |
| | | | (0.006) | (0.006) | (0.006) |
| Employment | | | 0.094*** | 0.094*** | 0.093*** |
| | | | (0.030) | (0.031) | (0.031) |
| Income | | | 0.138*** | 0.134*** | 0.136*** |
| | | | (0.019) | (0.019) | (0.019) |
| Post-materialistic Values | | | 0.367*** | 0.364*** | 0.360*** |
| | | | (0.022) | (0.022) | (0.022) |
| (Intercept) | −2.702*** | −2.755*** | −2.942*** | −2.872*** | −2.923*** |
| | (0.173) | (0.171) | (0.174) | (0.176) | (0.177) |
| Num.Obs. | 135 715 | 135 715 | 107 692 | 105 196 | 105 196 |
| AIC | 59 735.8 | 59 719.9 | 46 824.2 | 45 995.1 | 45 984.1 |
| BIC | 59 804.5 | 59 798.4 | 46 968.0 | 46 167.3 | 46 165.9 |
| Random Intercepts | × | × | × | × | × |

* p < 0.1, ** p < 0.05, *** p < 0.01

Table B.2: Country integration and individual participation in environmental organizations (types of Iintegration)

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Left-Right Ideology | −0.061*** | −0.060*** | −0.060*** | −0.060*** | −0.040*** |
| | (0.006) | (0.006) | (0.006) | (0.007) | (0.007) |
| Economic Integration (within) | 0.006* | | | 0.005 | |
| | (0.004) | | | (0.004) | |
| Economic Integration (between) | 0.026** | | | 0.030*** | |
| | (0.011) | | | (0.011) | |
| Informational Integration (within) | | −0.004 | | | 0.000 |
| | | (0.004) | | | (0.005) |
| Informational Integration (between) | | 0.053*** | | | 0.081*** |
| | | (0.012) | | | (0.017) |
| Political Integration (within) | | | −0.003 | | |
| | | | (0.003) | | |
| Political Integration (between) | | | 0.015** | | |
| | | | (0.008) | | |
| CO2 per capita (log) (within) | | | | 0.106 | 0.096 |
| | | | | (0.119) | (0.120) |
| CO2 per capital (log) (between) | | | | 0.189 | 0.078 |
| | | | | (0.239) | (0.250) |
| Freedom of Assembly (within) | | | | −1.701*** | −1.662*** |
| | | | | (0.368) | (0.370) |
| Freedom of Assembly (between) | | | | 2.118** | 0.786 |
| | | | | (0.996) | (1.100) |
| Sex | 0.108*** | 0.108*** | 0.108*** | 0.111*** | 0.107*** |
| | (0.026) | (0.026) | (0.026) | (0.026) | (0.026) |
| Age | 0.008*** | 0.008*** | 0.008*** | 0.008*** | 0.009*** |
| | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) |
| Marital Status | −0.022 | −0.021 | −0.021 | −0.021 | −0.018 |
| | (0.029) | (0.029) | (0.029) | (0.029) | (0.029) |
| Education | 0.113*** | 0.113*** | 0.113*** | 0.113*** | 0.113*** |
| | (0.006) | (0.006) | (0.006) | (0.006) | (0.006) |
| Employment | 0.097*** | 0.095*** | 0.096*** | 0.095*** | 0.092*** |
| | (0.030) | (0.030) | (0.030) | (0.031) | (0.031) |
| Income | 0.137*** | 0.136*** | 0.137*** | 0.135*** | 0.138*** |
| | (0.019) | (0.019) | (0.019) | (0.019) | (0.019) |
| Post-materialistic Values | 0.370*** | 0.370*** | 0.371*** | 0.363*** | 0.352*** |
| | (0.022) | (0.022) | (0.022) | (0.022) | (0.022) |
| (Intercept) | −2.980*** | −2.929*** | −2.893*** | −2.916*** | −3.016*** |
| | (0.186) | (0.170) | (0.189) | (0.179) | (0.177) |
| Num.Obs. | 107 692 | 107 692 | 107 692 | 105 196 | 105 196 |
| AIC | 46 842.9 | 46 834.6 | 46 846.3 | 45 994.5 | 45 933.8 |
| BIC | 46 977.1 | 46 968.8 | 46 980.5 | 46 176.2 | 46 115.5 |
| Random Intercepts | × | × | × | × | × |

* p < 0.1, ** p < 0.05, *** p < 0.01

# Appendix 1.C Binary measurement of political ideology

Along the lines of existing scholarship (*e.g.*, Bernhagen and Marsh, 2007; Kostelka and Rovny, 2019; Pop-Eleches and Tucker, 2010), political ideology is also operationalized through a dichotomous variable based on respondents' self-placement on the left-right scale. If individuals place themselves on 1 to 5 is coded as 0 and they are considered left leaning. On the other hand, if individuals place themselves on 6 to 10 is coded as 1 and they are considered right leaning. I rerun the main analysis of the paper by substituting the continues left-right scale for political ideology with the binary one.

In Figure C.1, I present the effect of global integration on the change in the predicted probability of participating in environmental movements conditional on political ideology. In Figure C.2, I present the effect of the types of integration on the change in the predicted probability of participating in environmental movements conditional on political ideology. Although we see much less variation because we have aggregate ideology in only two categories, the main argument of the paper is still supported.

Figure C.1: The effect of global integration on environmental activism conditional on political ideology

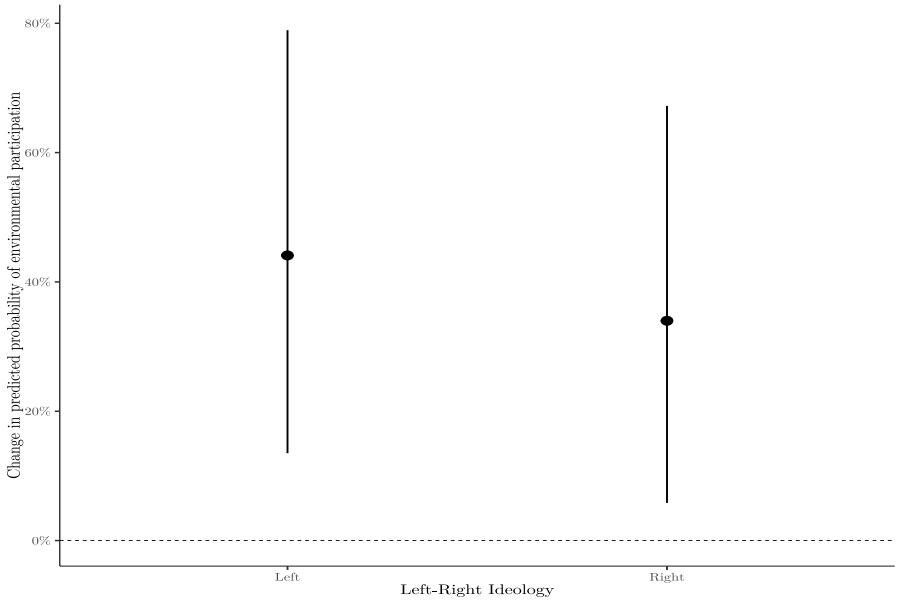
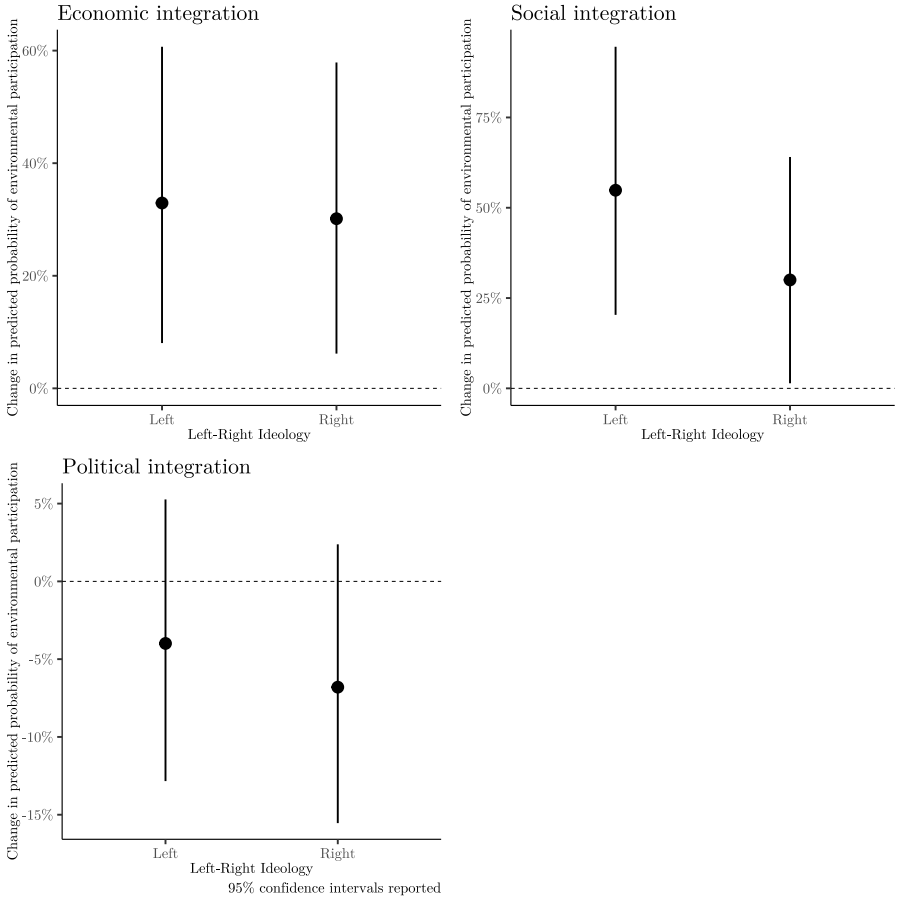


Figure C.2: The effect of integration types on environmental activism conditional on political ideology



# Appendix 1.D Random slopes for political ideology

Until now, all the models have allowed the probability of participating in environmental movements to depend on the country of residence and the time period. This was achieved by allowing the model intercept to vary randomly across countries and waves in a random intercept model. However, for testing my hypothesis, I include a cross-level interaction term between globalization and political ideology. Thus, it is necessary to include a random coefficient for the lower-level variable of the cross-level interaction (Heisig and Schaeffer, 2019). By adding random coefficients for ideology, the model allows for the relationship between participation in environmental movements and ideology to differ per wave, in addition to the baseline differences.

According to Heisig and Schaeffer (2019), the most important consequence of omitting the random slope term is that statistical inference for the cross-level interaction term and the main effect of its lower-level component becomes overly optimistic. T-ratios will be too high, confidence intervals too narrow, and standard errors as well as p-values too low, leading to overrejection of the null hypothesis of no effect. Therefore, I, also, run random slope logit models, and the empirical results do not have major changes (see Table D.1 and Table D.2. In addition, I present the marginal effects for total integration (Figure D.1) and the different types of integration (Figure D.2).

Table D.1: Country integration and individual participation in environmental organizations

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Ideology | −0.044*** | −0.044*** | −0.032** | −0.035** | −0.035** |
| | (0.015) | (0.015) | (0.015) | (0.015) | (0.015) |
| Global Integration (between) | 0.054*** | 0.077*** | 0.072*** | 0.044*** | 0.064*** |
| | (0.013) | (0.019) | (0.019) | (0.016) | (0.021) |
| Global Integration (within) | 0.000 | 0.000 | 0.000 | 0.001 | 0.001 |
| | (0.004) | (0.004) | (0.005) | (0.005) | (0.005) |
| Global Integration (between) * Ideology | | −0.003 | −0.003 | | −0.003 |
| | | (0.002) | (0.002) | | (0.002) |
| Num.Obs. | 135 715 | 135 715 | 107 692 | 105 196 | 105 196 |
| AIC | 59 598.7 | 59 598.3 | 46 746.7 | 45 914.3 | 45 914.2 |
| BIC | 59 687.1 | 59 696.5 | 46 909.6 | 46 105.6 | 46 115.0 |
| Random Intercepts | × | × | × | × | × |
| Random Slopes | × | × | × | × | × |
| Individual-level controls | | | × | × | × |
| Country-level controls | | | | × | × |

* p < 0.1, ** p < 0.05, *** p < 0.01

Figure D.1: The effect of global integration on environmental activism conditional on political ideology

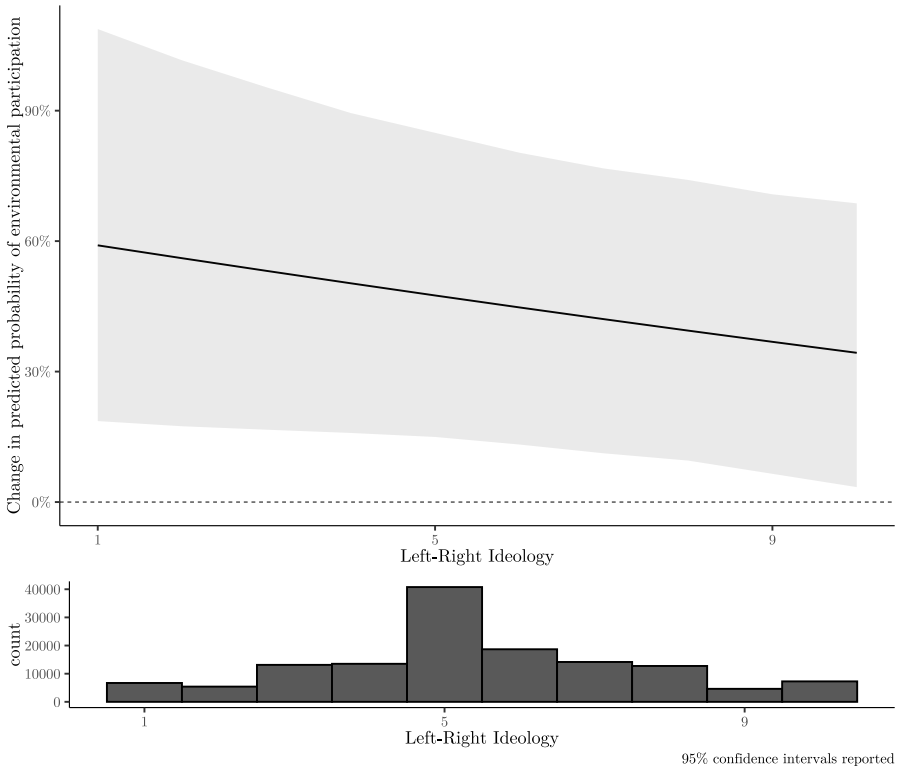
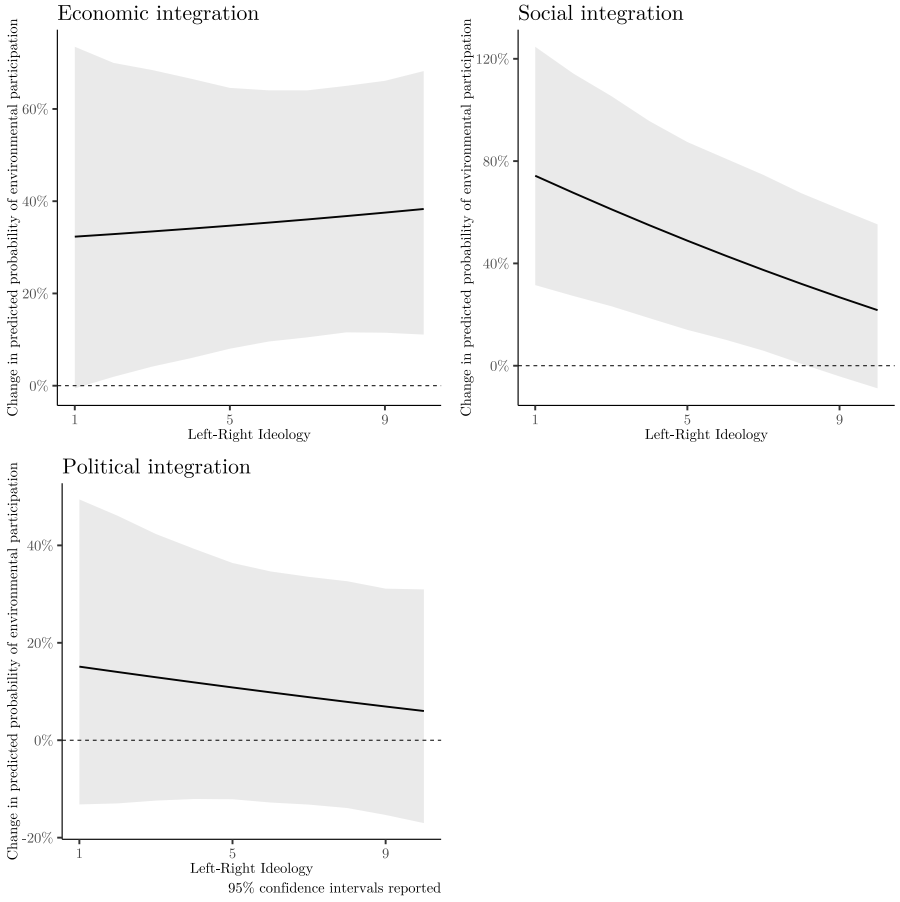


Table D.2: Country integration and individual participation in environmental organizations (types of integration)

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| Ideology | −0.028* | −0.035** | −0.031** | −0.033** | −0.035*** | −0.036** |
| | (0.015) | (0.015) | (0.015) | (0.015) | (0.013) | (0.015) |
| Economic Integration (within) | 0.005 | | | 0.005 | | |
| | (0.004) | | | (0.004) | | |
| Economic Integration (between) | 0.028*** | | | 0.026* | | |
| | (0.010) | | | (0.015) | | |
| Sociall Integration (within) | | −0.003 | | | 0.000 | |
| | | (0.004) | | | (0.005) | |
| Social Integration (between) | | 0.050*** | | | 0.076*** | |
| | | (0.014) | | | (0.019) | |
| Political Integration (within) | | | −0.002 | | | −0.003 |
| | | | (0.003) | | | (0.004) |
| Political Integration (between) | | | 0.014* | | | 0.011 |
| | | | (0.007) | | | (0.011) |
| Economic Integration (between) * Political Ideology | | | | 0.000 | | |
| | | | | (0.001) | | |
| Social Integration (between) * Political Ideology | | | | | −0.005*** | |
| | | | | | (0.001) | |
| Political Integration (between) * Political Ideology | | | | | | −0.001 |
| | | | | | | (0.001) |
| Num.Obs. | 107 692 | 107 692 | 107 692 | 105 196 | 105 196 | 105 196 |
| AIC | 46 751.0 | 46 748.8 | 46 756.6 | 45 913.7 | 45 906.9 | 45 921.3 |
| BIC | 46 904.4 | 46 902.2 | 46 909.9 | 46 114.6 | 46 107.7 | 46 122.2 |
| Random Intercepts | × | × | × | × | × | × |
| Random Slopes | × | × | × | × | × | × |
| Individual-level controls | × | × | × | × | × | × |
| Country-level controls | × | × | × | × | × | × |

* p < 0.1, ** p < 0.05, *** p < 0.01

Figure D.2: The effect of integration types on environmental activism conditional on political ideology



# Paper 2

# The Transnational Influence of Natural Disasters on Environmental Attitudes[1]

**Abstract**

Natural disasters can affect individuals' views about the environment, especially when these events are extreme and experienced by people directly (locally). In one of the first comprehensive and systematic attempts, we explore whether a similar relationship exists transnationally – a cross-border effect stemming from environmental disasters abroad on public opinion "at home." Spatial analyses present robust evidence that people's environmental salience attitudes are substantially driven by disaster-related deaths in nearby countries. It follows that environmental disasters cannot be treated as isolated incidents within state borders, but they rather have far-reaching, transnational consequences on public opinion and, potentially, policy. Accordingly, this research adds to our understanding of environmental politics, public opinion, natural disasters, and diffusion effects.

## 2.1 Introduction

Several European countries were severely hit by floods in the summer of 2021. Belgium and Germany were particularly affected by these disastrous events, having seen 41 and 183 people, respectively, who died in the floods. Politicians quickly connected this disaster to global warming: the German

[1]The paper is co-authored with Tobias Böhmelt and Zorzeta Bakaki. It is published in the *European Journal of Political Research* (doi: `https://doi.org/10.1111/1475-6765.12572`)

Interior Minister back then, Horst Seehofer, stated on July 16, 2021, that "nobody can deny that this catastrophe is linked to climate change." The former German chancellor, Angela Merkel, echoed this view on July 18 when she traveled to the Ahr valley in Rhineland-Palatinate, one of the most affected areas. The media as well as the scientific community also covered the floods swiftly and extensively, thus ensuring broad reporting of the events across Europe and the world, while highlighting that global climate change can be associated with the onset and severity of natural disasters. The British Guardian, for instance, wrote about the views of a number of climate scientists[2] before publishing a story on July 19 that suggested a "global green deal to tackle climate crisis" must quickly be agreed on[3]. Greek media called the floods of 2021 a "national catastrophe"[4] an Italian newspaper wrote about a "climate massacre", French media focused on the consequences of climate change, and the floods were covered in Spain, Russia, the US, or even Australia[5].

The question we ask considering these events is whether the floods in one country affect public opinion in another state. More generally, do natural disasters have a transnational influence on environmental attitudes abroad? Following the data set we rely on empirically, we define natural disasters as a "situation or event, which overwhelms local capacity, necessitating a request to national or international level for external assistance." Such an unforeseen and often sudden event, caused by nature, frequently causes great damage, destruction, and human suffering[6]. Environmental disasters have become more numerous, as climate change and global warming exacerbate (,see also for Disaster Risk Reduction, 2019; Fischer and Knutti, 2016). Public opinion and political leaders, even in countries that have not been directly affected by (severe) disasters, may connect these events more and more to climate change(see also Bergquist et al., 2019; Demski et al., 2017; Smith and Joffe, 2013; Weber, 2010). And we know that public opinion positively correlates with

[2]Available online at: https://www.theguardian.com/environment/2021/jul/16/climate-scientists-shocked-by-scale-of-floods-in-germany

[3]Available online at: https://www.theguardian.com/environment/2021/jul/19/politicians-from-across-world-call-for-global-green-deal-to-tackle-climate-crisis

[4]Available online at: https://www.tanea.gr/2021/07/17/world/ethniki-katastrofi-sti-germania-toulaxiston-133-oi-nekroi-apo-tis-plimmyres/.

[5]Available online at: https://www.rnd.de/panorama/deutschland-unter-schock-so-blicken-andere-laender-auf-die-unwetterkatastrophe-SJB6DRILZNDY3ECU4CGP4QZMAQ.html.

[6]See online at: https://www.emdat.be/Glossary.

policy outputs (Anderson et al., 2017; Boswell et al., 2019; Bakaki et al., 2020; Schaffer et al., 2022). Thus, although politicians are those who ultimately make policy decisions, the public matters greatly as citizens' concerns can shape governments' environmental legislative actions. Having said that, are natural disasters abroad among the influences behind public opinion on the environment?

We test the theoretical expectations underlying this question with survey data from the Eurobarometer in 2002-2020 and information from the International Disaster Database (IDD) by the Centre for Research on the Epidemiology of Disasters (CRED)[7]. The empirical results stress that there is robust support for a transnational diffusion effect: disasters abroad shape environmental attitudes at home. Eventually, our findings make several contributions to the literatures on environmental politics, public opinion, natural disasters, and diffusion effects. For example, one implication of our work is that natural disasters cannot be treated as isolated incidents within state borders, but they rather have far-reaching, transnational consequences on people's views and, potentially, policy. Hence, we depart from previous research in that we explore the transnational impact of natural disasters on the formation of public opinion.

This diffusion mechanism has rarely been acknowledged in the literature on environmental disasters, public opinion, and environmental politics, possibly due to the emphasis on people's direct exposure and thus, experience with natural catastrophes. Böhmelt (2020) is to some degree an exception here as he studies the impact of the Fukushima disaster on European public opinion. Yet, that article focuses on a rather major event of substantial magnitude, while the "average" disaster is of lesser impact. What is more, Fukushima was at best partially a natural disaster and the net impact of environmental events on public opinion cannot be identified by studying single cases.

Finally, we help to better understand the formation of environmental public opinion also with a view toward policymaking as people's views influence legislative action (Anderson et al., 2017; Bakaki et al., 2020; Ray et al., 2017). As concluded in Bakaki and Bernauer (2017, p.1), this "implies that public opinion sets important constraints on what policymakers can achieve."

[7]The data are available at: https://www.emdat.be/.

## 2.2 Public opinion and the environment

An extensive literature focuses on what people think about the environment, and how attitudes toward environmental protection and salience are shaped (for recent overviews, see, Bakaki and Bernauer, 2017; Bernauer and McGrath, 2016; Hornsey et al., 2016; Howe et al., 2019; Marquart-Pyatt et al., 2014). Among others, individual political views, economic factors, or – especially relevant for our research – natural disasters can all influence how people see the environment (Halder et al., 2020; Scott and Willits, 1994). Wildfires in Australia, Greece, and Turkey, hurricanes in the US (Bergquist et al., 2019; Rudman et al., 2013), droughts in African states (Borick and Rabe, 2010; Owen et al., 2012), or the severe floods in European countries of 2021 are just a few examples of natural disasters that have occurred over the recent past. Such environmental events affect people in numerous ways, including psychologically (Schultz et al., 2005), thus potentially influencing their preferences, perceptions, and behavior.

Particularly the personal (local) experience with natural disasters can be a focal point that forms environmental views (*e.g.*, Akerlof et al., 2013; Baccini and Leemann, 2021; Bergquist et al., 2019; Brody et al., 2008; Howe et al., 2014; Konisky et al., 2016; Li et al., 2011; Reser et al., 2014; Walker et al., 2011; Whitmarsh, 2008). Lang and Ryder (2016) show that there is an "experience-perception link:"having lived through and directly experienced an environmental disaster shapes people's understanding of climate change, who then link also extreme weather events more strongly to global warming (Bergquist et al., 2019; Demski et al., 2017; Smith and Joffe, 2013, see also,). . Similarly, Konisky et al. (2016) report that extreme weather events influence whether environmental issues are seen as salient or not. In addition, personal experience of environmental events leads to more pro-environmental donations (Li et al., 2011), increased support of environmental-friendly policies (Joireman et al., 2010; Owen et al., 2012; Rudman et al., 2013), pro-environmental voting (Herrnstadt and Muehlegger, 2014), or the punishment of incumbent governments (Stokes, 2016).

When referring to personal experience, we talk about the more local effects witnessed by people and their proximity to an event – and not necessarily that individuals were directly hurt or have

suffered from an environmental disaster. That said, the general underlying mechanism of those relationships above posits that the direct (personal) experience with an extreme environmental event induces that climate change is perceived as "more real, immediate, and local" (Carlton et al., 2016). Personal experience lowers "psychological distancing" (Egan and Mullin, 2012; Ray et al., 2017; Spence et al., 2011; Taylor et al., 2014). Lujala et al. (2015, p.490) state here consistently that "[a] person's perception of climate change may thus be partially formed by her proximity to "danger," for example, through personal experience of an event or by living near or in a hazard-prone area." And, indeed, Whitmarsh (2008) claims that extreme weather events' effects on environmental perceptions are limited to the area where they occur. There, however, increased recognition of and concern over climate change are induced. Most existing evidence then suggests that natural disasters are positively associated with environmental concerns if these events are extreme and affect people directly, *i.e.*, occurred in close proximity (Bergquist et al., 2019; Lu and Schuldt, 2015).

Yet, natural disasters are not confined to state borders and can quickly spread across regions[8]. Therefore, in addition to the local effect identified by previous research, we argue for a transnational-level influence, beyond domestic boundaries. Our argument is based on two interrelated mechanisms that pertain to the flow of information across borders as a necessary requirement for diffusion to emerge and people's processing of information on events in nearby states. That is, natural disasters in nearby countries prompt individuals to believe they could also be directly affected by such incidents in the future. Moreover, local media must report about those events in the first place to ensure that information reaches individuals, and those media outlets are more likely to cover disasters in geographically proximate and neighboring countries as opposed to more distant states. Both mechanisms imply that people will be more aware of environmental disasters in proximate countries and will be more likely to develop feelings of fear, distress, and uncertainty due to these events. Public opinion on the environment is likely affected as a result even if a disaster occurred in another, albeit nearby country.

[8]For instance, Siberian wildfire caused smoke that was travelling more than 3,000 km to the North Pole. See online at https://www.theguardian.com/world/2021/aug/09/smoke-siberia-wildfires-reaches-north-pole-historic-first.

## 2.3 Theoretical argument

Natural disasters can influence environmental public opinion, especially if these events have occurred are more extreme and if people have experienced them in close proximity. This finding and its underlying mechanism constitute the starting point for our argument, which focuses on the transnational effect of natural disasters on environmental public opinion, *i.e.*, at the cross-border level. We contend that more natural disasters can form people's views on the environment not only "at home," *i.e.*, the country where a disaster occurred, but also in geographically close states.

We develop the theory in two steps. On one hand, while the media of course cover events abroad, thus increasing the chances that people get information on environmental disasters in other countries, they tend to focus on nearby countries. More distant, remote events are less likely to be reported on. On the other hand, individuals process this information and develop disaster-threat perceptions that feed feelings of danger, uncertainty, and distress that eventually translate to concerns about the environment. We claim that such a psychological dynamic does not only apply to disasters within a country's borders, but also in terms of nearby states. We thus concentrate on an influence stemming from natural disasters that spans across borders, and the key factor behind the two mechanisms is spatial proximity, which ensures media coverage, increases the chances that people are exposed to it, and raises the likelihood that they develop feelings of danger, distress, or uncertainty. Consistent with this idea, Howe et al. (2014) argue for a "shadow of experience" when explaining the risk perception of weather events (Weber, 2006, 2010, see also,). Natural disasters exercise an indirect effect via broad media coverage, which in turn affects people who may feel that they have experienced these events even if they live further away. Additionally, seeing these events in such proximity aggravates the belief that they could experience them directly in the near future (Blennow et al., 2012).

### 2.3.1 Media coverage of disasters in geographically proximate countries

A key requirement for an influence of an environmental disaster abroad on public opinion at home is that information about the event actually reaches citizens. In other words, the media have to cover

a disaster in another country, and, to this end, they play a pivotal role in shaping the perceptions of individuals (Dewenter et al., 2019). The media have the capacity to generate awareness and knowledge about climatic events (Barabas and Jerit, 2009), often creating public awareness of environmental issues in the first place (Bakaki et al., 2020; Barnes and Hicks, 2018), which stimulate people's overall understanding about climate change (Dolan et al., 2012; Grundmann, 2007; Staats et al., 1996). The media can be selective on what they present (Boykoff et al., 2007) and they have the power to set the agenda (Dumitrescu and Mughan, 2010; McCombs and Valenzuela, 2020a). By steering the extent and prominence of coverage, they affect public opinion.

The transnational effect of the media implies that crucial events with national impact in one country are covered in another state, and primarily a neighboring one (Brüggemann and Engesser, 2017). The frequency and prominence of a story in media coverage convey a message to the public about the importance of an issue (Brulle et al., 2012). Additionally, the media propagation of news and symbols of environmental catastrophes carries emotional weight (Birkland, 1998), which creates feelings of fear, distress, and uncertainty. Koopmans and Vliegenthart (2011) examine the media coverage of natural disasters across countries and find that strong ties between states as well as certain event-related characteristics, most prominently the number of deaths caused by an event, raises the chances that a disaster abroad is thoroughly covered by the media at home.

That said, while the media do cover environmental issues abroad, such as global environmental conferences and summits, especially disasters in nearby countries should attract media attention. Large-scale disasters, due to their intensity and high impact on human lives, will find thorough media attention across the globe (Böhmelt, 2020), but the occurrence of "an average" event will be reported more extensively in nearby and directly adjacent states. This claim mirrors Benesch et al. (2019) who find significant media spillovers between Germany and Switzerland, for instance, while Kwon et al. (2017) contend that news coverage represents more "culturally proximate" cases. At the same time, Koopmans and Vliegenthart (2011) suggest that social relationships among countries also explain the diffusion of news coverage, and Rogers (2010) present the "homophil" argument to claim that common interests (*e.g.*, beliefs, education, social status) between sources and adopters

induce diffusion. The environment is unlikely to be an exception here.

Again, with regard to the 2021 floods in Europe, the Belgian Interior Minister, Annelies Verlinden, stated that the floods in Belgium were "one of the greatest natural disasters our country has ever known," and this has been widely covered, particularly in proximate countries' media, including the UK[9]. Against this background, we argue that media coverage is a necessary requirement of the diffusion effect of natural disasters abroad on public opinion at home: the media set the public agenda and provide the opportunity that information flows across borders and that people can learn about events in other countries. Without that information, a diffusion effect simply cannot materialize. At the same time, media's power to set the agenda reinforces the diffusion effect by influencing the attention citizens pay to natural disasters. However, while the media generally cover environmental events abroad, they tend to focus on those in closer proximity (Koopmans and Vliegenthart, 2011).

Two additional remarks on this. First, the public must pay attention to the news. We do not test this aspect empirically in the main text, but address it in the appendix. Second, while media reporting on other countries is primarily driven by geographical distance (as we argue and focus on), it can be shaped by additional factors such as cultural preferences and power structures. The size of a country may be relevant for the diffusion process we argue for. For instance, a disaster in a larger state could exert a stronger influence than an environmental event in a smaller nation. Moreover, one may posit that a familiarity effect exists in that people are more familiar with proximate countries. Conceptualizing familiarity is challenging, but one way of doing this is via cultural similarity. In the appendix, we present analyses for both of these additional influences and we return to this issue in the conclusion.

### 2.3.2 Disaster-related feelings of threat, distress, and uncertainty

Based on the literature on media coverage about environmental events and their impact (Bakaki et al., 2020; Dewenter et al., 2019), individuals are exposed to information about environmental disasters, and this information must influence them, their views, and their behavior psychologically. Hence,

[9]See online at: https://www.thetimes.co.uk/article/german-minister-faces-calls-to-quit-over-flooding-z355r9bsl.

media coverage is only one aspect of the diffusion effect we argue for, albeit arguably a necessary one. Existing literature suggests that environmental disasters tend to have a psychological impact on individuals (Donner and McDaniels, 2013), fuelling feelings of threat, distress, and uncertainty (Schultz et al., 2005). Disasters influence people's environmental risk perceptions (Blennow et al., 2012) and the magnitude of an event as well as its severity increase this effect. This is related to how exposure is translated to experience. Particularly in the case of natural disasters that are rare phenomena, people may have a limited understanding of their impact – unless they experience them (locally). Demski et al. (p.150 2017) claim that "experiences of an extreme weather event might make climate risk more cognitively available or salient in people's minds." And Carlton et al. (p.212 2016) argue that especially the direct (local) experience with a disaster induces that climate change is perceived as "more real, immediate, and local" (see also, Leiserowitz, 2006; Myers et al., 2012), since it is not about a distant phenomenon that occurred far away. In addition, an environmental disaster in one country induces soon after relief as well as support measures by political and social leaders to help (Bechtel and Hainmueller, 2011). Citizens of nearby countries not (directly) affected by an event might not benefit from this (psychological) support and the comfort offered, which could further distress and uncertainty.

We subscribe to these psychological consequences, but also argue that disasters can provoke feelings across national borders – most likely so in nearby, neighboring countries, though. That is, a disaster can put in motion a psychological process associated with a series of behavioral and attitudinal consequences, which lead to the outcome that even disasters in other countries that may not affect individuals (directly) have an impact on their views about the environment. The effect of a disaster creating feelings of threat, danger, distress, and uncertainty, however, should be most strongly felt in nearby countries – not remote and geographically distant places (Pfefferbaum et al., 2000; Schuster et al., 2001; Sprang, 1999). As we detail in the following, egocentric and sociotropic mechanisms are responsible for this to unfold.

First, natural disasters often spread across borders and frequently affect more than one region. This makes individuals to consider that such an event could distress them too in the future due to the

geographical contagion of the event and the proximity to the individual[10]. Hence, we observe an egocentric response driven by fear of a similar disaster happening in one's own place that spreads across borders.

Second, social identity theory (Tajfel et al., 1979) suggests that people in bordering countries are more strongly tied to each other by, *e.g.*, frequent exchange, travel, or family links, which induces that they identify themselves much more with those affected by a natural disaster (see also, Böhmelt et al., 2020). Against this background, a sociotropic response emerges where individuals change their attitude in light of human suffering across the border, but this is beyond their own distress and it may well be unlikely that a specific disaster happens to them at all. However, residents from more distant countries should be less affected by this psychological dynamic. This is consistent with Lujala et al. (p.491 2015) who argue that "[a] person's proximity to the perceived manifestation of climate change and the distance to where the person believes that the climate change is likely to have the largest impact potentially play an important role on how people feel about climate change and how threatening they deem it for them personally, locally, or globally." To illustrate this, consider the British Prime Minister, Boris Johnson, who announced with regard to nearby countries via Twitter in 2021 that it was "shocking to see the devastating flooding in Germany, Luxembourg, the Netherlands, and Belgium," adding that "the UK is ready to provide any support needed in the rescue and recovery effort."

Third, and derived from the previous two points combined, natural disasters could produce meso-level effects that cross state borders. Extreme weather events tend to enhance feelings of cohesion within a community, as individuals realize they must cooperate for achieving mutually desired goals such as post-disaster recovery (Chang, 2010; Sweet, 1998). If ties across borders exist between neighboring and geographically close countries, such an impact on group cohesion may well go beyond a more narrowly defined community, but actually travel from one state to another, thereby affecting public opinion in the other country eventually.

[10]Birkland (1998) explaining how key events (*e.g.*, natural disasters, oil spills, nuclear power plants accidents) influence the agenda-setting process, makes a relevant distinction between "affected areas" and "areas of interest." In the former category, people have direct experience with an event, while living in the latter category has the risk of suffering similar consequences, which may be equally important for public-opinion processes.

In sum, we argue that natural disasters likely influence people's environmental views in nearby states. Media tend to report natural disasters that occurred in countries closer to their "home" audience, making seemingly local events gain attention abroad. This media coverage and the proximate distance of the disaster create feelings of danger, threat, distress, and uncertainty, which generate the psychological impact on individuals' environmental attitudes. Conversely, individuals living in countries farther away from a disaster are likely to be less affected by the corresponding psychological processes, given that feelings of imminent danger and identification are less intense there and since local media probably provide less coverage. Ultimately, we expect that *natural disasters in nearby countries are likely to affect environmental public opinion at home*.

## 2.4 Design

Our data set is mainly based on the Eurobarometer survey[11] and contains information on the core components of our argument: people's attitudes toward the environment, natural-disaster fatalities, and several other variables that control for alternative mechanisms shaping public opinion on the environment. Our final sample comprises 32 European countries between 2002 and 2020. The spatial and temporal coverage of our data are driven by data availability in the Eurobarometer (explained below). The unit of analysis is the country-year and, ultimately, we have data for 546 observations.

The Eurobarometer is the source for our dependent variable, people's views on the environment. After assessing all relevant variables on environmental attitudes in the Eurobarometer, we eventually opted for a measure of environmental salience (see also, Böhmelt et al., 2020). In general, the literature distinguishes between preferences and salience when it comes to environmental public opinion. The former mainly relates to certain levels of environmental protection or specific policies a respondent would like to see, *e.g.*, one could express the preference that their home state should lower emissions by five percent. The latter, salience, is the "intensity of that feeling" and the degree of importance that the individual attaches to the environment as a policy issue (Hatton, 2021, for a discussion of the two concepts, see). While data availability in the Eurobarometer is better for

[11]The Eurobarometer surveys can be downloaded at: https://zacat.gesis.org/webview/index.jsp.

environmental salience, there is also an important theoretical, policy-relevant, and conceptual reason to focus on this: voters' preferences will probably not become political priorities when salience is low. Only salient issues are likely to elicit strong policy responses. In addition, Hatton (2021) notes that short-run shocks such as disaster-related deaths are more likely to influence salience than preferences (Demski et al., 2017).

Considering this discussion, we focus on the question: "[w]hat do you think are the two most important issues facing (OUR COUNTRY) at the moment?" With "environment" or "environment, [and] climate (, and energy issues)" as response options, the Eurobarometer has included this item consistently since the year 2002 and we use it to code the percent of respondents who stated that they perceive the environment as one of the two most salient policy issues in their country. After omitting the "don't know" answers and missing values, we aggregate the individual-level responses to the country level by averaging across all answers pertaining to a state each year[12]. Our final dependent variable thus captures the public's view on environmental salience, and it theoretically ranges between 0 (0 percent of the population sees the environment as salient) and 1 (100 percent of the population sees the environment as salient). For example, in the Eurobarometer survey 93.1 of 2020, 19.38 percent of the French survey population stated that "the environment and climate change" belong to the top two most important policy issues facing France at the present time. Overall, our dependent variable's mean value is 0.068 (standard deviation of 0.074), suggesting that 6.8 percent of the entire survey population across countries and years saw the environment as a salient policy issue. In Figure 4.1, we plot Environmental Salience and its development across time for each country in our sample.

Our main interest is exploring how this variable on people's perception of environmental salience is shaped by environmental disasters in other countries. To this end, we make use of a distinct estimation procedure that incorporates a uniquely created variable suitable for our purposes. Specifically, we estimate spatial-X models (Franzese and Hays, 2007, 2008; Plümper and Neumayer, 2010), which "regress the dependent variable on the values of one [. . . ] independent explanatory

[12]We calculated the average value per country-year in case more than one Eurobarometer survey existed each year.

variable." The main models presented below are based on ordinary least squares (OLS), but we have cross-checked our findings using the maximum-likelihood procedure by Franzese and Hays (2007, 2008), which "does not assume a temporally lagged spatial lag and addresses simultaneity bias head on" (Ward and Cao, 2012, p. 1084). In our case, Environmental Salience (dependent variable) thus is a function of environmental disasters in other countries, and a weighting matrix specifies the subset of countries that have an influence on the outcome. We capture this with the item $\mathbf{W}_x^{DisasterFatalities}$. This variable is the product of the weighting matrix based on state-to-state contiguity that we use to operationalize geographical proximity and a variable on disaster-related deaths.

First, using the Correlates of War Direct Contiguity Data (Douglas et al., 2002), the elements in the connectivity matrix capture the contiguity of country *i* and country *j* as defined by a land/river border or the two are separated by max. 400 miles of water (value of 1 in the matrix). This is our operationalization of the spatial proximity, which we introduce in the theory above. If there is no such border between countries, they are separated by more than 400 miles of water, or elements refer to two different years in the matrix, we assign a value of 0 (also $w_{i,i} = 0$)[13]. We row-standardize the matrix: "after row-standardization, contiguous countries exert an influence that becomes proportionally smaller the larger the number of contiguous countries" (p.430 Plümper and Neumayer, 2010). In our European context, it seems unlikely that the number of neighboring states is of importance and all contiguous countries probably exert the same influence. However, row-standardization facilitates the interpretation of the results and, thus, we opt for this specification in the following. That said, the substance of our findings is not affected by this research-design choice and non-standardized matrices produce qualitatively similar results.

Second, we multiply this matrix with a variable on the number of fatalities from environmental disasters in countries *j* each year (*i.e.*, sending states from which the spatial stimulus originates). We rely on the International Disaster Database (IDD) from the Center for Research on the Epidemiology

[13]A binary contiguity specification of the weighting matrix facilitates the interpretation of the results, but we assess the robustness of our findings in the appendix as well when using non-binary inverse distance weights.

Figure 2.1: Environmental attitudes in Europe

of Disasters (CRED)[14]. As indicated above, this data set defines a disaster as a "situation or event, which overwhelms local capacity, necessitating a request to national or international level for external assistance; an unforeseen and often sudden event that causes great damage, destruction and human suffering. Though often caused by nature, disasters can have human origins." We focus on natural disasters and, eventually, the following types of events are included in our data: droughts, earthquakes, epidemics, extreme temperatures, floods, landslides, mass movements (dry), storms, volcanic activity, and wildfires. Given our argument on media coverage, which facilitates the cross-national diffusion of information, we follow Koopmans and Vliegenthart (2011) who argue that the number of people killed by a disaster is arguably the strongest predictor of media coverage. Hence, our interest lies on the (logged) number of fatalities from these disasters, which we multiply with the weighting matrix to create $w_x^{DisasterFatalitites}$. Fatalities are defined by the IDD as the "number of people who lost their life because the event happened." Especially disaster-related deaths should make it to the news and are likely more covered than all people affected or economic losses and damage. If a disaster is "vivid and catastrophic, if it strikes" (Weber and Stern, 2011, p.324), it is more likely to cause loss of life. This intensifies media coverage. Along those lines, Brody et al. (2008) show human fatalities caused by weather events in local areas are predictive of people's perceived risk of climate change. And Demski et al. (2017, p.150) state that extreme weather events "act as a strong 'signal' or 'focusing event' [. . . ] whereby future climatic events are made more imaginable, indicating dramatic changes to familiar and local places, in turn heightening the sense of risk posed by climate change."

We control for a series of other influences that are correlated with environmental attitudes at the domestic level and constitute alternative mechanisms shaping environmental public opinion. Hence, we rule out countries' common exposure to similar exogenous (unit-level) factors, which – rather than a genuine diffusion process – might influence people's environmental salience (Franzese and Hays, 2007, p.142). Thereby, we intend to ensure that contagion "cannot be dismissed as a mere product of a clustering in similar [state] characteristics" (Buhaug and Gleditsch, 2008, p.230). First, we include country and time fixed effects in all our models. The latter items control for system-wide

[14]The data are available at: https://www.emdat.be/.

shocks such as the 2011 "Fukushima nuclear disaster." The former variables address any influence stemming from time-invariant, idiosyncratic factors.

Second, we include the variable *Disaster Fatalities (ln)*. This item is a log-transformed count variable, measuring the number of disaster fatalities in the focal country i in a given year. As in the case of the spatial variable, we use the IDD and its definition of disasters as well as disaster-related deaths. The main difference between *Disaster Fatalities (ln)* and $\mathbf{W}_x^{DisasterFatalities}$ is that the former is based at the domestic level, the latter concentrates on influences from abroad in the form of a transnational diffusion effect. Eventually, we capture whether environmental public opinion is also shaped by disasters "at home." Although we argue that the psychological dynamics of natural disasters expand beyond national boarders, we postulate that this spatial effect will be less strongly pronounced than when people are directly affected by natural disasters (as captured by *Disaster Fatalities (ln)*). Direct, personal experience of danger differs from proximity to it. People more readily trust the evidence of their senses (Whitmarsh, 2008) and, thus, those who have suffered from the direct impacts of a disaster, like injuries, are expected to develop a more elevated concern with the environment.

Third, we control for the median voter and people's left-right self-placement using the Eurobarometer. Most surveys comprise an item on respondents' left-right self-placement on a scale from 1 (left) to 10 (right) (Schmitt and Scholz, 2002). Individual-level values are aggregated to the country level via Tukey's (1977) method. The more "conservative" the public is, the less likely the environment will be perceived as a salient policy issue. In our sample, this variable has a mean value of 5.212 (standard deviation of 0.343).

Fourth, all states in our data are (established) democracies, but we address any remaining imbalance by considering the *polity2* item from the Polity V data (Marshall et al., 2017). This variable theoretically ranges between -10 and 10, with higher values signifying more democratic states. However, given a mean value of 9.592 in our data set, cross-country variation is rather low. Fifth, two variables are taken from the World Bank Development Indicators: states' economic development and their population. We use GDP per capita (in current US Dollars) for the former,

which is defined as the gross domestic product (GDP) divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. For the latter, population size is likely to be linked to the degree of preference heterogeneity in a society. We rely on a country's midyear total population, which counts all residents regardless of legal status or citizenship (except for refugees not permanently settled). Both variables are log-transformed to account for their skewed distributions.

Finally, we control for environmental-friendly political parties in a country's national parliament. The better the Greens are represented in the legislative, the more strongly pronounced the public mood on the environment should be. We rely on the Comparative Political Data Set by Armingeon et al. (2020) who have compiled the information on the share of seats in parliament for political parties classified as "green."

## 2.5 Results

The main models are presented in Table 2.1. The first estimation here is a "naive" model as we only consider the controls and the domestic-level disaster-fatality item. The spatial variable capturing a transnational diffusion effect is left out here. Model 1 thus ignores an impact from environmental disasters in other countries. Model 2 assumes a different perspective as we now include $\mathbf{W}_x^{DisasterFatalities}$ next to *Disaster Fatalities (ln)*. We omit the substantive controls, though, which shows that the inclusion or exclusion of them does not alter our main finding. Model 3 constitutes our full model as all explanatory variables we introduced in the previous section are included. As we row-standardize the spatial variable's connectivity matrix, its coefficient can be interpreted directly. However, the coefficients provide information only about the pre-dynamic effects, *i.e.*, "the pre-[spatial] interdependence feedback impetus to outcomes from other regressors" (p.409 Hays et al., 2010). To fully understand the direct and indirect effects of $\mathbf{W}_x^{DisasterFatalities}$, Figure 3 also presents full spatial effects comprising direct, indirect, and feedback effects based on spatio-temporal multipliers, which allow the "expression of estimated responses of the dependent

variable across all units" (Hays et al., 2010, p.409).

Table 2.1: Environmental salience and disasters abroad

| | (1) | (2) | (3) ) |
|---|---|---|---|
| Disaster Fatalities (ln) | **0.0038*** | **0.0032*** | **0.0033*** |
| | (0.0012) | (0.0013) | (0.0012) |
| $\mathbf{W}_x^{DisasterFatalities}$ | | **0.0071*** | **0.0048*** |
| | | (0.0021) | (0.0021) |
| Population (ln) | **0.1830*** | | **0.1632*** |
| | (0.0471) | | (0.0477) |
| GDP per capita (ln) | 0.0288 | | 0.0290 |
| | (0.0239) | | (0.0238) |
| Greens in Parliament | **0.0087*** | | **0.0085*** |
| | (0.0012) | | (0.0012) |
| Democracy | 0.0073 | | 0.0078 |
| | (0.0065) | | (0.0064) |
| Median Voter | **-0.0165*** | | **-0.0158*** |
| | **(0.0075)** | | (0.0075) |
| Observations | 546 | 546 | 546 |
| Moran's I | | 0.252 | 0.252 |
| Year Fixed Effects | × | × | × |
| Country Fixed Effects | × | × | × |
| RMSE | 0.0372 | 0.0394 | 0.0371 |

* $p < 0.05$

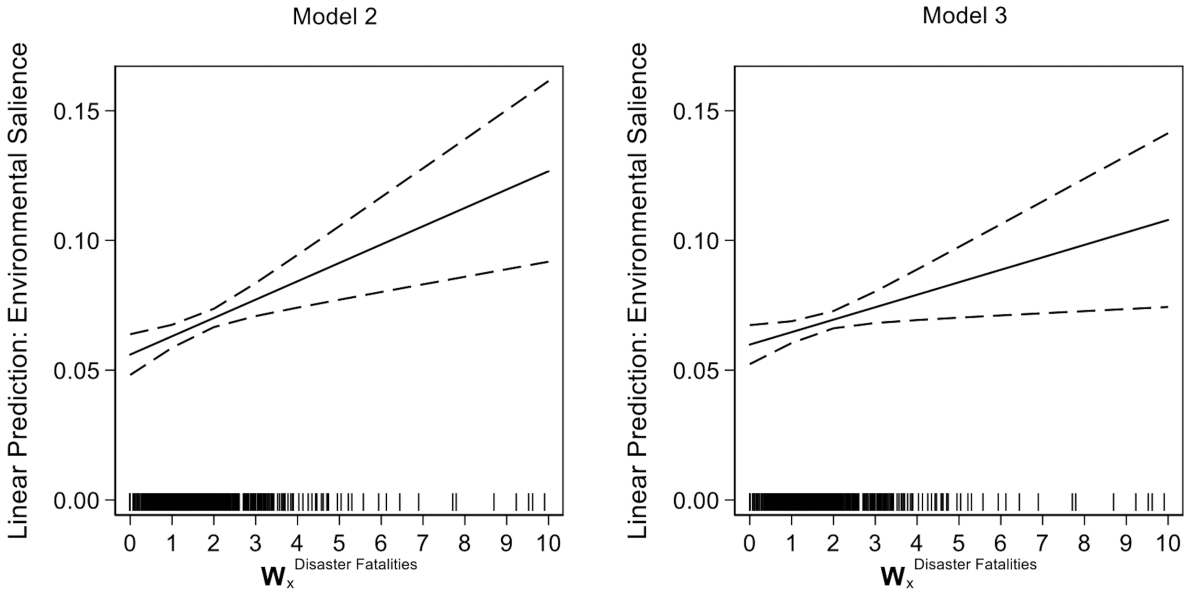
Note: Table entries are coefficients; standard errors in parentheses; constant, year fixed effects, and country fixed effects included in all models, but omitted from presentation. Estimates significant at 5 percent (two-tailed) in bold.

$\mathbf{W}_x^{DisasterFatalities}$ is positively signed and statistically significant in Table 2.1. According to Model 2, if all neighbors of a focal country were to see about three fatalities from environmental disasters, public concern about the environment would increase by almost 1 percentage point (0.007). Considering all controls in Model 3, this decreases to about 0.5 percentage points. Hence, we obtain evidence that fatalities from environmental disasters abroad influence public opinion on the environment at home.

Figure 2.2 depicts predicted values of *Environmental Salience* for values of $\mathbf{W}_x^{DisasterFatalities}$, while holding all other variables constant at their means. At the minimum of the spatial item, which pertains to no disaster fatalities in neighboring states, our model predicts a value of about 6, *i.e.*, on average, 6 percent of the population would indicate that the environment is one of the two most salient issues affecting their country. The point estimate of the predicted values increases to more

than 10, however, when raising $\mathbf{W}_x^{DisasterFatalities}$ to its sample maximum.

Figure 2.2: Predicted Values of Environmental Salience by $\mathbf{W}_x^{DisasterFatalities}$



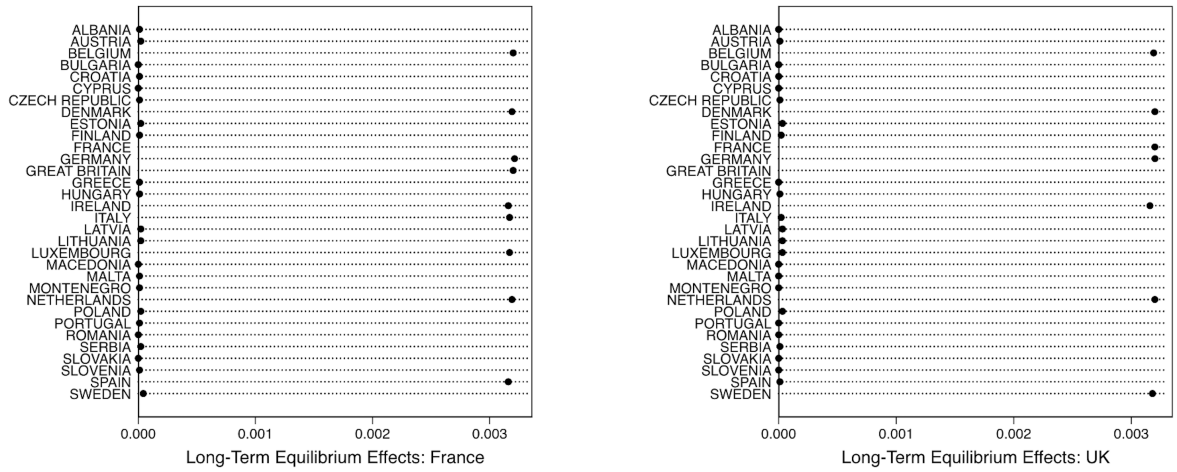

Note: The dashed lines pertain to the 95 percent confidence interval; the rug plot along the x-axis illustrates the distribution of $\mathbf{W}_x^{DisasterFatalities}$.

For the long-term equilibrium impacts, *i.e.*, the higher-order effect of disaster fatalities in *j* on its neighbor *i*, which feeds back and then influences others via direct and indirect links (Ward and Cao, 2012, pp. 1092-1094), we focus on Model 3 while including a decay function. This function is given by 2 raised to the power of -(number of years since last disaster abroad/$\alpha$), with $\alpha$ being the half-life parameter. We determined that a half-life of two years produced the best fit and mirrors earlier research on how long lasting the effects on public opinion are (Bechtel and Hainmueller, 2011). The simulation is based on the year 2020 for hypothetically inducing exp(5)=148 disaster-related deaths in two states one at a time: France and the UK[15]. We then calculate the long-term effects on all states, as the shock reverberates through the system. The decay function included in the estimation accounts for the fact that an environmental disaster does not last forever in shaping public opinion, which would lower second-order effects.

Figure 2.3 suggests that the proclaimed spatial effect is both significantly and substantively

[15]Since each unit has a different set of linkages to its neighbors, the impact of a hypothetical change in disaster fatalities depends on which unit is being changed.

Figure 2.3: Spatial long-term equilibrium effects




Note: Entries pertain to spatial long-term equilibrium effects in other countries when simulating 148 disaster fatalities in either France (left panel) or the United Kingdom (right panel). Direct effects for France (0.9566) and the United Kingdom (0.95658) are not reported to improve readability. Calculations are based on Model 3 while including a decay function and 1,000 random draws from the multivariate normal distribution of the spatial lag and the decay variable..

important. Linking these findings to our theory, we find strong and robust support for our hypothesis. In sum, therefore, environmental disasters abroad strongly influence public opinion on environmental salience at home.

The results concerning the control covariates are mixed. Four of these variables consistently display significant effects, however. First, the larger the population of a country, the higher the share of the population seeing the environment as a salient policy issue. Second, the larger the share of the Greens in parliament, the higher the values of Environmental Salience. Third, as expected, more rightist political views are linked to less environmental concerns. We obtain a negative coefficient estimate for Median Voter, which highlights that higher values on the left-right self-placement variable are associated with lower values on *Environmental Salience*. Finally, and in line with previous work (*e.g.*, Bergquist et al., 2019; Lu and Schuldt, 2015; Reser et al., 2014), we find evidence for a domestic-level effect of disasters on environmental salience. Comparing the coefficients of *Disaster Fatalities (ln)* and $\mathbf{W}_x^{DisasterFatalities}$, the former's is somewhat smaller, although there is no statistically significant difference between the two.

We assessed the robustness of our empirical findings with several additional analyses, which are summarized in the Appendix. There, we address issues of intra-group correlations by clustered standard errors and we introduce a Spatial Durbin Model (Elhorst, 2010). We also evaluate our findings conditional on countries' population size and economic power, we control for the level of environmental quality, and we employ capital-to-capital inverse distance weights in the connectivity matrix. Moreover, we explore cultural similarities, different characteristics of natural disasters, and we examine the influence of news media consumption. Finally, we present more disaggregated analyses at the regional and individual levels, while concluding the additional analyses with a quasi-experimental study of public opinion during Greek wildfires in 2018. These supplementary checks increase the confidence in our main result: environmental attitudes "at home" are systematically driven by environmental-disaster fatalities in neighboring countries.

## 2.6 Conclusion

What drives public opinion about climate change and the environment? An extensive body of research has examined the determinants of public opinion (Bakaki and Bernauer, 2017; Bernauer and McGrath, 2016; Howe et al., 2019), with many of those studies exploring the impact of disasters. We have sought to contribute to and extend this debate by examining the spatial dynamics surrounding environmental events and public opinion.

We contend that environmental public opinion is influenced by natural disasters even when those disasters occur beyond a country's borders. Media coverage of environmental disasters is facilitated when events are intense and nearby; what is more, the proximate distance of a disaster creates feelings of threat, danger, distress, and uncertainty, which in turn shape individuals' environmental attitudes. Our empirical findings based on the analysis of Eurobarometer and disaster data highlight that natural disasters abroad can significantly increase concerns over the environment. Thus, environmental events in other countries, particularly those in the direct neighborhood, play an important role in explaining environmental public opinion. Combing this conclusion with existing research on

the "local" domestic-level impact of disasters (Bergquist et al., 2019; Demski et al., 2017; Reser et al., 2014), we believe to be among the first to show that the influence of natural disasters on environmental public opinion is even larger than hypothesized by previous research.

The implications of these findings are important for both the academic literature and policymakers. On one hand, this research provides substantial evidence of the cross-border influence of natural disasters, and to this end, our general understanding of how public opinion is formed is improved. On the other hand, recent research shows that policymaking pays attention to public opinion (Boswell et al., 2019; Schaffer et al., 2022) The more the public sees the environment as an important issue, the more likely it is that corresponding policies will be implemented. Hence, an implication of our research is a potentially important route to engagement with climate change and a window of opportunity to build political support for environmental mitigation policies.

There are several interesting questions to explore in further research. First, one question worth exploring is whether the effect we identified in the European sample exists elsewhere or even worldwide. On one hand, similar analyses using data from the Latinobarometer[16] or the Afrobarometer[17] may want to confirm that what we find for Europe is a phenomenon that is present in other regions, too. On the other hand, and derived from this, a global analysis would go even further, although countries' interconnectedness or the power structures behind media reporting are likely more crucial than in our setup and must be taken into account more thoroughly than it can be done it in the analyses above as well as in the appendix. In any case, substantial data collection efforts would be necessary for such studies, as high-quality and comparable survey data does not exist for all countries worldwide.

Second, it would be useful to identify conditions under which environmental disasters abroad influence environmental attitudes at home. Relatedly, media reporting on other countries is shaped by additional factors and exploring these may be an effort worth making. And recall that contiguity – our proxy for the transnational flow of information via mass media – does not capture the "whole story." Indeed, factors such as power, influence, or cultural similarity of other countries abroad likely

[16]See online at: https://www.latinobarometro.org/lat.jsp.
[17]See online at: https://www.afrobarometer.org/.

influence whether people may have followed the news and/or whether the media covers a specific environmental event in the first place. Alternative and supplementary forms of connectedness (Deutschmann et al., 2018) and above as well as in the SI we provide some analyses based on the characteristics of disasters or the size and power of sending countries. Clearly, however, other, conditional influences and forms of interconnectedness could exist, even though space limitations prevent us from thoroughly analyzing these theoretically and empirically. It will be interesting to explore them in detail.

Finally, our theory suggests several different mechanisms, egocentric and sociotropic ones, which link disasters abroad with public-opinion changes at home. It could be useful, also with a view towards more accurate policy recommendations, to be able to empirically distinguish between these mechanisms and to fully clarify which are the more influential factors. We cannot distinguish among mechanisms with the existing data material, but we believe this would be an exciting avenue for further work. Further research could also try move beyond the study of environmental public opinion and analyze whether natural disasters influence environment-related action, like environmental activism or pro-environmental voting.

# Appendix 2.A Alternative specification of the standard errors

We employ a regular specification of the standard errors in the main text's models. In Table A.1 , we explore another approach as we rely on "robust" Huber-White standard errors clustered by country. States are observed across the years in our data set, thus multiple cases exist per country. Clustering the standard errors then controls for underlying intra-group correlations that stem from this data structure. Table able A.1 is based on Model 3 in the main text. However, opting for a different specification for the standard errors does not change our core result.

Table A.1: Clustered Standard Errors

| | (1: OLS) |
|---|---|
| Disaster Fatalities (ln) | 0.0033 |
| | (0.0017) |
| $\mathbf{W}_x^{DisasterFatalities}$ | 0.0048 |
| | (0.0023) |
| Population (ln) | 0.1632 |
| | (0.1017) |
| GDP per capita (ln) | 0.0290 |
| | (0.0469) |
| Greens in Parliament | 0.0085 |
| | (0.0050) |
| Democracy | 0.0078 |
| | (0.0082) |
| Median Voter | -0.0158 |
| | (0.0116) |
| Observations | 546 |
| Cluster Standrad Errors | × |
| Year Fixed Effects | × |
| Country Fixed Effects | × |

Note: Table entries are coefficients; standard errors in parentheses; constant, year fixed effects, and country fixed effects included, but omitted from presentation.

# Appendix 2.B Spatial Durbin model

We also estimated a Spatial Durbin Model (Elhorst, 2010) using the estimator by Hays et al. (2010). This setup comprises a second spatial variable based on the dependent variable, *Environmental Salience* – in other words, this is a "traditional" spatial lag as we use our dependent variable to construct this spatial lag. The defining criterion of the Spatial Durbin Model is that it includes a spatial item based on the dependent variable as well as one of the explanatory variable(s). The latter is $\mathbf{W}_x^{DisasterFatalities}$, which we focus on theoretically and empirically. The underlying rationale of this robustness check is that environmental attitudes likely respond to disasters abroad, but they could themselves diffuse across borders.

As in the main text, the weighting matrix relies on direct contiguity (Douglas et al., 2002) with elements capturing the relative contiguity of country *i* and country *j*. However, unlike in the case of $\mathbf{W}_x^{DisasterFatalities}$, a second spatial variable's matrix is multiplied by *Environmental Salience*. Table B.1 summarizes our findings. First, the control variables remain unchanged. The same holds true for our core variable, $\mathbf{W}_x^{DisasterFatalities}$ which exerts a positive and significant effect on Environmental Salience. Second, $\mathbf{W}_y^{DisasterFatalities}$ is positively signed, as expected, and statistically significant at conventional levels. Eventually, our main result is robust to moving from a spatial-x (Franzese and Hays, 2007; Plümper and Neumayer, 2010) to a Spatial Durbin Model (Elhorst, 2010).

Table B.1: Spatial Durbin Model

| | (2: MLE) |
|---|---|
| Disaster Fatalities (ln) | 0.0022 |
| | (0.0011) |
| $\mathbf{W}_x^{DisasterFatalities}$ | 0.0031 |
| | (0.0018) |
| $\mathbf{W}_y^{DisasterFatalities}$ | 0.4475 |
| | (0.0493) |
| Population (ln) | 0.1606 |
| | (0.0415) |
| GDP per capita (ln) | 0.0131 |
| | (0.0207) |
| Greens in Parliament | 0.0079 |
| | (0.0010) |
| Democracy | 0.0195 |
| | (0.0058) |
| Median Voter | -0.0114 |
| | (0.0065) |
| Observations | 546 |
| Year Fixed Effects | × |
| Country Fixed Effects | × |

Note: Table entries are coefficients; standard errors in parentheses; constant, year fixed effects, and country fixed effects included, but omitted from presentation; MLE = maximum likelihood estimation.

# Appendix 2.C Moderating effect of population size and economic power

The size of a country may be relevant for the diffusion process we argue for. For instance, a disaster in a larger state could exert a stronger influence than an environmental event in a smaller nation. To this end, a, say, wildfire in Germany will receive much more coverage in other European (neighboring) countries than a similar natural disaster in, *e.g.*, Slovenia. We explore this possibility via two distinct power measures: population and GDP. Using this information from the World Bank Development Indicators, we modified $\mathbf{W}_x^{DisasterFatalities}$ to incorporate the difference in countries' population and economic power, respectively. On one hand, the new spatial variable, ΔPopulation: $\mathbf{W}_x^{DisasterFatalities}$, must meet the conditions of $\mathbf{W}_x^{DisasterFatalities}$ in the weighting matrix, but we also introduce: for $i \neq j$, $w_{i.j} = (population_i - population_i)$ if $population_j > population_i$ and 0 otherwise (p.16 Ward and John, 2013). The elements $w_{ij}$ of the weighting matrix thus become continuous. On the other hand, there is ΔGDP: $\mathbf{W}_x^{DisasterFatalities}$, which must also meet the conditions of our core variable of interest, but we add: $i \neq j$, $w_{i.j} = (GDP_i - GDP_i)$ if $GDP_j > GDP_i$ and 0 otherwise (p.16 Ward and John, 2013). Hence, we modified $\mathbf{W}_x^{DisasterFatalities}$ so that only disasters in more populous or economically stronger neighbors have an influence. Table C.1 summarizes our findings: either modified spatial variable fails to achieve significance at conventional levels, though, suggesting that power relationships are of secondary importance in our setup.

Table C.1: Population Size and Economic Power

| | (3: OLS) | (4: OLS) |
|---|---|---|
| Disaster Fatalities (ln) | 0.0037 | 0.0037 |
| | (0.0012) | (0.0012) |
| ΔPopulation: $\mathbf{W}_x^{DisasterFatalities}$ | 0.0019 | |
| | (0.0017) | |
| ΔGDP: $\mathbf{W}_x^{DisasterFatalities}$ | | 0.0016 |
| | | (0.0017) |
| Population (ln) | 0.1772 | 0.1793 |
| | (0.0474) | (0.0473) |
| GDP per capita (ln) | 0.0299 | 0.0294 |
| | (0.0239) | (0.0239) |
| Greens in Parliament | 0.0086 | 0.0086 |
| | (0.0012) | (0.0012) |
| Democracy | 0.0066 | 0.0067 |
| | (0.0065) | (0.0065) |
| Median Voter | -0.0162 | -0.0165 |
| | (0.0075) | (0.0075) |
| Observations | 546 | 546 |
| Year Fixed Effects | × | × |
| Country Fixed Effects | × | × |

Note: Table entries are coefficients; standard errors in parentheses; constant, year fixed effects, and country fixed effects included in both models, but omitted from presentation.

# Appendix 2.D Controlling for environmental quality

We also considered the influence of environmental quality, as measured by the (logged) carbon dioxide emissions per capita. We take this variable from the World Bank, which defines these emissions as "those stemming from the burning of fossil fuels and the manufacture of cement. They include carbon dioxide produced during consumption of solid, liquid, and gas fuels and gas flaring." Table D.1 replicates our full model from the main text after adding Environmental Quality. As expected, this newly added item is positively signed, *i.e.*, the higher $CO_2$ emissions in a country, the more the public sees the environment as a salient issue. Our main variable of interest, $\mathbf{W}_x^{DisasterFatalities}$, is not affected by including this additional control.

Table D.1: Environmental Quality

| | (5: OLS) |
|---|---|
| Disaster Fatalities (ln) | 0.0035 |
| | (0.0012) |
| $\mathbf{W}_x^{DisasterFatalities}$ | 0.0045 |
| | (0.0020) |
| Environmental Quality | 0.0313 |
| | (0.0090) |
| Population (ln) | 0.2253 |
| | (0.0504) |
| GDP per capita (ln) | 0.0220 |
| | (0.0236) |
| Greens in Parliament | 0.0085 |
| | (0.0012) |
| Democracy | 0.0072 |
| | (0.0064) |
| Median Voter | -0.0194 |
| | (0.0075) |
| Observations | 546 |
| Year Fixed Effects | × |
| Country Fixed Effects | × |

Note: Table entries are coefficients; standard errors in parentheses; constant, year fixed effects, and country fixed effects included, but omitted from presentation.

# Appendix 2.E Alternative disaster characteristics

Not all environmental disasters are created equal. The intensity across events does vary and only some of those events are eventually covered by the mass media. In light of this, the main text's analysis focuses on the number of disaster fatalities abroad to create our core spatial variable. In the following, we explore three different alternatives. First, we created a spatial variable that is based on contiguity as ties connecting countries, but we multiplied this matrix with information on the total damage caused by disasters in a given year, *i.e.*, the value of all damages and economic losses in US Dollars. Second, we consider the total number of disasters each year – regardless of fatalities or economic losses caused. Any environmental disaster coded in the original data source is taken into account for this count variable. Third, there is a spatial variable based on the logged number of affected individuals: this is the sum of injured and dead people, affected people (*i.e.*, individuals requiring immediate assistance during an emergency situation), and homeless people (number of people whose house is destroyed or heavily damaged). All other variables and specifications remain the same as in Model 3 of the main text, but we replace the unit-level disaster variable along the lines of the spatial item: that is, when focusing on economic losses, we control for the disaster-related economic losses at home, etc.

Table E.1 presents the findings from the corresponding three models. Across Models 7-9, however, the spatial variable is statistically insignificant. This suggests that the diffusion effect we argue for is indeed driven by the number of deaths caused by an environmental disaster abroad. Other characteristics matter less and do not guarantee that the media will cover an event – the key requirement for our diffusion claim.

Table E.1: Alternative Disaster Characterisitcs

| | (7:OLS) Total Damage | (8: OLS) Disaster Count | (9: OLS) People Affected |
|---|---|---|---|
| Total Damage | -0.0000 | | |
| | (0.000) | | |
| Disaster Count | | 0.0002 | |
| | | (0.0015) | |
| People Affected (ln) | | | 0.0004 |
| | | | (0.0006) |
| $\mathbf{W}_x$ | -0.0000 | 0.0008 | -0.0006 |
| | (0.000) | (0.0022) | (0.0011) |
| Population (ln) | 0.1911 | 0.1875 | 0.1921 |
| | (0.0476) | (0.0483) | (0.0476) |
| GDP per capita (ln) | 0.0206 | 0.0220 | 0.0214 |
| | (0.0240) | (0.0245) | (0.0244) |
| Greens in Parliament | 0.0086 | 0.0086 | 0.0086 |
| | (0.0012) | (0.0012) | (0.0012) |
| Democracy | 0.0081 | 0.0081 | 0.0077 |
| | (0.0066) | (0.0066) | (0.0066) |
| Median Voter | -0.0171 | -0.0169 | -0.0174 |
| | (0.0076) | (0.0076) | (0.0076) |
| Observations | 546 | 546 | 546 |
| Year Fixed Effects | × | × | × |
| Country Fixed Effects | × | × | × |

Note: Table entries are coefficients; standard errors in parentheses; constant, year fixed effects, and country fixed effects included, but omitted from presentation.

# Appendix 2.F Cultural similarity of countries

We contend that disasters in contiguous countries connect more directly to environmental public opinion "at home," because of, among other influences, greater media coverage of events in nearby territories. However, there could be other reasons for this effect. For example, one may posit that a familiarity effect exists in that people are more familiar with proximate countries. Conceptualizing familiarity is challenging, but one way of doing this is via cultural similarity. In fact, a number of studies show that different cultural perspectives inevitably filter into the news-making process and affect the way conflict events are covered and images are conveyed (Fahmy, 2010; Kwon et al., 2017; Nossek and Berkowitz, 2006). As such, cultural proximity is an important factor for media framing. We either replace geographic distance in the weights matrix by cultural proximity or add it to the contiguity in the following.

We focus on Kandogan's (2012) revised variable of Kogut and Singh's (1988) standardized measure of cultural differences. Kogut and Singh (1988) offer a simple and standardized measure of cultural differences, which is based on Hofstede's (1980) dimensions of national culture. Hofstede (p.25 1984) defines culture as "the collective programming of the mind which distinguishes the members of one human group from another." A group can refer to nations, regions, ethnicities, religions, occupations, organizations, or gender. He then classified countries along four main anthropological issue areas that societies handle differently: the ways of coping with inequality, the ways of coping with uncertainty, the relationship of the individual with her primary group, and the implications of having been born as female or male. In turn, Hofstede (1984) translated these into four dimensions of national culture: power distance, *i.e.*, the strength of social hierarchy; uncertainty avoidance, *i.e.*, the discomfort with uncertainty and ambiguity; masculinity vs. femininity, *i.e.*, preferences for achievement, heroism, assertiveness, and material rewards for success vs. cooperation, modesty, caring for the weak, and quality of life; and individualism vs. collectivism, *i.e.*, preferences for a loosely-knit social framework in which individuals are expected to take care of only themselves and their families in contrast to preferences for a society in which individuals expect members of a

particular in-group to look after them in exchange for loyalty. These dimensions of national cultures are rooted in people's values, where values are "broad preferences for one state of affairs over others [. . . ] they are opinions on how things are and they also affect our behavior" Hofstede (1984, p.347). As such, by explicitly taking into account the values held by the majority of the population in each of the surveyed countries, these dimensions can effectively capture differences between countries in their norms, perceptions, and ways to deal with conflicting situations. Higher cultural "distance" pertains to higher divergence in opinions, norms, or values.

Kogut and Singh (1988) developed a composite index based on the deviation from each of Hofstede's (1984) four dimensions of national culture. Kandogan (2012) revised the original variable by moving beyond the assumption in Kogut and Singh (1988) that the covariance between the four different dimensions of culture is 0. We first inverted this variable so that higher values pertain to more cultural similarity in our data. Afterwards, we multiplied it with the information in the weighting matrix on contiguity as defined by a land/river border (or separated by up to 400 miles). Ultimately, the elements in the spatial variable's contiguity matrix capture contiguous, culturally similar countries. States that share a border, but are culturally not that close to each other, receive a value of 0 in the weighting matrix. A second matrix omits the geographical-proximity component: thus, we consider cultural exclusively. All other model specifications remain unaltered. Table F.1 summarizes our findings. Our core finding remains robust as $\mathbf{W}_x^{DisasterFatalities}$ remains positively signed and statistically significant.

Table F.1: Cultural similarity

| | (10: OLS) Inverse Culture | (11: OLS) Inverse Culture & Proximity |
|---|---|---|
| Disaster Fatalities (ln) | 0.0044 | 0.0033 |
| | (0.0012) (0.0012) | |
| $\mathbf{W}_x^{DisasterFatalities}$ | 0.0215 | 0.0047 |
| | (0.0095) | (0.0020) |
| Population (ln) 0.1861 | 0.1715 | |
| | (0.0469) | (0.0472) |
| GDP per capita (ln) | 0.0272 | 0.0276 |
| | (0.0238) | (0.0238) |
| Greens in Parliament | 0.0087 | 0.0086 |
| | (0.0012) | (0.0012) |
| Democracy | 0.0075 | 0.0077 |
| | (0.0064) | (0.0064) |
| Median Voter | -0.0172 | -0.0170 |
| | (0.0075) | (0.0075) |
| Observations | 546 | 546 |
| Year Fixed Effects | × | |
| Country Fixed Effects | × | |

Note: Table entries are coefficients; standard errors in parentheses; constant, year fixed effects, and country fixed effects included, but omitted from presentation.

# Appendix 2.G Influence of news media consumption

We argue that the public pays attention to the news and that there is sufficient news coverage. While we claim that the latter is positively related to proximity, we now address the first component. To this end, we draw on the European Social Survey[18]. We merged all integrated data files of ESS rounds that have the individual as the unit of analysis. For news media consumption, we focus on the following ESS survey question: "how much of your time watching television is spent watching news or program about politics and current affairs?" Respondents could answer on a 0-7 scale with 0 standing for "no time at all" and 7 "more than three hours." [19] We first deleted all individuals who have not responded to this question or expressed no opinion ("do not know") before aggregating this individual-level variable to the country level by averaging across respondents. We recoded this information to a binary variable receiving a value of 1 (0 otherwise) if the news media consumption is larger than the sample average, which pertains to a weekday consumption of programs about politics and current affairs of 30 minutes to one hour. This binary approach addresses concerns about measurement error in the data.

To assess the requirement that the public pays attention to the news, we first look at the item's descriptive statistics before adding it as an additional control to the main model. According to our calculations, the variable *News Media Consumption* has a mean value of 0.434, which suggests that almost half of our sample has a news-media consumption of at least the sample average. The patterns of this variable across countries and over time are plotted in Figure G.1 We believe that this supports our assumption that the public does indeed follow the news on a regular and thorough basis. Moreover, when including this variable as another control in our main model, the core finding remains unchanged (Table G.1), while *News Media Consumption* is positively signed and statistically significant.

[18]Available online at: http://www.europeansocialsurvey.org. The ESS's survey practices are harmonized and require a random sampling design of residents 15 years and older, one-hour face-to-face interviews, a target response rate of 70 percent, and a minimum of 2,000 respondents per country.

[19]The year 2016 is an exception as the question is reformulated into "[o]n a typical day, about how much time do you spend watching, reading or listening to news about politics and current affairs?" We thus divided the variable first into seven equally sized quantiles to make the coding consistent with previous ESS rounds.

Figure G.1: News media consumption

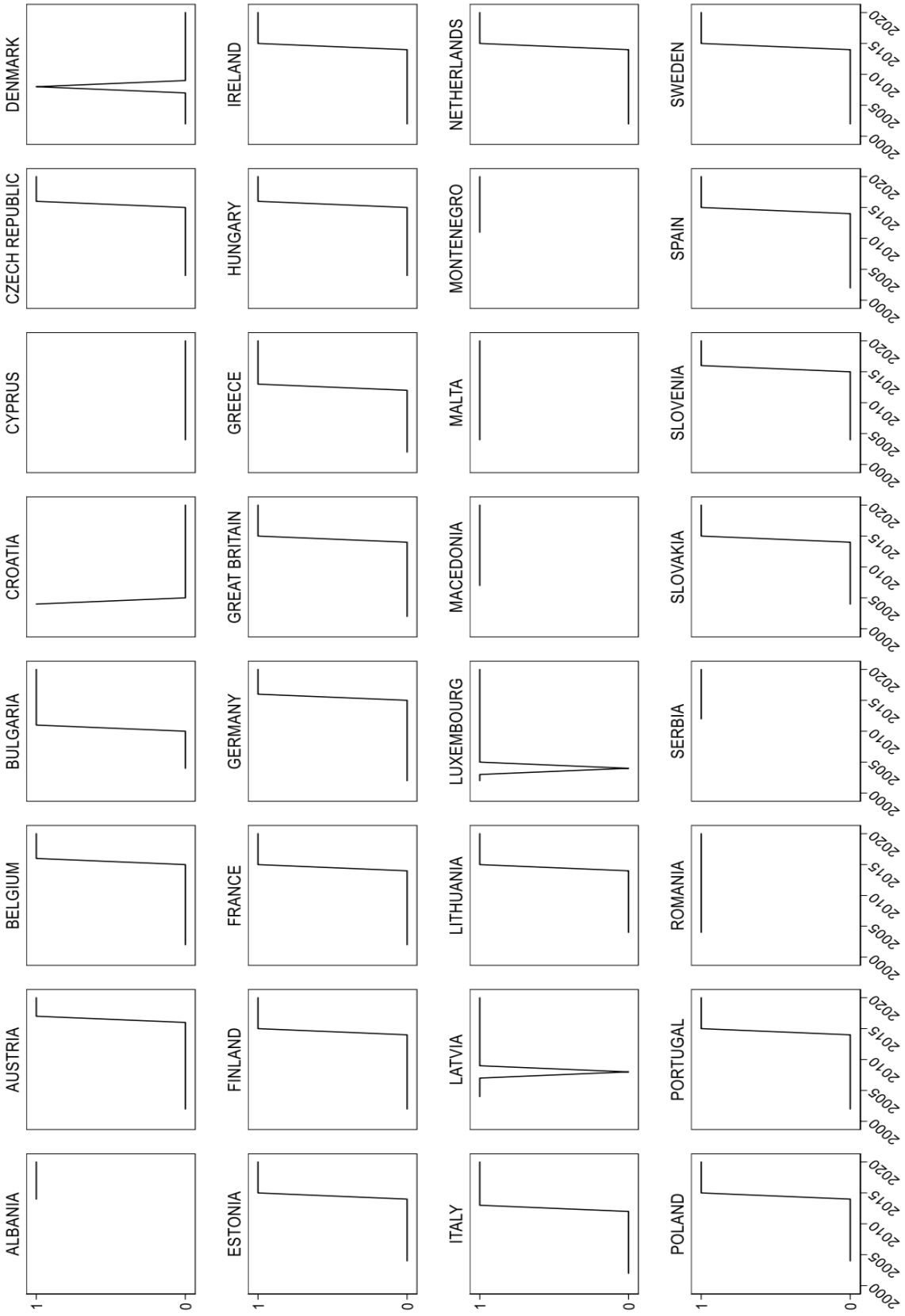


Table G.1: News media consumption

| | (12: OLS) |
|---|---|
| Disaster Fatalities (ln) | 0.0031 |
| | (0.0012) |
| $\mathbf{W}_x^{DisasterFatalities}$ | 0.0049 |
| | (0.0020) |
| Population (ln) | 0.1759 |
| | (0.0478) |
| GDP per capita (ln) | 0.0358 |
| | (0.0238) |
| Greens in Parliament | 0.0091 |
| | (0.0012) |
| Democracy | 0.0096 |
| | (0.0065) |
| Median Voter | -0.0163 |
| | (0.0075) |
| News Media Consumption | 0.0147 |
| | (0.0064) |
| Observations | 546 |
| Year Fixed Effects | × |
| Country Fixed Effects | × |

Note: Table entries are coefficients; standard errors in parentheses; constant, year fixed effects, and country fixed effects included, but omitted from presentation.

# Appendix 2.H Disaggregated analysis at the regional level

Our main interest is the cross-country diffusion effect, *i.e.*, that disasters abroad affect attitudes "at home." It is precisely this aspect of disasters in other countries affecting domestic-level public opinion that constitutes our main contribution and adds to previous works. Having said that, we also conducted an analysis at a more disaggregated, regional level. For example, at the country level (main text), we assume that a flood in Maastricht has the same impact on people in Cologne as it has on people in Munich, which may be not entirely plausible.

First, we went back to the Eurobarometer data and coded all information at the individual level data. Second, we coded a variable comprising information on each respondent's NUTS ("nomenclature of territorial units for statistics") region. The NUTS system divides European countries into more disaggregated sub-regions: major socio-economic regions at level 1, basic regions for the application of regional policies at level 2, and small regions for specific diagnoses at level 3. Using this information, we aggregated the Eurobarometer to the most disaggregated unit level available (at least the NUTS1 level, but NUTS2 in most cases), thus establishing a data set having the region-year as the unit of analysis. Finally, we coded each disaster's NUTS regional location and merged this data into the regional-level data frame.

Table H.1: Disaggregated analysis: regional level

| | (13: OLS) |
|---|---|
| Disaster Fatalities (ln) | 0.0019 |
| | (0.0009) |
| $\mathbf{W}_x^{DisasterFatalities}$ | 0.0082 |
| | (0.0013) |
| Observations | 3,538 |
| Year Fixed Effects | × |
| Country Fixed Effects | × |

Note: Table entries are coefficients; standard errors in parentheses; constant, year fixed effects, and country fixed effects included, but omitted from presentation.

After putting all this information together, we created a spatial variable based on the region unit of analysis. The setup of this spatial item mirrors the construction of the country-level spatial

variable we use in the main text, but it is based on the NUTS regions (not countries) and contiguity is specified as 200 km minimum distance between regions. Weights pertaining to any two NUTS regions in our data set further away than 200 km are coded as 0. We then re-estimated a model at this more fine-grained spatial resolution that comprises year and NUTS region fixed effects. Like what we find at the country level (main text), the spatial variable is positively signed and statistically significant (Table H.1).

# Appendix 2.I Disaggregated analysis at the individual level

Part of our rationale for using the aggregated country-level unit of analysis is that we sought to follow other, similar research in this regard (Böhmelt et al., 2020). However, using aggregate-level data is vulnerable to ecological inference problems, especially as our theoretical argument is situated at the individual level. To address this concern, Table I.1 summarizes the findings from an analysis at the individual level.

That is, rather than aggregating the information to the country (or region) level, we employ the original data from the Eurobarometer at the individual level. This also allows us to consider a number of individual-level variables that are likely to be associated with psychological response – *e.g.*, gender, and variables linked to resilience, *e.g.*, education. For example, a well-educated and wealthier person is less likely than other individuals to fear a flood, as they would be better able to protect themselves against such a disaster. To this end, we incorporated the following controls (based on Böhmelt (2020)): *Left-Right Self-Placement* (variable ranging between 1 (leftist self-placement) and 10 (rightist self-placement), *Female* (binary indicator with 1 standing for female participants; 0 = male), *Age* (as indicated by respondents, ranging between 15 and 99 in our sample), *Unemployed* (binary indicator with 1 standing for unemployed or temporarily not working; 0 otherwise), and *Education* (binary indicator with 1 standing for ending school/university education at 18 years or more; 0 = education ending before 18 years of age). As in the main text, we also include year and unit (NUTS regions in this case) fixed effects. The disaster-related variables (Disaster Fatalities (ln) and $\mathbf{W}_x^{DisasterFatalities}$) are identical to what we use in the main text: we cannot create an individual-level spatial lag as the Eurobarometer data are not longitudinal (the same individuals being interviewed each wave).

First, the core variables of interest Disaster Fatalities (ln) and $\mathbf{W}_x^{DisasterFatalities}$ are similar in terms of effect direction and size to the findings we report in the main text. Hence, our main results are robust to moving from the country level to the individual level. Second, there are some interesting results for the control variables: *Education* is positively signed and significant at the 1%

Table I.1: Disaggregated analysis: individual level

| | (14: OLS) |
|---|---|
| Disaster Fatalities (ln) | 0.0038 |
| | (0.0003) |
| $\mathbf{W}_x^{DisasterFatalities}$ | 0.0078 |
| | (0.0006) |
| Left-Right Self-Placement -0.0067 | |
| | (0.0002) |
| Female | -0.0010 |
| | (0.0010) |
| Age | -0.0005 |
| | (0.0000) |
| Unemployed | -0.0199 |
| | (0.0020) |
| Education | 0.0334 |
| | (0.0027) |
| Observations | 291,457 |
| Year Fixed Effects | × |
| Region Fixed Effects | × |

Note: Table entries are coefficients; standard errors in parentheses; constant, year fixed effects, and country fixed effects included, but omitted from presentation.

level, highlighting that respondents who have finished education at 18 years of age or more are more likely to be concerned about the environment (3.3 percentage points). Second, *Unemployed, Age*, and *Left-Right Self-Placement* are negatively signed (and all statistically significant at the 1% level). This means that older individuals, more conservative respondents, and people without the financial means (as they are unemployed) are less likely to be concerned about the environment. *Unemployed* has the largest effect here as unemployed individuals are less likely to worry about the environment by almost 2 percentage points. The effect for Age is 0.05% and we get an effect estimate of 0.67% for *Left-Right Self-Placement*. Finally, *Female* is insignificant, which suggests that gender effects are less likely to play a role in our setup.

# Appendix 2.J Quasi-Experimental setup

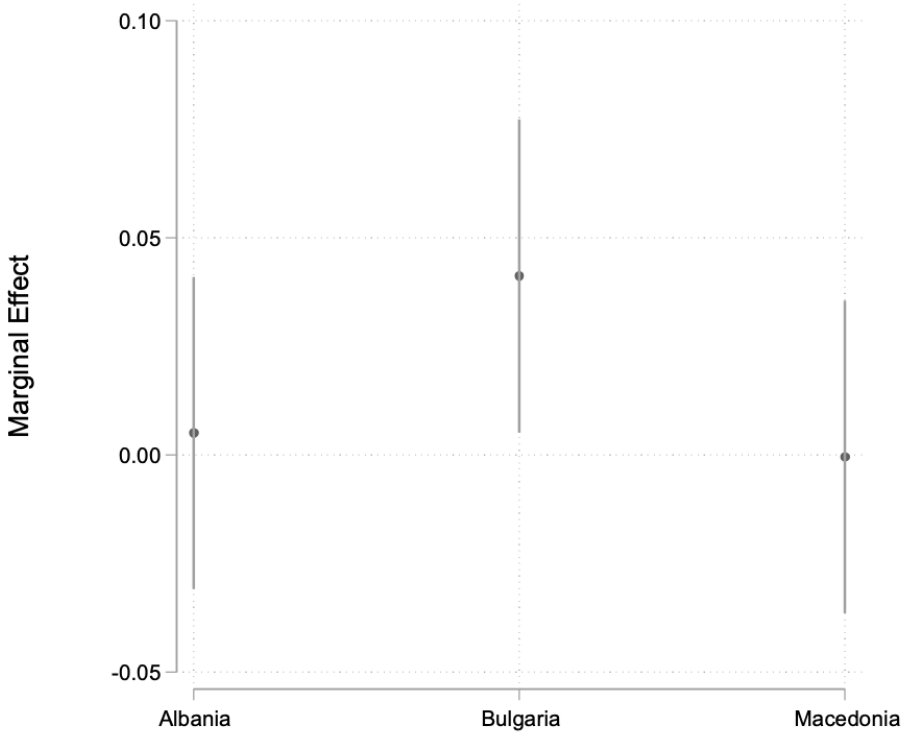
Methodologically, we also considered to further establish the process from media coverage to individual level attitudes. That is, following Böhmelt (2020) we sought to implement an analysis given a quasi-experimental event-in-the-field survey to leverage a natural disaster in the middle of fieldwork. Ultimately, this allows us to see how such an event shaped individual-level attitudes more directly and to unpack the individual-level mechanism we argue for in the main text.

In more detail, we focus on wildfires in July 2018, which broke out in the Attica region in Greece during the 2018 European heat wave. This disaster is also included in the disaster data we use in the main text's analysis. The wildfires broke out on July 23, 2018 and lasted until July 26, 2018. In total, it is estimated that more than 100 people died in the fire, making this disaster one of the deadliest wildfire events in the 21st century. Before the disaster occurred, Eurobarometer 89.2 (April 2018) was compiled, while Eurobarometer 90.3 was in the field almost right after the event (November 2018). Both surveys comprise the items that are relevant for our research and, hence, we pooled both data sets at the individual level and conducted an analysis that sees those respondents of November 2018 as "treated" individuals – they have experienced the environmental event. As discussed in Böhmelt (2020), employing these two data sets allows for a quasi-experimental design as we analyze environmental public opinion shortly before and after a disaster. Respondents interviewed before the wildfires should not systematically differ from people interviewed in November 2018 – except for the treatment.

Our results show that the overall treatment effect is negative (-0.0288, standard error of 0.0131). This does not necessarily go against our argument, though, as we claim that a cross-border diffusion effect does primarily exist with neighboring countries. Figure **??** then presents the marginal treatment effect of Greece's direct neighbors: Albania, North Macedonia, and Bulgaria. While the treatment effect is insignificant for Albania and North Macedonia, we obtain a positive and statistically significant treatment effect in Bulgaria: environmental salience increased by 4.1 units in comparison to the pre-wildfire survey. Hence, we conclude that this quasi-experimental analysis lends further

support to our argument that natural disasters in nearby countries are likely to affect environmental public opinion at home.

Figure J.1: Marginal effect estimates




Note: Vertical lines pertain to the 95 percent confidence interval.

# Paper 3

# Glocal Governance: The Effect of COP Meetings on Local Environmental Attitudes

**Abstract**

International relations scholarship has studied extensively how international organizations (IOs) affect social actors beyond states, including the public. I contribute to this body of research and focus on an overlooked way IOs can affect the general public: by influencing attitudes of people who live in a close proximity to the specific place and time of their institutional meetings. International meetings increase salience of their discussed issue in the local community that hosts them by organizing events, by engaging with local political authorities, and by attracting initiatives from other interested social actors. Non-governmental organizations, media sources, and protestors gather around the location of international meetings, disproportionately affecting individuals who live in a proximity to the event compared to more distant residents. I test this argument by analyzing the Conference of the Parties' (COP) effect on people's environmental preferences in the regions they took place. I identify COP's localized effects by applying a difference-in-differences design on bi-yearly waves of Eurobarometer time-series cross-sectional data (2002–2022). I corroborate this large-N evidence with a case-study of Glasgow's COP26 meeting that illustrates the mechanism. Results show that IOs do not operate in a vacuum and that their meetings can be strategic opportunities to foster issue salience.

## 3.1 Introduction

A large body of work in political economy and international relations focuses on the effect of international organizations (IOs) and international cooperation on either states (Fang and Stone, 2012; Gray, 2009; Keohane, 2005; Ovodenko and Keohane, 2012; Simmons and Elkins, 2004) or societal actors, like companies (Genovese, 2021; Jensen and Malesky, 2018; Morse, 2019), and the public (Bakaki and Bernauer, 2017; Bearce and Cook, 2018; Chapman, 2012; Greenhill, 2020; Tingley and Tomz, 2020, 2022; Wallace, 2019). This body of work has proposed the idea that IOs do not operate in a vacuum, rather they expand their influence on actors besides states. In my paper, I push forward the idea that IOs affect social actors by focusing on one specific tool of IOs, namely international meetings, and I stress that international meetings occur in a specific place at a specific time and therefore can have localized effects. In other words, I argue that these international events can also directly affect the regions where they occur.

International meetings attract significant attention, and a series of events accompany the main event – *i.e.*, negotiations. Local political authorities, social movements, and the media are among the most important actors that gather in the host city and surround the event. Therefore, on the one hand, through the arrangement of international meetings, IOs send signals to the public by legitimizing certain policy options (Bearce and Cook, 2018), such as climate mitigation or human rights protection. On the other hand, in addition to the effect that the negotiations can have on the public, the "side-events" publicize even more the message proposed by IOs and the participating states.

I analyze the localized effect that IOs can have on the public in the case of the UNFCCC Conference of the Parties (COP) meetings and ultimately the question I address is: do COP meetings affect environmental preferences in the regions they took place? I focus on the environmental case for two main reasons. First, unlike other policy issues, such as trade or security, climate change mitigation requires behavioral change by virtually the entire population, as it facilitates a transition toward a carbon-neutral energy regime (Bakaki and Bernauer, 2017). This implies that public

opinion strongly correlates with policy outcomes (Anderson et al., 2017; Bakaki et al., 2020; Schaffer et al., 2022) and hence analyzing the determinants of environmental concern is of high importance. Second, COP meetings provide an ideal case-study because they receive considerable attention, and they are particularly salient events. In addition, unlike other IO meetings that take place at the IO's headquarters, their location changes every year. Hence, the case allows an empirical test of COP's localized effect in the regions the events are organized.

Empirically, I test my expectation by focusing on COPs that took place in European cities between 2003-2022. The analysis consists of two parts. First, I examine changes in environmental preferences before and after a COP by leveraging data from the Eurobarometer on people's views on the importance of climate change. By using a difference-in-differences design, I show that in regions where the COP took place environmental salience substantively increased. Second, I concentrate on one COP meeting – the one that took place in Glasgow in 2021 – and provide further evidence for the proposed effect. In the case study, I focus on individuals' intention to vote for the Green Party. I use individual level panel data drawn from the British Election Study and demonstrate that individuals who reside in Scotland increased their intention to vote for the Green Party. I also disaggregate the effect and use as treated units only individuals who live in the Glasgow area given that the negotiations and the majority of the side event took place there. I also find a positive and significant effect on people's green voting.

This paper makes several contributions. First and foremost, the paper puts forward a novel perspective in the research line studying the effect of IOs on public opinion. I stress the need for studying localized effects of international institutional events. To the best of my knowledge, this represents a novel research agenda. One implication of this agenda is that international negotiations cannot be treated as isolated events, but they rather have far-reaching consequences on people's views and potentially policy. Thus, I depart from previous research in that I explore the localized impact of these international events on public opinion. I propose a "bottom-up" approach for better understanding the effect of international negotiations and IOs on domestic politics. This localized mechanism has rarely been considered in the literature of IOs, public opinion, and environmental

politics due to emphasis of the negotiations' results on peoples' views. The theory and results from this paper potentially shed light on the localized effects that IOs can have in politicized issue areas other than the environment. For instance, implications could travel to the effect of G7 or G20 meetings on public opinion about global governance. They could also shed light on the effect of past historical events, such as the rounds of the General Agreement on Tariffs and Trade (GATT). Lastly, the paper helps to better understand the formation of environmental public opinion (Howe et al., 2019; Hornsey et al., 2016) and it highlights the role of IOs in raising awareness about climate issues.

## 3.2 International Organizations and public opinion

How do IOs affect public opinion? A large body of work focuses on the determinants of IOs' legitimacy in the eyes of the public (Dellmuth and Tallberg, 2015; Dellmuth et al., 2022; De Vries, 2018; De Vries et al., 2021; Kertzer, 2022; Voeten, 2013). Past studies have pointed out that the public's views on IOs depend among others on individuals' political values and identity constructions (Dellmuth, 2018), on IOs' purposes, procedures, and performance (Bernauer et al., 2020; Tallberg and Zürn, 2019) and on characteristics of the wider social order like cultural norms, economic systems, and political regimes (Gill and Cutler, 2014; Scholte, 2018). Additionally, Johnson (2011) has shown that popular perceptions on IOs depend in part on how the public views their more influential member states.

The public forms opinions not only about the legitimacy of IOs but also about the issues they advocate. IOs do not have the coercive power that states have, but they nonetheless have a "soft power" (Nye, 2004). They send signals to the mass public by legitimizing certain policy options, identifying treaty violations, and promoting solutions for collective action problems. Bearce and Cook (2018) have found evidence that the mass public is more (less) supportive of the government's policy based on a positive (negative) signal from the relevant IO.

A notable number of papers has also found that IOs endorsements can increase support for military action (*e.g.*, Chapman, 2009, 2012; Thompson, 2006; Wallace, 2019). Chapman (2009,

2012) who has focused on the effect of IOs on the public's support for the use of force, has developed a theory of IOs' influence over public opinion that depends less on the legitimizing effect of institutions than on their ability to meaningfully signal information about other states' preference. Outside of the realm of public support for armed forces, Bagozzi et al. (2014) have focused on perceptions of immigration, and they have found that individuals who have more knowledge on IOs of their regions are more supportive on their proposed issues. Additionally, Greenhill (2020) has studied public views on environmental issues and immigration, and has demonstrated that IOs play a significant role in shaping public opinion on these issues. He has presented evidence that endorsements by bigger, more generalized IOs, like the United Nations appear to have greater impact on public opinion than endorsements from more specialized IOs, like the OECD, World Bank, or IMF.

One specific tool of IOs, namely international negotiations, international agreements, has also been found to have the potential to influence public views (Bakaki and Bernauer, 2017; Chaudoin, 2014; Chilton, 2014; Chu, 2019; Kreps and Wallace, 2016; Tingley and Tomz, 2020, 2022). Among others, Chilton (2014) has focused on the effect the ratification of human rights agreements has on public support for altering human rights processes. She has found that information on prior treaty commitments has a significant effect on public opinion. In a similar vein, Tingley and Tomz (2020) have investigated the ways the Paris Agreement affects U.S. public support for costly climate mitigation policies, and they have found that international commitments can have powerful effects on domestic preferences by increasing support for climate mitigation. Lastly, Bakaki and Bernauer (2017) have concentrated on the media attention that the environmental Conference of the Parties (COP) attracts, and they have found that exposure to the news about the COP increases awareness of climate change, particularly among individuals whose initial awareness is low.

Past research has offered valuable insights into the ways IOs expand their influence on the public's views about policy issues by stressing the importance of IOs endorsements and the diffusion power of international agreements. However, they tended to overlook the effects that IOs, through the organization of international meetings, yield in the specific place and time they occur; in a way treating international institutions as if they affected the public only from afar. In this paper,

I move these arguments further by proposing that IOs can also have localized effects through the organization of international meetings. Given that international meetings happen in a specific time, at a specific place, I argue they can directly affect the local community that hosts them.

International meetings occur with the purpose of promoting international cooperation for global collective action problems. These events are not primarily held to affect the public, rather to affect participant states for reaching agreements that will foster international cooperation. Nevertheless, the occurrence of these events attracts considerable attention not only through extensive media coverage but also through the mobilization of state and non-state actors in the region where the negotiations take place. This local gathering of multiple societal actors expands the influence of international negotiations on the local communities that host them. In particular, I argue that there are three main actors that reinforce the local influence of international summits: local political authorities, social movements, and the media.

First, local political authorities, like regional councils, have to respond to international meetings that take place in cities under their jurisdiction. By agreeing to host the events, they stand with the IOs that organize the negotiations. Together they send signals to the mass public by legitimizing certain policy options that are promoted by the negotiations (Bearce and Cook, 2018). Although it is undeniable that politicians are compelled by electoral accountability to support policies that are broadly accepted by the public (Downs, 1957) and that the public influences politicians' policy positions (Schaffer et al., 2022), it is often the case that elites also influence citizens; and there is evidence that they manage to do it (*e.g.* Broockman and Butler, 2017; Lenz, 2009; Minozzi et al., 2015). In the case of international agreements, local elites want to shape public opinion by highlighting how the policy proposals of the agreements are consistent with their policy proposals and with citizens' pre-existing values (Chong and Druckman, 2007; Grose et al., 2015).

Second, social movements approach the location of international meetings because they give them the unique opportunity of attracting considerable international attention and protesting in a city where many country leaders are gathered. Their target is usually the inefficient solutions proposed by the participated states or the opposition to the occurrence of the meeting (Della Porta, 2006).

Thousands of people gathered in Munich in June 2022 as leaders of the G7 group met in the city for their annual conference[1]. In the same year, protesters demonstrated outside the international monetary fund (IMF) and World Bank in Washington expressing opposition to funding fossil fuels[2]. By taking advantage of the high attention that international meetings receive, social movements want to publicize their issues and reach as many people as possible. It is true that the message of social movements can expand beyond the regions where they take place through social networks that facilitate the spread of political information (social contagion model) (Givan et al., 2010). However, the influence on the local population can be stronger since people are directly exposed to their messages. Locals do not only hear about the demonstrations through media sources, but they also directly experience them. (Ayoub et al., 2021).

Lastly, the media contribute significantly in the proposed localized effect. The media function as a link between external events and collective perceptions (Capstick et al., 2015). Existing studies of media reporting show that around the time of big international meetings the theme of the meetings peaks spectacularly (Benham et al., 2022). Additionally, public opinion is significantly impacted by the extent and prominence of media coverage (Dumitrescu and Mughan, 2010; McCombs and Valenzuela, 2020b). In other words, the frequency and prominence in the media conveys a message to individuals about the relevance of certain issues. The increased coverage of issues during international meetings raises awareness of these issues among individuals. Individuals around the region of the events are particularly exposed to these messages since they do not only receive information about the international negotiations from national media but also from local. When there is a specific local event, local media tend to intensively cover the event because it directly affects their consumers.

[1]https://www.theguardian.com/world/2022/jun/25/thousands-protest-against-g7-in-munich-as-leaders-gather-for-summit

[2]https://www.reuters.com/world/protesters-outside-imf-world-bank-meeting-venues-demand-urgent-climate-action-2022-10-13/

### 3.2.1 COP's effect on environmental attitudes

In the paper I focus on the COP's effect on people's environmental preferences in the regions they took place. The COP case fits my theory because it is an annual international conference organized by the UN that receives extensive attention. Under the United Nations Framework Convention for Climate Change (UNFCCC) regime, every COP is presided over and hosted by a country; the host city of the COP is being decided by the host country. The venue for the COP meeting rotates among the five UN-identified regions: Africa, Asia-Pacific, Eastern Europe, Latin America and Caribbean, and Western Europe. The first COP was held in Berlin in 1995 and since then it is organized every year in a different city around the globe. The main task of the conference is to review and coordinate states' action regarding the mitigation of environmental issues[3]. The COP primarily appeals to states, but recent studies have shown that the public, among other societal actors like companies (Genovese, 2021), is influenced by the event (Bakaki and Bernauer, 2017; Tingley and Tomz, 2020).

An extensive literature focuses on what people think about the environment and how attitudes toward environmental protection and salience are shaped (for recent overviews, see, Howe et al., 2019; Marquart-Pyatt et al., 2014). There are four major contextual factors relevant for this project that influence public opinion on climate change: information provision, environmental movements, political elites, and the media. Based on the information-deficit model, the complexity of climate issues limits people's understanding (Weber and Stern, 2011) and thus exposure to messages that properly convey scientific information will result in a shift in public opinion about the threat of climate change. For example, Zhao et al. (2011) found that exposure to science-based news has a positive effect on people's concern and knowledge about climate change.

Moreover, environmental movements have been found to play a role in raising awareness about climate change. Environmental NGOs advocate about the protection of the environment and influence the public either directly through the provision of information to members of the public or indirectly through influencing the amount and nature of media coverage (Andrews and Caren, 2010; Carmichael

[3]For more information about the COP see here: https://unfccc.int/process/bodies/supreme-bodies/conference-of-the-parties-cop

et al., 2012). For instance, in October 2022 activists from "Just Stop Oil" have thrown tomato soup over Vincent van Gogh's Sunflowers at the National Gallery in London in an effort to attract media attention and present the need for energy transition[4].

In addition, political elites have an impact on the public and research has shown that environmental attitudes about climate change are closely synchronized with those of the party leaders (Brulle et al., 2012; Hamilton and Lemcke-Stampone, 2014). Lastly, since most individuals do not have direct exposure to scientific information, the environmental movement, or political elites, their knowledge of climate change is filtered through media coverage. Carmichael and Brulle (2017) found that the greater the quantity of media coverage of climate change, the greater the level of public concern.

I argue that the COP's localized influence stems from the reinforcement of the above four determinants of environmental attitudes. Climate change experts, political elites, environmental NGOs, and the media gather in one place at a specific time for discussing only one issue: climate change. The local community is not only directly exposed to the COP meeting and the negotiations, but also to the influence of all the societal actors that accompany the COP. As a result, the effect that is proposed in the literature of the four main actors is reinforced by the fact this event keeps the attention around climate change.

The COP26 in Glasgow is an ideal example that demonstrates the assembly of many different societal actors in one place because of the occurrence of this international meeting. International political figures were present in the negotiations and were promoting the need for international cooperation for mitigating climate change. The former president of the United States, Barak Obama was present in the event and, in his speech, he urged young generations not to stop acting for the environment[5]. At the same time, local political authorities that were anticipating the international summit put forward a series of campaigns, like "Get Ready Glasgow: A city gears up for COP26"[6] or "People make Glasgow Greener"[7].

[4]https://www.theguardian.com/environment/2022/oct/14/just-stop-oil-activists-throw-soup-at-van-goghs-sunflowers

[5]https://www.nytimes.com/2021/11/08/climate/obama-cop26-climate-summit.html

[6]https://www.glasgow.gov.uk/index.aspx?articleid=27093

[7]https://www.glasgow.gov.uk/index.aspx?articleid=26857

Various societal actors were also present. Environmental NGOs and social movements, like Fridays for Future[8], Extinction Rebellion[9] and Climate Justice[10] were gathered in the city either for protesting about the environmental crisis and the inadequate solutions proposed by states or for organizing discussions, workshops, art exhibitions, music events and many more. In particular, a significant advantage that protesters have during COP events and allows them to expand their influence on the local population is the cohesion of their demands (Mueller, 2022). Protesters were gathered in Glasgow – and in any "COP city" – with one goal: to demonstrate the importance of climate change and the inadequate efforts for climate change mitigation.

Moreover, local and international media were covering the negotiations and everything that was going around them. The Guardian was posting daily updates of the negotiations and photographs of the atmosphere in Glasgow during these days[11]. The Glasgow Times besides the covering of the event was posting news stories about the artist behind the COP26 murals in many different parts of the city[12]. Ultimately, I expect that *COPs increase environmental concern of individuals who reside in the local regions they took place*.

## 3.3 Case selection and data

My focus on the COP case is not only justified by theoretical reasons but also by empirical ones. The case can be seen as a most-likely case for the argument that IOs have a localized effect on the regions that organize international meetings. Climate change is a very politicized issue. It is at the centre of international debate. At the same time, the COP receives considerable attention and it attracts many different societal actors at the host city. Hence, the popularity of the COP combined with the gathering of representatives by various societal groups should have an effect on the environmental attitudes of the local population. If a localized effect is not observable in a context where there

[8]https://www.theguardian.com/environment/gallery/2021/nov/05/cop26-fridays-for-future-protest-in-glasgow-in-pictures

[9]https://www.bbc.com/news/uk-scotland-59133920

[10]https://climatejustice.uk/peoples-summit/

[11]https://www.theguardian.com/environment/gallery/2021/oct/31/cop26-day-0-glasgow-prepares-in-pictures

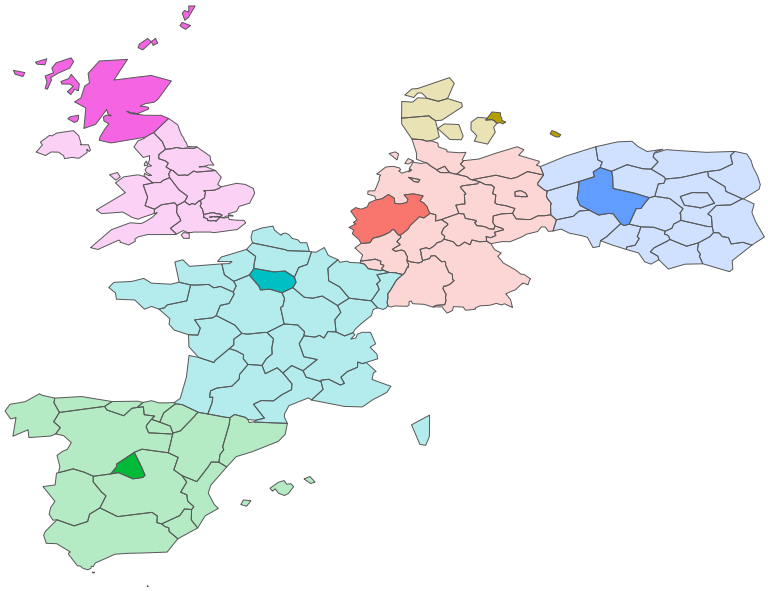
[12]https://www.glasgowtimes.co.uk/news/19725242.meet-glasgow-born-hungarian-artist-behind-cop26-murals-govanhill-partick-battlefield/

are so many different polls of influence, it is legitimate to expect that it would not take place in other situations where the attention of societal actors is less obvious. Additionally, in contrast to the meetings of other IOs, such as the IMF that usually organizes its annual meeting in Washington, the COP is organized in a different city yearly. Hence, I can exploit the fact that these conferences alternate their location yearly.

The rotation of COP meetings is also ideal because it removes important sources of endogeneity. It might be that hosting COP events requires infrastructures, transports, and economic capacity that correlate with environmental salience. That is, within a country, places capable of hosting a COP might have significant differences in their environmental concerns compared to others. A comparison among areas with and without a COP might therefore retrieve biased estimates. The chosen research design, which I present in the next section, removes idiosyncratic differences among places that might introduce endogeneity by focusing only on the difference in the change of environmental concern between areas hosting a COP and the rest of the country. The design also removes bias deriving from country-level trends in environmental public opinion. The timing of the COP also makes this a good case. COP meetings regularly happen between October to December. The host country cannot change the timing of the event as a function of political goals, pre-existing trends in environmental salience, or similar. This removes an important source of selection bias and makes the timing of the event plausibly exogenous to changes in environmental salience happening in the country.

In addition, in studies that focus on events' effects on public opinion it is necessary to assume that any difference between respondents interviewed before and after the event is solely due to the event. As Muñoz et al. (2020) mention, the succession of reactions triggered by the event might drive the public opinion; this can be seen as an imprecise treatment. However, in the case of the COP, these "side-events" are part of the treatment. As my argument says, we should expect that the international negotiations would not have as strong an effect if they were not producing such strong societal responses.

Figure 3.1: Countries' division in NUTS regions



Note: The NUTS regions with higher alpha levels represent regions that hosted the COP.

Ultimately, I focus on COP meetings that took place in European cities[13] and leverage Eurobarometer data[14] for my main analysis. This results in a selection of six target countries: Poland (Poznan 2008), Denmark (Copenhagen 2009), France (Paris 2015), Germany (Bonn 2017), Spain (Madrid 2019), and the United Kingdom (Glasgow 2021)[15] observed in 40 survey waves between 2004 and 2023. Through Eurobarometer data, I observe 271,463 individuals in these six countries. Each individual is nested in NUTS-1/NUTS-2 regions (see Figure 3.1). The NUTS ("nomenclature of territorial units for statistics") system divides European countries into disaggregated sub-regions: major socio-economic regions at level 1, basic regions for the application of regional policies at level 2, and small regions for specific diagnoses at level 3. Each region has a unique code. My objective was to locate each individual from the six countries in a NUTS-1 or NUTS-2 region and then code as treated those individuals from NUTS areas that hosted a COP.

However, Eurobarometer has no consistent coding of individuals' locations within a country. I therefore retrieved this piece of information from non-consistent strings reporting the respondent's location. I followed three steps. First, I extracted the region names as reported in Eurobarometer. Second, I coded which NUTS codes these region names correspond to, manually matching multiple location names to the correct NUTS code[16]. Third, for each country, I kept the most disaggregated NUTS level as possible, consistently across waves. For instance, Eurobarometer data in Germany could be matched to NUTS-2 information in early waves but moved to NUTS-1 in later ones. For consistency, I therefore kept NUTS-1 as a unit for Germany across all waves. Eventually, and following this procedure, I use NUTS-1 codes for Germany and the United Kingdom and NUTS-2 codes for the other four countries. I followed a similar process for matching the location of the COPs with their corresponding NUTS codes. This results in six NUTS within each country of interest

[13]This decision was made due to data availability: the Eurobarometer is the only available survey with long consistent coverage of people's concern about the environment.

[14]The Eurobarometer surveys can be downloaded at: https://zacat.gesis.org/webview/index.jsp

[15]For a list of the host cities check here: https://unfccc.int/process/bodies/supreme-bodies/conference-of-the-parties-cop. Poland and Germany hosted a COP multiple times. I kept the earliest COP with available data for both countries. Poland hosted a COP in Poznan 2008, Warsaw 2013, and Katowice 2018. I considered Poznan 2008. Germany hosted a COP in Bonn twice (in 2001 and 2017), I considered the latest COP because of lack of data relative to 2001.

[16]For matching, I used the NUTS codes 2021. For more information about the available NUTS see: https://ec.europa.eu/eurostat/web/nuts/background.

being "treated" with a COP meeting at different points in time.

From the Eurobarometer, I also draw data for measuring my outcome variable by focusing on environmental salience. Data on salience in the Eurobarometer has a long coverage, stretching back to the early 2000s. I focus on the question: "what do you think is the most important issue facing (OUR COUNTRY) at the moment?" I coded as a 1 if respondents answered any of "environment" or "environment, and climate (, and energy issues)"[17]. The Eurobarometer has included this item consistently in its surveys twice per year since the year 2002. Ultimately, my outcome variable is a binary variable that captures whether a respondent believes that climate change is the most important issue or not. The question offers an important advantage linked to its framing. It does not just ask whether respondents care about the environment, rather it asks them if they do care about the environment compared to other issues, like taxation, unemployment, terrorism, pensions, and immigration. Therefore, my outcome variable does not only capture general concern about the environmental, but a concern compared to other social and economic issues.

## 3.4 Research Design

I study the localized effect of the COP using a difference-in-differences (DiD) design. From a first look, the structure of my data suggests that the appropriate design for estimating this effect would be a DiD design with staggered treatment rollout. There is variation in the treatment timing since each year a different NUTS region organizes the COP, thus individuals in treated regions receive the treatment at different times. The proposed estimators for dealing with similar settings (Callaway and Sant'Anna, 2021; Sun and Abraham, 2021) make sure that the analyst does not operationalize wrong comparisons among groups treated at different times. Namely, they prevent from using early-treated units as the control group for later-treated ones (see Goodman-Bacon, 2021). In other words, they ensure that the right comparison is made with respect to time. However, in my case I also care about the right comparison across space. My dataset comprises six different European countries. A

[17]In the last 21 waves of Eurobarometer, the question changed into "what do you think are the two most important issues facing (OUR COUNTRY) at the moment?". For consistency, in these waves I only considered the first most important issue.

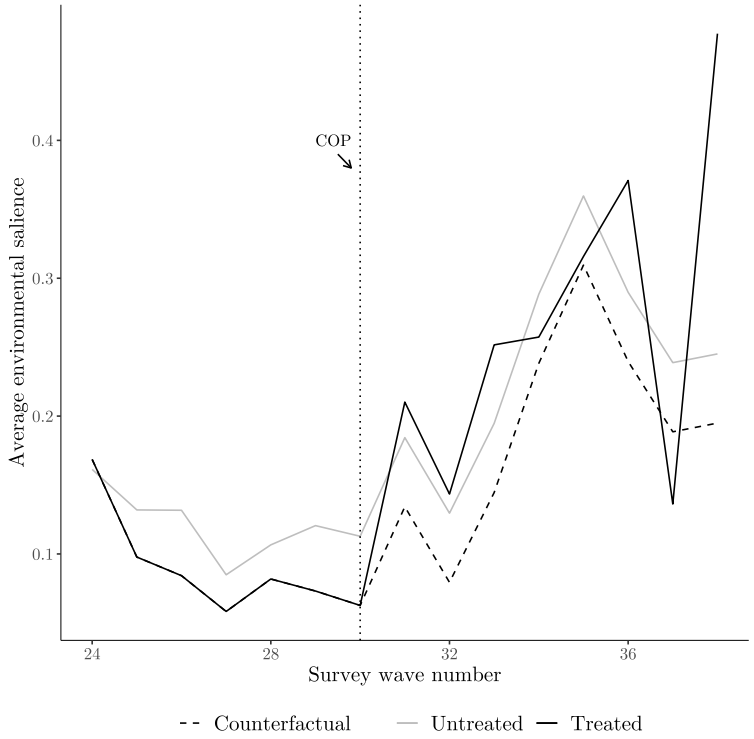
staggered-treatment DiD design would average the over-time change in the outcome variable for treated units and compare it with the change for control units, across all countries. That is, it would compare trends of treated and control units regardless of their country. Instead, I want to "zoom in" within each country and compare its treated and control NUTS regions. In other words, I do not only wish to compare individuals at the right time; I also want to avoid comparing individuals living in a country, say the United Kingdom, with those living in another one, say Poland.

For this reason, I subset my dataset and conduct a separate analysis for each country using the canonical DiD design. In each case I use NUTS and survey wave fixed effects and I cluster the standard errors at the NUTS level, since my treatment takes place at the NUTS level. The identifying assumption supporting the design is the "parallel trends assumption": I assume that, in the absence of a treatment, the treated group would have followed a post-treatment trend similar to that of the control group[18]. In each case, I estimate the average treatment effect on the treated (ATT) NUTS by comparing individuals from NUTS that were treated with individuals from NUTS that were not. I use two-way fixed effects (TWFE) to this aim. For each country, I care about the change in environmental salience in the aftermath of the negotiations; hence I focus on one year after the COP. By doing so, I make sure the effects are due to the event of interest and not to unrelated events.

Figure 3.2 represents an example of the proposed design. Figure 3.2 shows the trends of the average environmental salience in Germany comparing the region that hosted the COP and the rest of the country. The two continuous lines demonstrate the observed values of environmental salience in the treated and control regions whereas the dashed line demonstrates the way the average environmental salience of the treated unit would look like if there was no effect of the COP. The pre-treatment trends look similar across treated and untreated regions, with treated units having always less environmental salience than untreated ones. However, after the COP the situation is reversed. We observe that the average environmental salience of the host-region increased and over-passed the average of the rest of the country. If there was no effect of the COP meeting, we would expect environmental salience to remain lower.

[18] I plot the trends for every country in the Appendix Figure A.1.

Figure 3.2: Average trends of environmental salience comparing COP-host areas and the rest of the country with synthetic counterfactual COP-host areas




## 3.5 Results

Table 3.1 shows the estimated average treatment effect on the treated (ATT) for every host region. Each model includes both survey wave and NUTS fixed effects. The standard errors are clustered at the NUTS level, consistently with best practice when applying these models (Huntington-Klein, 2021). Results are in accordance with my hypothesized local effect. I observe a significant positive effect in five of the six cases. The positive effect of the COP across the various city settings provides evidence on the proposed localized effect and shows that international meeting can have local effects in the regions that hosts them. Individuals are influenced by the strong pro-environmental message that the COP promotes. In the Appendix Figure B.1, I study a possible heterogeneous effect of the COP meeting on people who self-place in different parts of the ideological spectrum.

In particular, environmental salience increased after the COP in the host regions of Germany, Denmark, Poland, Spain, and the United Kingdom. The size of the effect varies. The highest

Table 3.1: Effect of the COP on environmental salience

| | Denmark | France | Germany | Poland | Spain | UK |
|---|---|---|---|---|---|---|
| ATT | 0.007*** | 0.002 | 0.061*** | 0.006** | 0.026*** | 0.029* |
| | (0.001) | (0.006) | (0.012) | (0.003) | (0.007) | (0.015) |
| Observations | 8435 | 10 190 | 13 259 | 7499 | 10 099 | 5575 |
| R2 | 0.014 | 0.012 | 0.059 | 0.005 | 0.018 | 0.015 |
| R2 Adjusted | 0.012 | 0.009 | 0.057 | 0.002 | 0.016 | 0.012 |
| NUTS regions fixed effects | × | × | × | × | × | × |
| Survey wave fixed effects | × | × | × | × | × | × |
| Clustered Std. Errors | × | × | × | × | × | × |
| Baseline DV | 0.22 | 0.105 | 0.119 | 0.04 | 0.027 | 0.077 |

* p < 0.1, ** p < 0.05, *** p < 0.01

observed effect is in Germany with an ATT of six percentage points. For the case of France the effect is insignificant although in the right direction. The sizes of the effects look small, but it is worth considering them in terms of actual increases compared to countries' average environmental salience (reported in Table 3.1). In Denmark and Poland, the observed increase amounts for 3.11% and 15% above the average, respectively. In the United Kingdom the increase reaches 37% and in Germany 51%. The most remarkable increase occurred in Spain where environmental salience in the NUT region where the COP took place almost doubled.

In the Appendix, I also offer further support for my results by running additional tests. I re-run the TWFE model by using Eurobarometer's survey weights for correcting sampling imbalances; the results remain almost the same (Table C.1). In addition, I show further support by aggregating my data at the NUTS level and re-estimating the main effect (Table C.2). Moreover, I run a series of placebo tests. First, I use only data that came before the treatment went into effect and pick a fake treatment period, 2 years before the actual COP took place (Table D.1). Second, I use fake treated units. I re-run the estimation by taking as treated unit every other NUTS region in the country (Figure D.1). Third, I change the outcome variable for showing that the COP had an effect on people's environmental concern and not on people's views about issues unrelated to climate change, like immigration, terrorism, taxation, defense, and healthcare (Figure D.2).

### 3.5.1 Case study: COP26 Glasgow

Besides the analysis of the COPs that took place in European cities between 2003-2022, I offer further evidence by focusing on COP26 that took place in Glasgow in November 2021. First, I focus on Google Search Trends and show that, around the event, climate change was by far the most popular search. Second, I leverage data from the British Election Study (BES)[19] and measure people's intention to vote for the Green Party.

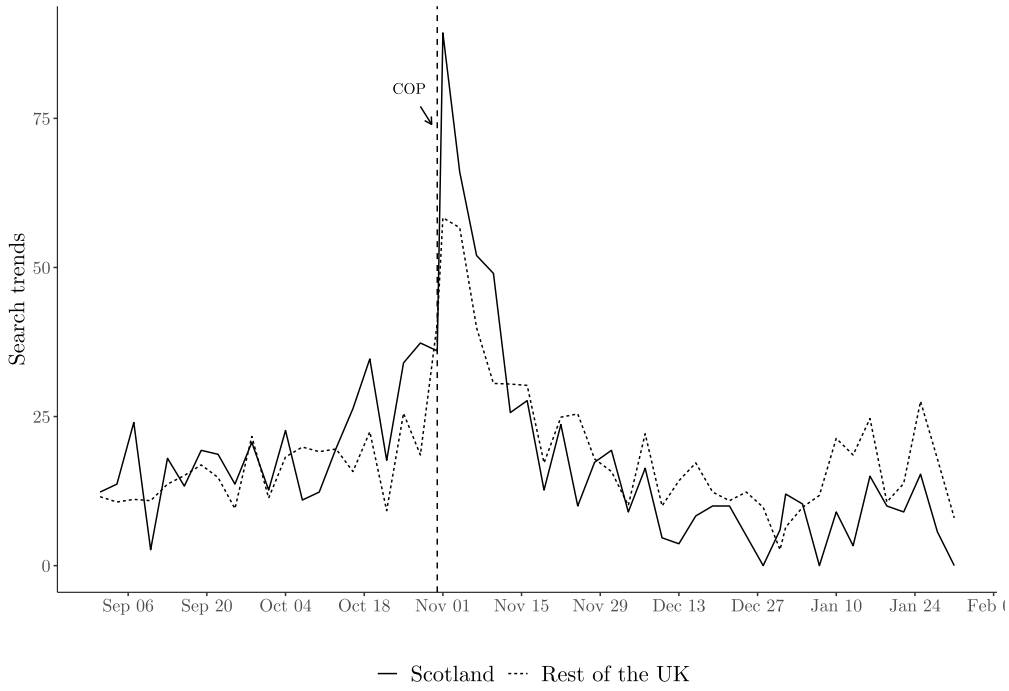
The COP in Glasgow is an ideal case for three main reasons. First, the COP26 was one of the biggest climate events until now with many representatives, activists, and media outlets being there for either participating or covering the event. In addition, the meeting happened in a period of high visibility for climate change issues when environmental salience had reached a momentum. Second, the case provides additional confidence on the "as good as random" assumption because of its timing. COP26 was originally scheduled to take place in November 2020. However, due to the outbreak of the COVID-19 pandemic, it was postponed and took place a year later, in November 2021. Third, the Glasgow case allows me to locate individuals not only at the country level – *i.e.*, Scotland – but also at the district-level by using data from the BES from 2014 until 2022.

A look at Google Search data around the dates of the COP (31st of October - 12th of November) shows that individuals searched significantly more than usual information related to climate change and this effect is particularly high in Scotland. Figure 3.3a shows data related to the search for "climate change" across the UK on Google and compares geographical trends. Trends are normalized and range from 0 to 100. Although normally Scotland and the rest of the country do not differ significantly in terms of their searches for climate change matters, Scotland experienced the highest possible search on the topic around the days of the COP. Figure 3.3b focuses only on Google Searches in Scotland and shows that, around the COP, interest in climate change significantly outweighs interest in other salient international political issues, like Brexit or immigration.

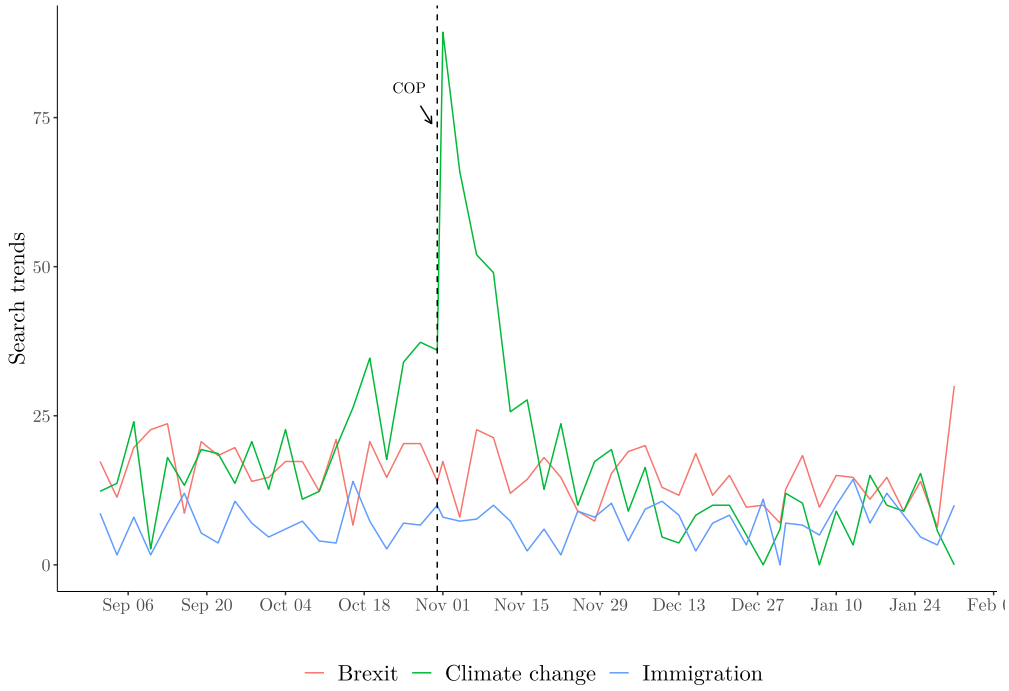
In the analysis presented in the previous section, I was focusing on individuals within NUTS units, which include the city that hosted the event but also other areas around it. For instance, in

[19] Data are available at: https://www.britishelectionstudy.com.

Figure 3.3: Google Search trends around the COP26 in Glasgow




(a) Google Search trends for "climate change" in Scotland and rest of the UK




(b) Google Search trends for "climate change", "brexit", and "immigration" in Scotland

the United Kingdom, I analyze the effect of the COP by considering treated individuals those who reside in Scotland. However, the BES allows me to zoom in regions and geolocate individuals at the district level. Therefore, I create three disaggregated treated groups: Scotland, the Central Belt[20], and Glasgow. In total, there are more than 350,000 individuals across time in 364 local authorities, districts, and unitary authorities.

As for my outcome variable, I analyze environmental preferences by measuring people's intention to vote for the Green Party. In the main analysis I concentrate on environmental concern and show that the COP increased environmental salience in regions where it took place. Environmental concern is the first step for behavioural change and studies have shown that environmental concern is associated with green voting (Hoffmann et al., 2022; Hornsey et al., 2016; Schumacher, 2014).

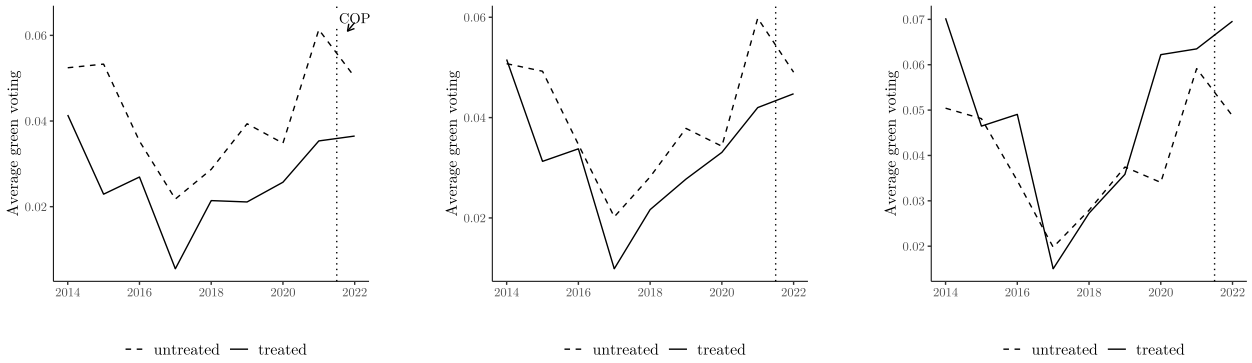
Thus, I focus on individuals' intention to vote for the Green Party for providing further evidence for the strong effect that international meeting can have on the local public. I use the BES question: "if there were a UK General Election tomorrow, which party would you vote for?", and I create a binary variable, coded as one if individuals mention that they would vote for the Green Party, and 0 otherwise. Figure 3.4 shows the trends of the average support for the Green Party in the United Kingdom comparing Scotland (3.4a), the Central Belt (3.4b), and Glasgow (3.4c) with the rest of the country. In all three cases we see that, after the COP, people residing in the treated areas tend to increase their support for the Green Party compared to the rest of the country.

Like in the previous setting of the main analysis, I estimate the difference-in-differences of the intention to vote for the Greens between individuals in the treated region and in the rest of the country, before and after the COP[21]. Table 3.2 shows the results of all three different bandwidths of the treatment. In the case of Scotland and the Central Belt, the probability that individuals intend to vote for the Green Party increases by 0.3 percentage points. Considering that the average likelihood to express support for the Green Party is 0.049, according to BES data, the estimated ATT amounts for an 6.7% and 8% increase over the average, respectively. Individuals in Glasgow are the ones

[20]Central Belt is the region around Glasgow and includes the districts of: Edinburgh, West Loathian, Falkirk, North Lanarkshire, East Renfrewshire,East Dunbartonshire, Renfrewshire, Inverclyde, North Ayrshire.

[21]In Appendix 3.E, I run two placebo tests by changing the timing of the treatment (E.1), and the outcome variable (E.2).

Figure 3.4: Average trends of intention to vote for the Green Party comparing COP-host areas and the rest of the country (different bandwidths of treated units)




(a) Scotland (b) Central Belt (c) Glasgow

who seem to be the ones most affected by the COP. Individuals' likelihood to support the Green Party increased by 1.4 percentage points. In substantive term, the estimated ATT amount to an 35% increase over the average.

Table 3.2: Effect of the COP on people's intention to vote for the Green Party

| | Glasgow | Central Belt | Scotland |
|---|---|---|---|
| ATT | 0.014*** | 0.003** | 0.003** |
| | (0.001) | (0.001) | (0.001) |
| Observations | 340 460 | 340 460 | 345 139 |
| R2 | 0.013 | 0.013 | 0.005 |
| R2 Adjusted | 0.012 | 0.012 | 0.005 |
| Electoral district fixed effects | × | × | × |
| Year fixed effects | × | × | × |
| Clustered Std. Errors | × | × | × |

* p < 0.1, ** p < 0.05, *** p < 0.01

## 3.6 Conclusion

The question of how IOs and international cooperation affect public opinion has attracted considerable scholarly attention. An extensive body of research focuses on this relationship by looking at IOs' endorsements of specific policy issues (Bagozzi et al., 2014; Chapman, 2009; Greenhill, 2020; Thompson, 2006; Wallace, 2019) or at the ways a specific tool of IOs, namely international

negotiations, affects the public (Bakaki and Bernauer, 2017; Chaudoin, 2014; Chilton, 2014; Chu, 2019; Kreps and Wallace, 2016; Tingley and Tomz, 2020). I have sought to contribute and expand this debate by examining IOs local effects.

I argue that IOs can have localized effects through the organization of international meetings. Given that international meetings happen at a specific place, in a specific time, I posit that they directly affect the community that hosts them. The occurrence of these meetings attracts significant attention. Local political authorities, social movements, and the media gather at the place of the event. Hence, there are two poll of influence that have an impact on the local community. On the one hand, through the arrangement of international meetings, IOs send signals to the public by legitimizing certain policies. On the other hand, in addition to the effect that the negotiations can have on the public, the "side-events" publicize even more the message proposed by IOs and the participating states.

I test this argument by focusing on the COP and its effect on environmental public preferences. I offer two analyses for supporting my claims. First, I test the expectation by looking at COPs that took place in European cities between 2003-2022. I use a difference-in-differences design and show that in regions where the COP took place, environmental salience substantively increased more than in the rest of the country. Second, I concentrate on the COP26 that took place in Glasgow in 2021. I provide evidence of the local effects, not only by looking at Scotland, which is the region where the COP took place, but also by disaggregating the treatment to the district level and using as treated individuals those who reside in Glasgow. On top of effects on salience, I find that individuals who live in the region that hosted COP26 increased their likelihood of supporting the Green Party.

The paper contributes to several literatures. First, it adds to the literature on IOs and to the idea that these organizations do not operate in vacuum, rather they affect the public. I push existing arguments a step forward by stressing the local influence of IOs through the organization of international meetings. Second, it contributes to the literature of environmental public opinion by highlighting the role of IOs in raising awareness for climate change. The results demonstrate that the increase on environmental salience could also lead to environmental action. In both analyses I show

that individuals in Scotland increased their concern on environmental issues and they also increased their support for the Green Party. This provides evidence that these big events, combined with the gathering of all the various social actors, create an opportunity for catalyzing support for climate action.

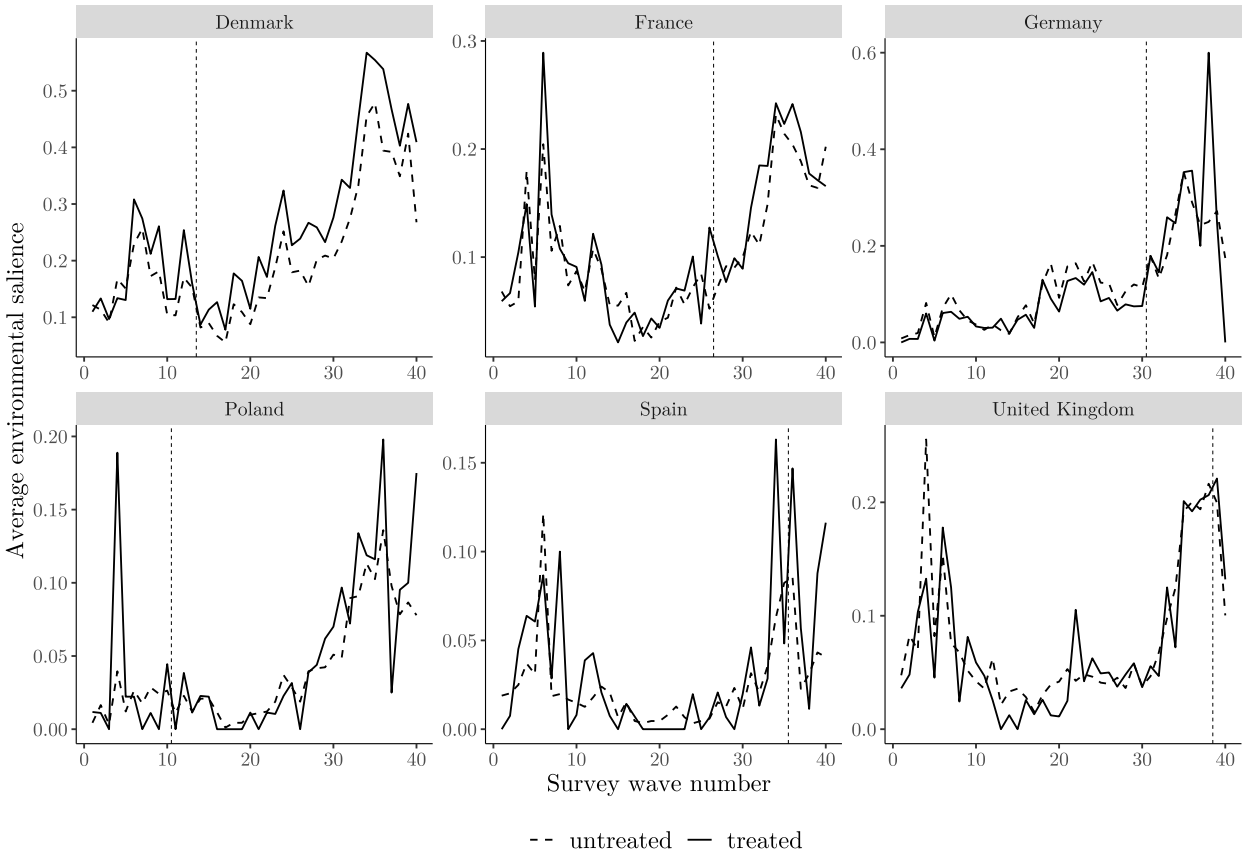
Finally, the paper contributes to the growing literature on events' local effects. Big events, like the COP, can have strong direct effects on people's attitudes and behaviors. Individuals do not only read about the event through the media but they also experience them. Researchers focusing on protest events have shown a similar effect. Swim et al. (2019) have found that the 2019 March for Science encouraged individuals to participate in social movements. In addition, Kountouris and Williams (2023) have shown that after demonstrations by Extinction Rebellion, people were less likely to oppose pro-environmental behavior and policies. Even in socially conservative societies, individuals experiencing protest events can increase support for the cause of the protest (Ayoub et al., 2021). Negative events with local consequences, such as natural disasters, can also sparkle attitudinal changes (Akerlof et al., 2013; Baccini and Leemann, 2021; Bergquist et al., 2019; Konisky et al., 2016; Reser et al., 2014; Walker et al., 2011). All these types of large-scale events can work as "salience-boost" acts that create windows of opportunities for attitudinal changes. In line with this research, I have shown that the COP, combined with all its side events, positively influence people's environmental views and behaviors.

There are interesting questions to explore in further research. First, in this paper I only focus on one international meeting, the COP, and its effect on environmental preferences. However, my logic extends beyond that specific policy issue. Future research could focus on other international meetings, like those of the G7 or of the IMF, on issues like support for globalization, free trade, and financial programs. Additionally, because of data limitations, I limited my study to Europe, and I only take into consideration COPs that took place in European cities. However, COPs rotate and often take place in countries outside of Europe (*e.g.*, Egypt, Mexico, Indonesia, and Argentina). Analyzing local effects in countries outside of Europe would be valuable for the literature of environmental politics, because often populations in these countries are in the forefront of climate vulnerability.

Lastly, understanding better the scope conditions of under which local events work as "salience-boost" acts is necessary. Events that include a range of different actors might be more influential than events organized by one specific actor. Moreover, negative events are different than positive ones. A comparative analysis of these events can shed light on the magnitude of their influence on individuals.

# Appendix 3.A Data description

Figure A.1: Average trends of environmental salience comparing COP-host areas and the rest of the country

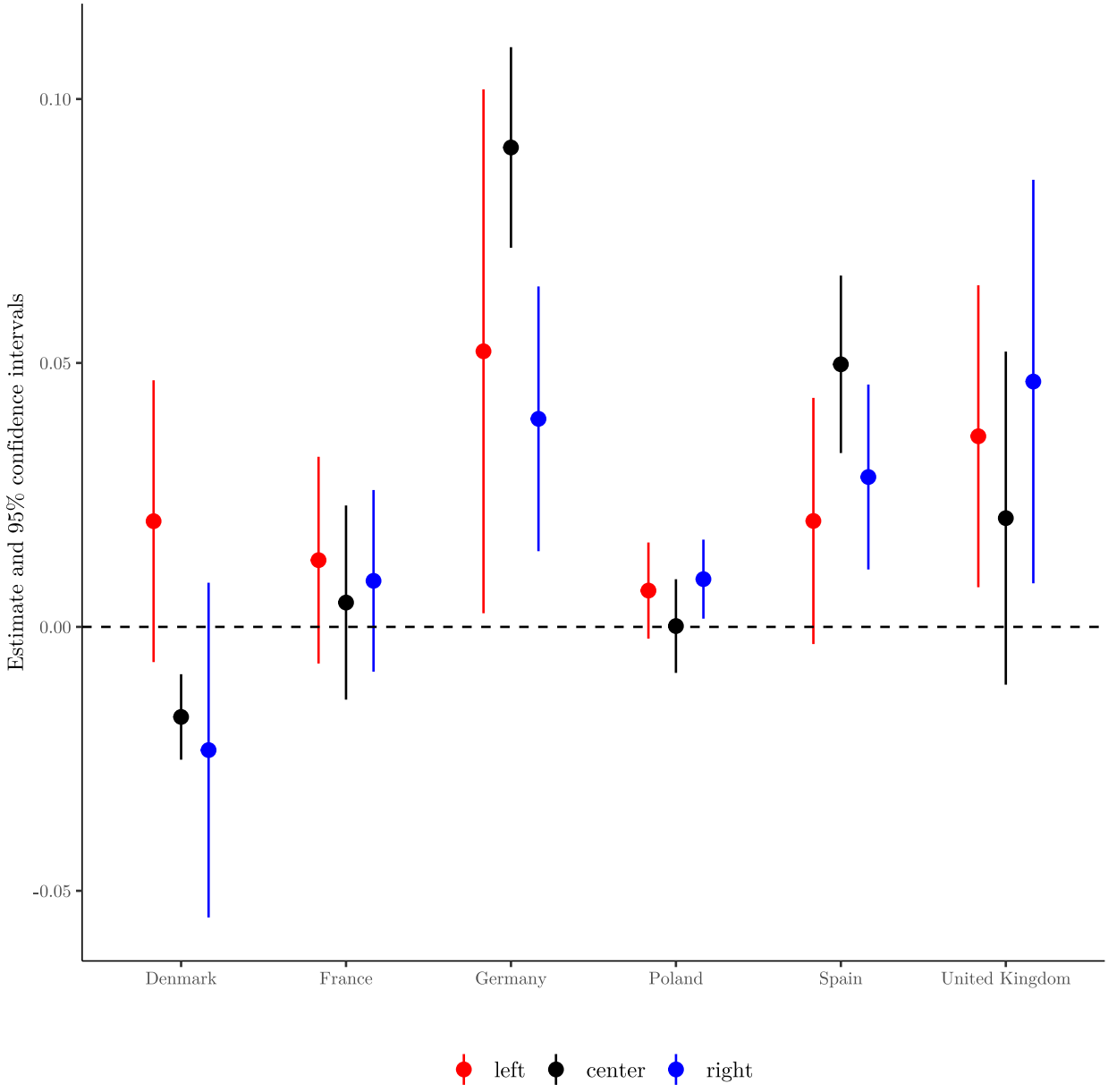


# Appendix 3.B COP's effect conditional on ideology

Until now I have focused on the contextual influence of the COP on individuals, and I have argued that individuals are influenced by the strong pro-environmental message that the COP promotes. However, individual level characteristics and predispositions also play a crucial role in shaping beliefs and actions. According to Wood and Vedlitz (2007, p.556) "people process information about issues through a filter containing a range of variables relating to their predispositions". Therefore, it is logical to assume that the expected positive effect of COPs on the local population can be mediated by individual characteristics. In the case of climate change, political ideology is considered as one of the most prevailing determinants of environmental concern (Greenhill et al., 2014; Hamilton and Saito, 2015; Liu et al., 2014; McCright and Dunlap, 2013). Even though during the event people are exposed to direct pro-environmental messages, their ideological leaning can predetermine the effect. People on the right side of the ideological spectrum are usually more hesitant to adopt pro-environmental beliefs compared to their left-leaning counterparts.

Figure B.1 shows the effect of the COP on individuals who place themselves on the left (red), centre (black), and right (blue) of the ideological spectrum. Results are mixed. In some countries, like Germany and Spain, people of the centre seem to be the one most affected by the event. Interestingly, in the United Kingdom and Spain, right leaning individuals seem to be more affected by their right leaning counterparts.

Figure B.1: ATT for different outcome variables



# Appendix 3.C Different model specifications

Table C.1: Effect of the COP on environmental salience (with survey weights)

| | Denmark | France | Germany | Poland | Spain | UK |
|---|---|---|---|---|---|---|
| ATT | 0.012*** | 0.003 | 0.050*** | 0.000 | 0.027*** | 0.053*** |
| | (0.002) | (0.007) | (0.011) | (0.004) | (0.007) | (0.009) |
| Observations | 8435 | 10 190 | 13 259 | 7499 | 10 099 | 3413 |
| R2 | 0.015 | 0.013 | 0.062 | 0.006 | 0.020 | 0.022 |
| R2 Adjusted | 0.013 | 0.010 | 0.060 | 0.002 | 0.017 | 0.018 |
| NUTS regions fixed effects | × | × | × | × | × | × |
| Survey wave fixed effects | × | × | × | × | × | × |
| Clustered Std. Errors | × | × | × | × | × | × |

* p < 0.1, ** p < 0.05, *** p < 0.01

Table C.2: Effect of the COP on environmental salience (aggregated data)

| | Denmark | France | Germany | Poland | Spain | UK |
|---|---|---|---|---|---|---|
| ATT | 0.007*** | 0.002 | 0.061*** | 0.006** | 0.026*** | 0.029* |
| | (0.001) | (0.006) | (0.012) | (0.003) | (0.007) | (0.015) |
| Observations | 8435 | 10 190 | 13 259 | 7499 | 10 099 | 5575 |
| R2 | 0.014 | 0.012 | 0.059 | 0.005 | 0.018 | 0.015 |
| R2 Adjusted | 0.012 | 0.009 | 0.057 | 0.002 | 0.016 | 0.012 |
| NUTS regions fixed effects | × | × | × | × | × | × |
| Survey wave fixed effects | × | × | × | × | × | × |
| Clustered Std. Errors | × | × | × | × | × | × |

* p < 0.1, ** p < 0.05, *** p < 0.01

# Appendix 3.D Placebo tests for main analysis

Table D.1: Effect of the COP on environmental salience (fake timing of treatment)

| | Denmark | France | Germany | Poland | Spain | UK |
|---|---|---|---|---|---|---|
| ATT | −0.012 | 0.007 | 0.001 | −0.004 | −0.006** | 0.014 |
| | (0.012) | (0.004) | (0.009) | (0.004) | (0.003) | (0.021) |
| Observations | 6424 | 10 232 | 13 351 | 6000 | 11 180 | 5512 |
| R2 | 0.021 | 0.012 | 0.018 | 0.004 | 0.010 | 0.015 |
| R2 Adjusted | 0.019 | 0.009 | 0.017 | 0.000 | 0.007 | 0.012 |
| NUTS regions fixed effects | × | × | × | × | × | × |
| Survey wave fixed effects | × | × | × | × | × | × |
| Clustered Std. Errors | × | × | × | × | × | × |

* p < 0.1, ** p < 0.05, *** p < 0.01

Figure D.1: ATT for fake treated NUTS

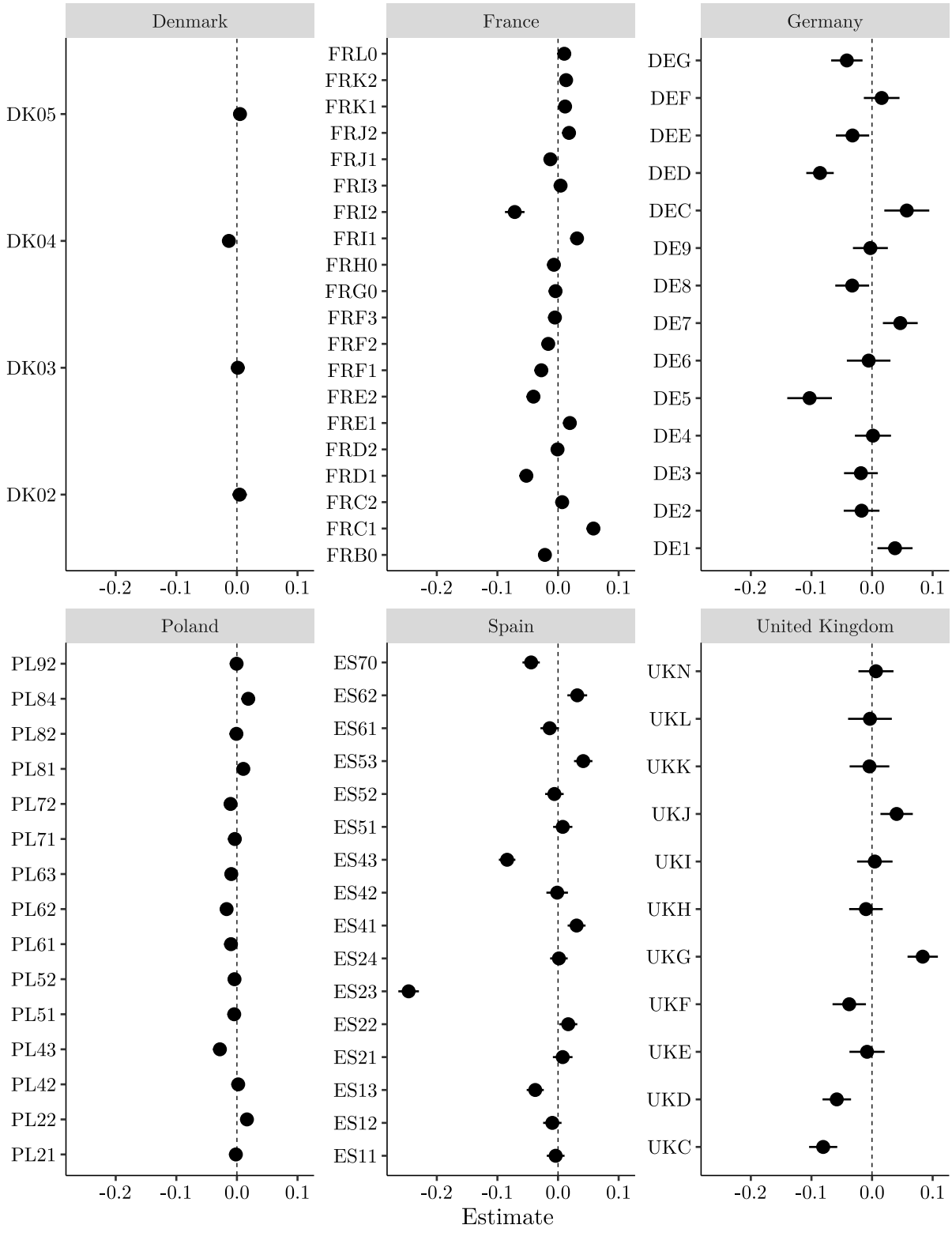
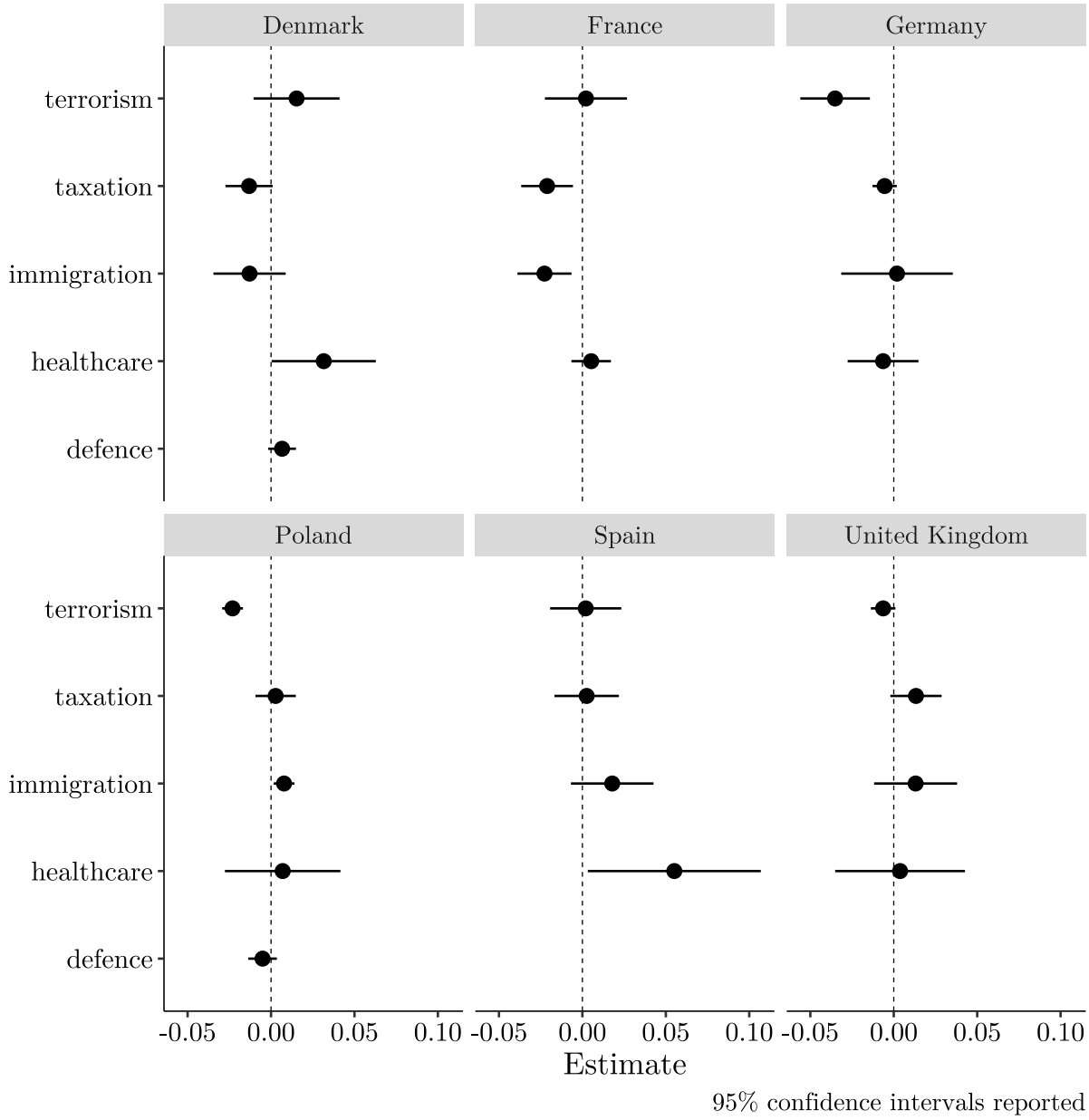


Figure D.2: ATT for different outcome variables



# Appendix 3.E Placebo tests for the case of COP26

Figure E.1: ATT for different timing of the treatment

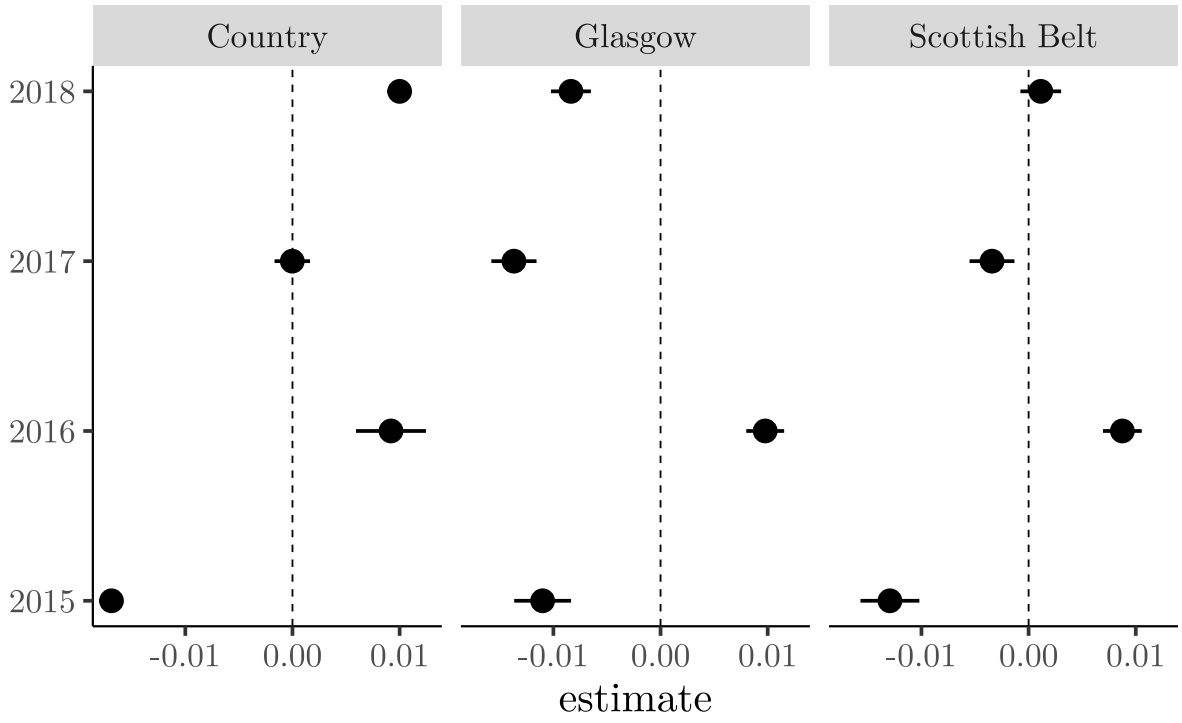
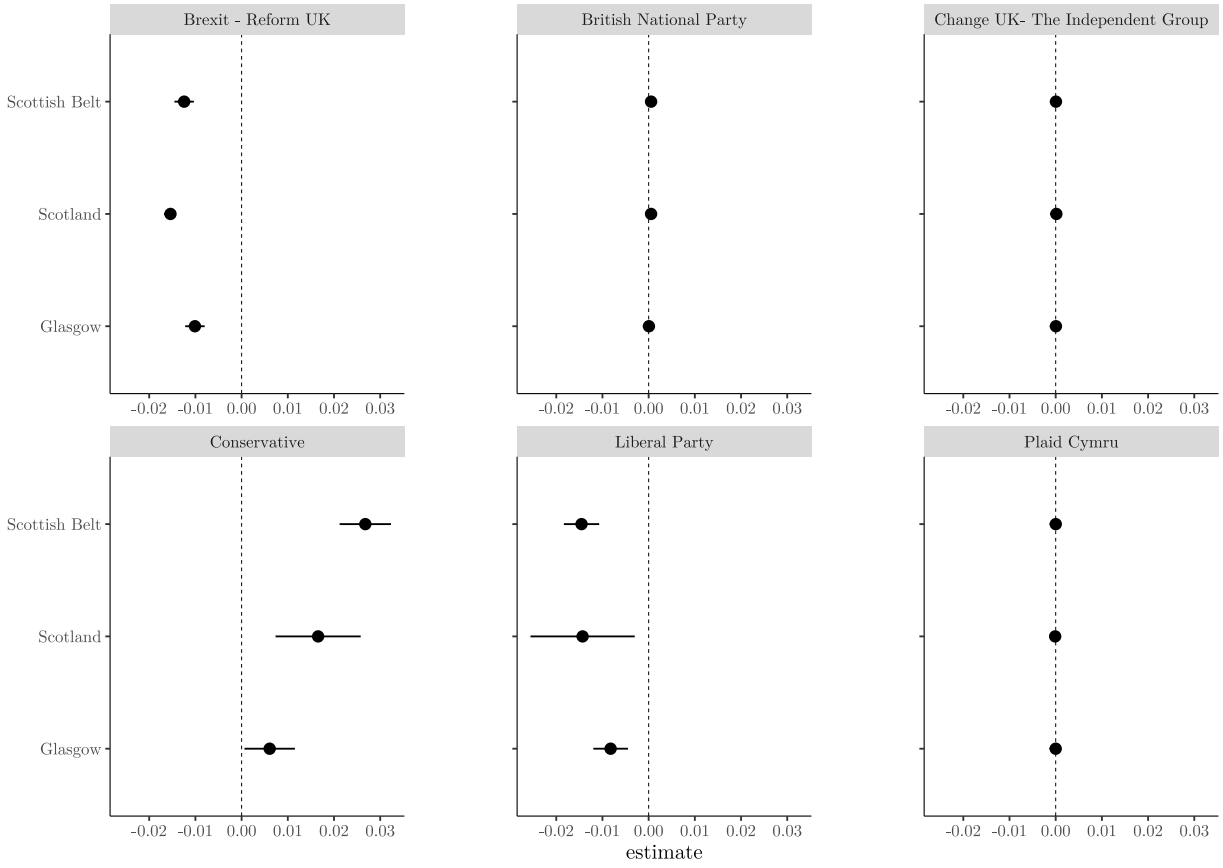


Figure E.2: ATT for different outcome variables



# Paper 4

# Party Competition on the Environment: Party System's Influence on Environmental Salience

**Abstract**

When do mainstream parties emphasize environmental issues? I argue that there are two types of competitors they need to take into account: the issue owner – *i.e.,* green parties – and the non-issue owner. First, I posit that the effect of the issue owner is negative. Green parties affect mainstream parties' strategies through their electoral success. Mainstream parties, fearing further strengthening of green parties, decide to de-emphasize environmental issues once green parties gain more votes. Second, I argue that the effect of the non-issue owners is positive. Their emphasis works as a heuristic of the public environmental salience, and parties do not want to stay out of the policy debate. This positive influence, however, is contingent on the issue owner. In systems where green parties are electorally successful, this positive effect of the mainstream rivals decreases. Between halting the success of the issue owner and replying to the party system agenda, parties prefer the former, because this strategy is regarded as direct and possibly cost-effective. I test these party competition dynamics by analyzing parties' manifestos from Western European countries between 1980-2021. The analysis empirically establishes that the effect of issue and non-issue owners differs, and whereas non-green mainstream parties exert a positive influence on parties' environmental emphasis, green parties success has a negative effect. Additionally, the analysis demonstrates that the "green threat" shapes parties' strategies by minimizing the positive effect of rival parties.

## 4.1 Introduction

Parties face continuous uncertainty in democratic elections. For dealing with this uncertainty parties respond to rival parties' policy positions in order to compete more effectively (Adams and Somer-Topcu, 2009; Williams, 2015). The majority of past research on party competition has focused primarily on party positions on the general left-right scale (Adams et al., 2006; Lehrer, 2012; Williams and Whitten, 2015). Following Down's spatial model of party competition (Downs, 1957), scholars have found that parties' policy strategies are contingent on the strategies of their opponents, and especially those that are ideologically proximate. Parties, however, do not compete solely by offering different policy positions, but also by emphasizing different issues, such as the environment or immigration.

In issue competition, there are two types of competitors that affect parties' decision to emphasize – or not – issues: the issue owner – *i.e.*, parties that are considered to dominate the discourse on a specific issue and are perceived to be the most competent on that issue (Budge, 2015) – and the non-issue owners. Taking into account this distinction, I posit that the way each group influences the focal party's salience differs. On the one hand, the issue owner affects the focal party's decision via its electoral success. The issue owner is the party that is considered the most equipped for solving the issue in question; thus, its vote increase forces the focal party to interact with it and decide its strategy. On the other had, non-issue owners affect the focal party's decision through the so-called party system agenda (Green-Pedersen and Mortensen, 2015).

I study these dynamics by focusing on issue competition on the environment. I argue that mainstream parties' decision to emphasize environmental issues is influenced by the issue owner and non-issue owners. First, parties need to consider the electoral threat posed by the issue owner – *i.e.,* green parties (Spoon et al., 2014). In line with the logic of issue competition, issue owners selectively emphasize their preferred issues, and seek to influence their opponents. However, mainstream parties also play an important role in determining whether issues can be actually established on the political agenda. They know that the politicization of environmental issues entails the risk of increasing

the popularity of the issue owners, which can lead to vote shifts towards them (Green-Pedersen, 2019). Therefore, due to the high risk of partisan realignment with green parties, mainstream parties have incentives to de-emphasize environmental issues as soon as issue owners gain electoral support. Anecdotes across Western Europe demonstrate this pattern. In the 2008 Austrian elections, mainstream parties' environmental emphasis – as measured by the Comparative Manifesto Project – dropped from 6.98 to 2.61 following the green party's electoral success which had gained, for the first time, a double digit share of the votes (11.1%) in the previous round. A similar example is offered by the 2013 German elections, where mainstream parties decreased their environmental emphasis from 5.41 to 3.61 after the German greens managed to raise their vote share from 8.1% to 10.7%.

Second, there is the threat posed by non-issue owner parties. The realization that parties other than the issue owner emphasize these issues push parties to increase their attention on them. If a party completely ignores public concerns, voters may see it as indifferent to their worries (Spoon and Klüver, 2014). Therefore, parties will adjust their strategies in response to shifts by their non-issue owner competitors, meaning that parties' strategies are shaped in part by the policy positions of other parties in the party system (Adams and Somer-Topcu, 2009).

However, this positive influence is contingent on the success of the issue owner. Between halting the success of the issue owner and replying to the party system agenda, parties prefer the former, because it is regarded as a more direct and possibly cost-effective strategy. In other words, I argue that the influence of non-issue owner parties on the focal party's environmental emphasis decreases as the issue owner becomes stronger electorally. Denmark is a good case for exemplifying the dynamics between green parties' success and mainstream parties' salience. Mainstream parties' emphasis on the environment between 1981 and 2019 fluctuated between 0.87 and 12.14 with a mean of 5.53[1]. During the '80s and the '90s, when the Danish green parties were supported by the public (vote share between 8.3% and 15.9%), mainstream parties' environmental emphasis was particularly low and never above the mean. At the end of the '90s, though, green parties started losing their

[1]The numbers portraying parties' emphasis on environmental issues are drawn by the Comparative Manifesto Project

public support and we observe an increase in mainstream parties' environmental emphasis reaching a peak of 12.1. An interesting observation is the period between the elections of 2007 and 2011. Mainstream parties' environmental emphasis, in this period when the greens had reached a vote share of 13%, dropped from 12.1 to 2.91.

The focus on environmental competition is of great importance. The policy specific challenges are shared across Europe, yet there is significant variation in how salient the issue is on the political agenda (Spoon et al., 2014). Whilst in some contexts salience goes hand in hand with the spread of environmental stances across parties, this is not always the case (Carter and Jacobs, 2014; Marcinkiewicz and Tosum, 2015). Indeed, parties take different position on climate policy. For instance, most European radical right parties view climate change with scepticism or reject the need for urgent responses (Gemenis et al., 2012; Schaller and Carius, 2019). The Danish DF (2009) and the Italian LN (2009) recognized the existence of global warming but viewed the human factor with hesitancy. Similarly, the Belgian VB (2012) argued that 'we should not view global warming in fatalistic terms'.

The empirical analysis is based on party manifestos from 17 Western European countries[2] in the period from 1980 to 2021. I focus on parties' emphasis on environmental issues and I evaluate whether parties respond to non-issue owners' environmental emphasis, to green parties' past electoral success, and if the effect of the non-issue owner is dependent on the issue owner' electoral success. The findings confirm that parties respond differently to the two groups of competitors. Parties are more likely to de-emphasize environmental issues when a green party issue owner gains electoral support, whereas parties use non-issue owners' environmental emphasis as a heuristic by shifting their own environmental policies in the same direction. This effect however, as expected, is conditional on the success of green parties. In systems where green parties are stronger electorally, the effect of mainstream parties' salience decreases.

The paper makes several contributions. First, I contribute to the understanding of party competition and issue evolution in party systems. Understanding why parties make some issues more

[2]For a list of countries and parties included in the empirical analysis see Appendix 4.A.1.

or less salient sheds light on opportunities and barriers to party competition and action on the issue (Farstad, 2018). Additionally, the present research feeds into the wider literature on adaptability of parties to new issues (Båtstrand, 2014; Dalton, 2009), and the nature of environmental issues (Carter and Little, 2021; Facchini et al., 2017; Gemenis et al., 2012). Furthermore, the literature on changes in policy positions has focused almost exclusively on party position on a general left-right scale. Party competition, however, takes place in relation to specific policy issues (Abou-Chadi et al., 2020); hence the present paper corroborates that parties' incentives to adjust their positions relate to the particular issue. Moreover, I shed light to parties' responses to issue and non-issue owners and the dynamics of party competition. Finally, the paper contributes to the expansion of the research on climate change politics. Given the central role of parties in channelling preferences of citizens into policies, it is essential to understand how parties position themselves on the environmental issue dimension for at least two reasons. On one hand, party competition heavily shapes government policy. Convergent climate politics is associated with climate policy ambition (Farstad, 2018); and the salience of climate policy for parties is an important condition for ambitious policy (Carter and Jacobs, 2014). On the other hand, the structure of issue competition on environmental policy has implications for efforts to mitigate climate change because it influences public attitudes. Polarization among parties leads to polarization among the public (Birch, 2020).

## 4.2 When do parties emphasize specific issues?

The question of what makes parties adjust their policy options has been high on the agenda of political science. In conceptualizing the structure of party competition, the point of departure is the observation that parties copy other parties. When deciding their policy proposals, parties lack the necessary information for identifying an optimal vote-maximizing strategy (Laver and Sergenti, 2012). This process is complex, and parties are uncertain whether stating their positions on some issues instead of others will attract more votes. To deal with this problem, they use different strategies which are shaped by various factors including rival parties' strategies (Adams et al., 2004;

Schumacher et al., 2013).

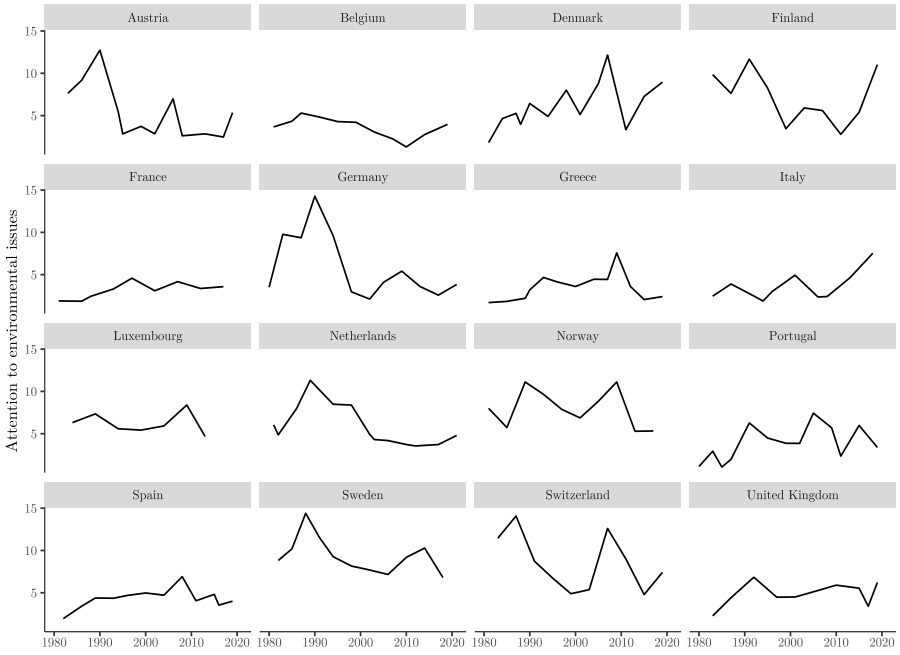
The Downsian spatial model of party competition (Downs, 1957) typically assumes that any crafting of strategy is reflected in the movement of parties' positions on the left-right scale. However, there are also specific policy issues, like the environment, for which there is the possibility of increasing the volume of the message parties are delivering (Williams, 2015). For parties, issue salience is therefore just as much a strategic decision as issue positioning. Although originally this stream of the literature has suggested that parties selectively highlight issues they own (Budge and Farlie, 1983) – *i.e.,* issues for which the majority of the electorate has traditionally regarded them as competent and effective problem solvers –, empirical research has shown that parties overlap considerably in their issue profiles (Tresch et al., 2013; Vliegenthart et al., 2011). Parties' environmental profiles are not an exception, and this is proven by the fact that not only green parties pay attention to climate change.

The main reason for this overlap is that parties cannot freely determine which issues they prefer to emphasize, rather they have to take into account other parties in the political system. In particular, I argue that there are two groups of competitors that parties need to pay attention to: the issue owners and the non-issue owners. The way each group influences the focal party's salience though differs. On the one hand, the issue owner affects the focal party's decision via its electoral success. The issue owner is often considered the most equipped for solving the issue in question. Gaining votes means that the issue it promotes gains public support; thus, its vote increase forces the focal party to interact with it and decide its strategy. On the other had, non-issue owners affect the focal party's decision through the so-called party system agenda (Green-Pedersen and Mortensen, 2015). The agenda-setting literature puts forward the idea that at a certain point in time there is a hierarchy of issues, to which the relevant actors must pay attention (Dearing and Rogers, 1996). As more non-issue owners highlight a specific issue, the focal party needs to decide whether it will pay attention to that issue or not.

## 4.3 Party competition on environmental issues

In the case of environmental issues, although there is a general consensus on the need to protect the environment, there is high variation in how salient the issue is. Figure 4.1 shows the trends of the emphasis that mainstream parties put on environmental issues since the 1980s. Fluctuations on mainstream parties' decisions to talk about the environment seems to be quite common across all Western European countries. I argue that this decision is partially driven by the influence of the issue and the non-issue owners.

Figure 4.1: Environmental salience among mainstream parties in party systems across countries




First, parties need to consider the influence of the issue owner, which in that case are green parties. Green parties are niche parties. Niche parties pose a particular threat to mainstream parties as they rarely adapt to shifts in public opinion, and they mobilize on issues largely ignored by mainstream competitors that depart from traditional socio-economic cleavages (Adams et al., 2006). The electoral success of green parties signals an increase of environmental salience among the electorate which alerts mainstream parties. Therefore, they have to decide whether they will have more benefits by following an accommodative or a dismissive strategy (Meguid, 2005).

When the challenger niche party dominates the discourse on an issue and it is considered the most competent in solving the issue, mainstream parties have a strategic incentive to drop the issue, because the risk of partisan realignment toward the niche party is high. On the contrary, when competing with niche parties that are not perceived as dominantly competent, other parties can have electoral benefits from increasing their emphasis on these issues, since politicization of these issues will not necessarily lead to partisan realignment toward the niche party (Abou-Chadi, 2016; Green-Pedersen, 2019).

Abou-Chadi (2016) has shown that green parties fall in the first category of niche parties. Green parties are regarded as exemplary issue owners (Bergman and Flatt, 2020). In the minds of most people there is a spontaneous identification between environmental issues and green parties. Expert survey data confirm that green parties are considered the clear issue owners by showing that the greens are regarded to have the highest salience on the environment dimension among the parties of their respective party system (Bakker et al., 2015).

As a result, parties have incentives to ignore environmental issues since they are not regarded as competent enough to mitigate climate change compared to green parties. Green parties are the ones expected to benefit from the politicization of green issues, since an increase in salience can cause partisan realignment in favor of green parties. Therefore, as green parties gain electoral support, mainstream parties adopt a dismissive strategy by de-emphasizing environmental issues. By being dismissive, they want to restrain the niche party's further electoral success by signaling to voters the issue lacks merit (Meguid, 2005). If voters are persuaded that green parties' dimension is insignificant, they will not vote for it, and the issue will not get established in the party-system agenda. In other words, the costs of emphasizing environmental issues outweigh the benefits of addressing them, because the fear of partisan realignment is high [3].

*Hypothesis 1*: Increasing electoral support for green parties will cause parties to de-emphasize environmental issues.

[3] I suspect that this effect might be conditional on green parties' participation in the government. However, this expectation cannot be tested empirically in the scope of this study because of lack of data. The Greens managed to participate in government only in a few countries and a few election years.

Second, mainstream parties need to take into account the strategies of non-issue owners. The fact that rival parties that are not considered issue owners pay attention to environmental issues shows that the environment has gained momentum in the so-called party system agenda (Green-Pedersen and Mortensen, 2015). The agenda-setting literature puts forward the idea that at a certain point in time there is a hierarchy of issues, to which the relevant actors must pay attention (Dearing and Rogers, 1996). The more salient an issue is, the more important is for parties to take positions that appeal to the electorate. In a way, parties need to emphasize issues that are salient in the electorate which in turn forces them to address issues emphasized by other parties (Ansolabehere and Iyengar, 1994; Klüver and Sagarzazu, 2016).

Vote-maximizing parties cannot afford to ignore salient issues that are framed by many competitors of the party system. If a party ignores public concerns, voters might think it is indifferent to their worries (Spoon and Klüver, 2014). This also means that parties can improve their image by addressing those issues that currently dominate the public debate (Wagner and Meyer, 2014a). As Ansolabehere and Iyengar (1994, p.337) note, “by advertising on the major issues of the day, candidates are more likely to be seen as concerned, responsive, and informed". In this situation, the costs of ignoring the specific issue are straightforward. Parties will be regarded as out of touch from the electorate, and they might lose the chance of presenting their positions on the issue. So, completely ignoring issues of the party system agenda might be a difficult and risky strategy for a party (Green-Pedersen and Mortensen, 2015). Parties do not want to be regarded as out of touch with the electorate or indifferent to their worries (Wagner and Meyer, 2014a). They want to be seen as responsive to the public’s environmental concerns because this can lead to vote gains.

*Hypothesis 2*: The greater the emphasis of non-issue owners on environmental issues, the greater the probability of parties to increase their emphasis on environmental issues.

The coexistence of issue owners and non-issue owners, and their corresponding opposite effect on the focal party’s decision to increase its emphasis on environmental issues raises one additional question: how does the influence of these two groups of competitors interact with one another; does the influence of the mainstream competitors’ environmental emphasis get moderated by green

parties' success? There is a clash between two potential strategies. Parties can be responsive to the party-system agenda by emphasizing environmental issues or they can instead try to decrease the electoral success of green parties by ignoring environmental issues.

I argue that in systems where green parties are weak and do not gain electoral support, the focal party will be significantly influenced by the non-issue owner competitors – *i.e.,* the other mainstream parties. Their emphasis on environmental issues will be used as a heuristic about the saliency of an issue among the electorate. Without a strong issue owner, mainstream parties have the space to frame environmental issues in the way that best fits their strategy while at the same time they appear as responsive to the public. On the contrary, in systems where green parties are considered electorally stronger, the influence of the mainstream competitors will be much weaker. Although parties want to be responsive to the issues that dominate the public agenda, they also recognize that competing on this issue dimension is a losing strategy; instead, they emphasize an entirely different issue where they perceive an electoral advantage (Williams et al., 2015). Because of green parties' link to environmental issues, the risk of losing votes from them is high, and parties will prefer to avoid talking about environmental issues in an attempt to prevent any further electoral success of green parties. Even when rivals talk about the environmental, the "green party threat" is perceived as more important; hence, the positive effect of non-issues owners on parties' emphasis on the environment will decrease as green parties gain electoral support.

*Hypothesis 3*: As electoral support for green parties increases, the positive effect of non-issue owners on other parties' emphasis on environmental issues will decrease.

## 4.4 Research design

To test the hypothesis, I assembled a data set of 227 parties in 16 Western European countries between 1980 and 2021. As I am interested in how non-issue owners compete over specific political issues -namely the green issue- I examine the emphasis of the environmental issue for mainstream non-green

parties [4] . The unit of analysis is the party-election year, and the total number of observations in my analysis is 793. In Appendix 4.A.1, I list the countries, years, and parties included in the empirical analysis. I focus on that period because environmental issues started being politicized during the early '80s.

The Comparative Manifesto Project (CMP) [5] provides the data on party emphasis in party manifestos (Volkens et al., 2021). The CMP codes the quasi-sentences of election manifestos and groups them into a set of policy categories to determine how important an issue is for a party. Higher scores indicate that an issue dimension is more salient to a party, whilst lower score signify less salient issues. Party manifestos are a good way of gauging how important the issue of climate change is for a party. Politicians might exaggerate about the importance of addressing climate change, but seeing how much of their manifesto is devoted to environmental issues is revealing. Also, according to Fella and Ruzza (2006), manifestos are the result of complex debates and negotiations over a party's strategies. As such, it is a good measure of salience.

For the measure of environmental issues, I use the CMP dimension *per501*, which represents overall positive support for environmental protection and preservation. Given the CMP's assumption that environmental issues are valence issues, there is no corresponding measure of negative statements. Although such negative statements might be more prevalent in the future as climate sceptic politicians and parties increase in number and prominence (Farstad, 2018), parties are at present not explicitly against climate change. Thus, the lack of positive statements is a more accurate way to grasp a party's feelings towards environmental issues, that is, demonstrating a lack of concern or ambition.

The main independent variables of interest are three: *Green Party Support*, *Rivals' Environmental Emphasis* and their interaction term. First, *Green Party Support* is measured as green parties' vote share. If there was more than one green party with a vote share high enough to be reported by the CMP database, the sum of their vote shares for this election is used to measure the combined amount of

[4]Agrarian, regional, and other single-issue parties are excluded from the analysis; hence I focus only on mainstream parties' saliency strategies. The argument made here might not apply to these parties since their manifestos and their electorate are narrowly centered on specific issues, which makes endorsement of other issues unnecessary. See Green-Pedersen and Mortensen (2015) for empirical evidence of the responsiveness of mainstream parties to other domestic parties.

[5]The data are available at: https://manifesto-project.wzb.eu/datasets.

pressure that is put on non-issue owner parties. Second, *Rivals' Environmental Emphasis* is measured as the average emphasis that non-issue owner parties put on environmental issues – *i.e.*, for each party I calculate the average emphasis that all the other mainstream parties dedicate on environmental issues. Both variables are temporally lagged, based on the rationale that it takes time for information about the position and the electoral success of parties to influence positions. Developing manifestos is a"time-consuming process[...] which typically takes place over two-three year period" (Adams and Somer-Topcu, 2009). Third, I use the interaction term of the two aforementioned variables for examining if green party support influences the expected positive effect of rivals' emphasis on environmental issues.

I also include a series of control variables that primarily address alternative determinants of party emphasis on a specific issue and may constitute confounders for the main relationship of interest. First, a party's decision to emphasize environmental issues depends on its previous electoral performance, since it can work as a proxy for how successfully parties compete on the dominant dimension of contestation (Spoon et al., 2014). Large parties that have successfully gained a leading position in the system are more likely to ignore new political issues in order to circumvent possible negative side-effects of advocating a new issue dimension. They "attempt to maintain their power by being associated with winning issues" (Carmines and Stimson, 1993, p. 154). In contrast, smaller parties are less successful competing on this dimension, and thus have greater strategic incentives to respond to the emergence of new issues.

Second, as Owens (1986, p.197) argues: "we might expect environmentalism to be more closely aligned to the philosophy of the left rather than the right". Empirical research shows that right-wing parties will generally respond less positively to environmental issues than their left leaning counterparts (Carter and Little, 2021; Farstad, 2018; McCright and Dunlap, 2011). Therefore, for measuring the effect of parties' left-right ideology, I use the CMP's right-left positioning. Third, I control for government participation by including a dichotomous variable that captures whether parties were in government or not and is derived from the ParlGov dataset[6]. Government parties

[6]The data are available at: https://www.parlgov.org.

are often more forced to respond to issues brought up on the party system agenda compared to opposition parties (Green-Pedersen and Mortensen, 2010), which are freer to focus continually on issues they find advantageous.

Moreover, parties are more likely to mobilize an issue when exogenous economic factors make the issue a likely vote-winner (see Adams et al., 2009; Ezrow, 2007; Steenbergen et al., 2007). If the economic conditions are favourable, parties have more opportunities to focus on other issues, since voters might be more receptive to non-economic, or post-material issues (Inglehart, 1997). On the other hand, during times of economic hardship, economic issues are likely to dominate the political debate. Therefore, I include the annual growth of the gross domestic product (GDP) one year prior to the election. The data on GDP growth come from the World Bank [7].

Finally, previous studies suggest that environmental care is linked to environmental conditions (Hao, 2016; Knight and Messer, 2012; Pisano and Lubell, 2017). Poor environmental conditions significantly stimulate citizen environmental concern. From this perspective, we might expect that poor environmental conditions are correlated with a higher saliency of environment-related issues in political party manifestos. I use anthropogenic carbon dioxide $CO_2$ emissions [8] as the measure for ecological degradation. The data are measured in metric tons per capita and are drawn from the World Bank [9]. Summary statistics can be found in the Appendix 4.A.2.

In order to assess the impact of issue and non-issue owners on parties' emphasis on environmental issues, several models with ordinary least squares (OLS) are estimated. Models also include party-fixed effects to account for unit-specific heterogeneity. The inclusion of the fixed effects reduces the analyzed variation to within-party variation over time, and thus control for time-constant and party-specific peculiarities. To eliminate serial autocorrelation, I include a lagged dependent variable (environmental issues at time $t-1$), which also has a substantial meaning since party manifestos are rarely written from scratch but are heavily based on previous strategies. Lastly, I do not include a measure of environmental salience among the electorate as a control variable. Such a

[7]The data are available at: https://data.worldbank.org/indicator/NY.GDP.PCAP.KD.ZG.
[8]I use the natural logarithm of this variable for normalizing its positively skewed distribution.
[9]The data are available at: https://data.worldbank.org/indicator/EN.ATM.CO2E.PC.

variable is highly endogenous to the process under investigation here because parties' emphases can determine which problems are regarded as most pressing among citizens (Abou-Chadi, 2016).

In the Appendix, I test the robustness of my results and I dig deeper on the drivers of the main effects. First, I show that the results are not model-dependent. Following recent developments in the empirical literature on party competition (Goldring et al., 2020; Juhl and Williams, 2021; Lehrer et al., 2017; Williams, 2015), I estimate spatial temporal autogressive models or "spatial lag models". The overall picture they provide is consistent with the one that emerges from Table 4.1. Second, I propose alternative an operationalization of my dependent variable. which is composed based on two dimensions of the CMP dataset: *per501* and *per416* (Abou-Chadi et al., 2020). The first dimension (*per501*) captures manifesto sentences that refer to policies in favour of protecting the environment, fighting climate change, and other 'green' policies. The second dimension captures opposition to growth that causes environmental harm and call for sustainable development. I also explore differences on my effects based on time. In particular, I test if the effect of green parties' vote share changes overtime. Interestingly, I find that since the emergence of environmental issues, green parties have a negative effect on mainstream parties' environmental salience. Lastly, I run models that condition the effect of the issue owners and the non-issue owners on parties' ideology. Studies (*e.g.*, Farstad, 2018; Ladrech and Little, 2019) have shown that existing preferences associated with traditional left-right politic matter for the emphasis that parties put on issues. Thus, the effect of the party-system can differ based on parties' ideology and it might be the case that parties with more left ideologies are more open to environmental issues.

## 4.5 Results

The findings are summarized in Table 4.1. I include my control variables step-wise to avoid problems of suppression effects in a selection of observables design (Lenz and Sahn, 2021). The first model introduces only the two main explanatory variables *Lagged neighbors' environmental emphasis* and *Lagged green party support*. In model 2, I introduce controls relative to parties' characteristics, and

in model 3 I include controls relative to exogenous country-level effects. In model 4, I also control for party-specific idiosyncratic heterogeneity by including party fixed effect. Finally, model 5 also includes the interaction term between the two main explanatory variables[10].

Table 4.1: Effects on parties' emphasis on environmental issues

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Lagged party system env. emphasis | 0.320*** | 0.320*** | 0.298*** | 0.110** | 0.301*** |
| | (0.071) | (0.068) | (0.066) | (0.055) | (0.092) |
| Lagged green elecotral support | −0.014 | −0.040 | −0.060 | −0.399*** | −0.172* |
| | (0.056) | (0.053) | (0.054) | (0.064) | (0.094) |
| Lagged party system env.emphasis x Lagged green electoral support | | | | | −0.030*** |
| | | | | | (0.011) |
| Num.Obs. | 821 | 810 | 793 | 793 | 793 |
| R2 | 0.063 | 0.100 | 0.118 | 0.519 | 0.524 |
| R2 Adj. | 0.061 | 0.094 | 0.110 | 0.402 | 0.407 |
| Party-level controls | | × | × | × | × |
| Country-level controls | | | × | × | × |
| Party FE | | | | × | × |

* p < 0.1, ** p < 0.05, *** p < 0.01.

*Note*: Coefficients estimated using OLS. Standard errors are clustered at the party level.

Model 4 (the full model without the interaction term) shows that the results are in line with my theoretical expectations and indeed issue owners and non-issue owners affect environmental emphasis in different ways. Issue owners and non-issue owners have a different effect on parties' decision to emphasize environmental issues. Green parties' vote share has a statistically significant negative effect on parties' choice to emphasize environmental issues. With an increase in green parties' electoral support, established parties decrease emphasis on environmental issues in their manifestos by 0.39.

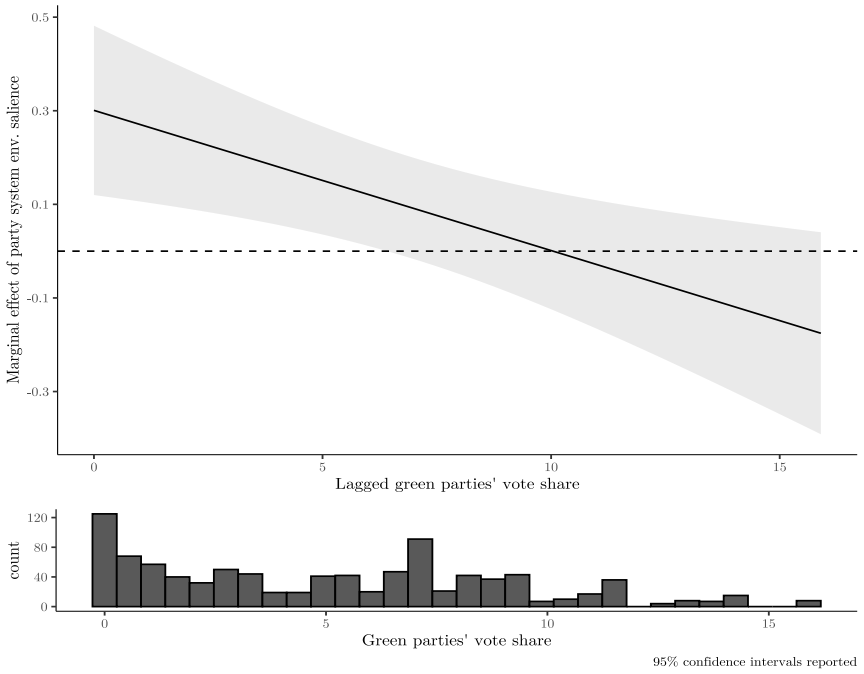
These findings emphasize the role of mainstream parties and their anticipation of electoral consequences and benefits when analyzing issue evolution and politicization of issues. Niche parties exert some influence on established parties to emphasize their preferred issues. Parties weigh the costs and benefits of increasing their emphasis on these issues and they choose accordingly. Politicization of environmental issues means their establishment in the party system agenda which might lead to further strengthening of green parties. Vote-maximizing parties will not want to risk the loss of votes; thus, their preferred strategy will be to drop environmental issues. They will try to

[10]Fulll reporting of the results are reported in Appendix Table B.1.

persuade the public that environmental issues lack merit.

Non-issue owner rivals have a positive and significant effect on parties' decision to talk about the environment. When other mainstream rivals increase their emphasis on environmental issues by a unit, parties will also increase their emphasis on the environment by 0.11. The fact that non-issue owners emphasize environmental issues demonstrates that these issues have reached the top of the party system agenda. Parties use their competitors' emphasis as a heuristic for the salience of the environment among the electorate. They do not want to be seen as non-responsive to the electorate. Therefore following their mainstream competitors they increase the emphasis on green issues.

Figure 4.2: Average marginal effect of party system salience conditional on the success of green parties




*Note:* Graph displays average marginal effects and 95 percent confidence intervals. Estimates are based on Model 4t. The horizontal dashed line represents an effect of 0.

Having in mind the two groups of competitors, it is not yet clear which competitor has a stronger influence on parties' decisions to emphasize environmental issues. The inclusion of the interaction term helps me examine the effect of non-green rivals on the focal party's emphasis on the environment conditional on the issue owners electoral success. In other words, I compare the influence of mainstream competitors' environmental emphasis in systems where the green parties

have low and high electoral support. For ease of interpretation, I compute the marginal effect of rivals' emphasis at different levels of greens' electoral support. I plot the results which are based on the estimates of model 5 in Figure 4.2.

Overall, the results of interest confirm the third hypothesis. The influence of rivals' emphasis decreases as the vote share of green parties increases. In systems where the issue owner is weak the marginal effect of the rivals' emphasis is 0.6. When the issue owner is weak, mainstream parties do not feel its electoral pressure. In that case, the benefit of emphasizing environmental issues is high. They have the opportunity to frame the issue in a way that suits their strategy and they do not have to respond to the pressure of the green parties.

In systems, though, where the green parties have larger support among the electorate, the influence of the mainstream rivals becomes insignificant. Between avoiding partisan realignment toward green parties and engaging with other mainstream competitors, parties choose the former. The "green party threat" is perceived as more important than the environmental emphasis of rival parties, and ultimately it is the fact that mostly affects parties' decisions concerning environmental issues.

## 4.6 Conclusion

How do parties decide when to increase their emphasis on certain issues? While the majority of scholarly literature has focused on parties' general left-right positions, parties also compete on specific issues like the environment. In issue competition about these specific issues, there is a distinction between issue owners and non-issue owners; hence, the dynamics of party competition change. Taking into consideration this distinction, my findings highlight the conditions under which parties are responsive to their rivals. By following the proposition that parties strategically draft their manifestos in order to increase their vote share (Laver and Garry, 2000), the present work adds to the literature by illuminating the strategic changes of parties' issue emphasis depending on the salience of an issue in the party system agenda. The findings can be summarised in two key points.

First, by studying environmental issues, I found evidence that parties take into account the party

system when crafting their manifestos. However, they do it differently when responding to the issue owner's electoral success - *i.e.*, green parties - and to rivals that are not issue owners. Politicization of environmental issues entails the high risk of strengthening green parties which might lead to partisan realignment toward them. As a result, when green parties gain electoral support, established parties will try to de-emphasize environmental issues in an attempt to reduce the saliency of the issue. Parties respond differently to non-issue owners. The discussion of the issue from those parties works as a heuristic about the hierarchy of the issue in the party system agenda. When many parties emphasize an issue, it has gained momentum in the public debate; thus, parties increase their emphasis on environmental issues because the benefit of addressing these issues exceeds the cost of strengthening green parties. Hence, this paper contradicts the idea that green party success is the driving force behind the evolution of environmental issues (see also, Abou-Chadi, 2016; Abou-Chadi et al., 2020; Green-Pedersen, 2019).

Second, an important finding is the fact that non-issue owners' effect is conditional on the success of the issue owner. In systems where there is no actual electoral threat by green parties, the effect of mainstream rivals is positive and significant. In systems, however, where green parties are electorally stronger, the effect of the mainstream rivals becomes insignificant. This shows that the "green-party threat" is more important than the response to the party system agenda. When parties have to choose between emphasizing issues that are prominent in the party system and minimizing a possible electoral threat, they choose the latter.

There are several important research questions that remain. First, I do not examine whether party responsiveness to rival parties environmental emphasis is an effective strategy, namely whether it helps parties to have gains in elections (*e.g.*, increase their vote share, participate in government). Moreover, I only focus on salience and not positions. Given that environmental issues have started becoming more ideological, it is worth focusing on parties' environmental positions and understand if their positions are affected by similar mechanisms. Additionally, institutional factors, like the electoral system or parties' organizational structure might affect its decision to respond to rival parties. Furthermore, this study focuses on a single issue dimension. To further validate these

findings, future research should pay closer attention to other specific issues, such as European integration, immigration or to multiple issue dimensions at the same time. It is also worth examining what happens when non-issue owners enter the government, and how parties emphasize specific issues according to this development.

# Appendix 4.A Data Description

## 4.A.1 Parties per country

**Austria**
Alliance for the Future of Austria (2006 - 2008)
Austrian Communist Party (2002 - 2008)
Austrian Freedom Party (1983 - 2019)
Austrian People's Party (1983 - 2019)
Austrian Social Democratic Party (1983 - 2019)
Freedom Movement (1995 - 1995)
Liberal Forum (1994 - 1995)
The New Austria (2013 - 2013)
The New Austria and Liberal Forum (2017 - 2019)

**Belgium**
Christian Democratic and Flemish (1999 - 2019)
Christian People's Party (1981 - 1995)
Christian Social Party (1981 - 1999)
Flemish Bloc (1981 - 2003)
Flemish Interest (2007 - 2019)
Flemish Liberals and Democrats (1995 - 2003)
Flemish Socialist Party (1981 - 1999)
Francophone Socialist Party (1981 - 2014)
Humanist Democratic Centre (2003 - 2014)
Liberal Reformation Party (1981 - 1991)
Liberal Reformation Party (1995)
Citizens' Movement for Change (1999)
List Dedecker (2007 - 2010)
Open Flemish Liberals and Democrats (2007 - 2019)
Party of Liberty and Progress (1981 - 1991)
People's Party (2014 - 2014)
Reform Movement (2003 - 2014)
SPIRIT (2007)
Socialist Party Different (2007 - 2019)
Socialist Party Different - Spirit (2003 - 2007)
Workers' Party of Belgium (2014 - 2019)

**Denmark**
Alternativ (2015 - 2019)
Centre Democrats (1981 - 2005)
Christian Democrats (2005 - 2005)
Christian People's Party (1981 - 2001)
Common Course (1987 - 1987)
Conservative People's Party (1981 - 2019)
Danish Communist Party (1981 - 1984)
Danish People's Party (1998 - 2019)
Danish Social-Liberal Party (1981 - 2019)
Left Socialist Party (1981 - 1984)
Liberal Alliance (2011 - 2019)
Liberals (1981 - 2019)
New Alliance (2007 - 2007)
Progress Party (1981 - 1998)
Red-Green Unity List (1994 - 2019)
Social Democratic Party (1981 - 2019)
Socialist People's Party (1981 - 2019)
The New Right (2019 - 2019)

**Finland**
Centre Party (1983 - 1987)
Christian Democrats in Finland (2003 - 2019)
Democratic Alternative (1987 - 1987)
Finnish Centre (1991 - 2019)
Finnish Christian Union (1983 - 1999)
Finnish People's Democratic Union (1983 - 1987)
Finnish Rural Party (1983 - 1995)
Finnish Social Democrats (1983 - 2019)
Left Wing Alliance (1991 - 2019)
Liberal People's Party (1991)
Movement Now (2019)
National Coalition (1983 - 2019)
True Finns (1999 - 2019)
Young Finnish Party (1995)

**France**
Centrist Alliance (2012)
Democratic Movement (2007 - 2017)
French Communist Party (1981 - 2017)
Indomitable France (2017)
Left Front (2012)
Left Radical Party (2012 - 2017)
National Front (1986 - 2017)
New Centre (2012)
Radical Party (2012 )
Rally for the Republic (1993 - 1997)
Republic Onwards! (2017 - 2017)
Socialist Party (1981 - 2017)
The Republicans (2017)
Union for French Democracy (1981 - 2002)
Union for a New Majority (1981 - 1988)
Union for a Popular Movement (2007 - 2012)
Union for the Presidential Majority (2002)
Union of Democrats and Independents (2017)

**Germany**
Alternative for Germany (2013 - 2021)
Christian Democratic Union (1980 - 2021)
Free Democratic Party (1980 - 2021)
Party of Democratic Socialism (1990 - 2002)
Social Democratic Party of Germany (1980 - 2021)
The Left (2009 - 2021)
Party of Democratic Socialism (2005)

**Greece**
Coalition of the Radical Left (2004 - 2015)
Unionist Social Front (2012)
Communist Party of Greece (1981 - 2015)
Democratic Left (2012 - 2015)
Democratic Social Movement (1996)
Golden Dawn (2012 - 2015)
Independent Greeks (2012 - 2015)
New Democracy (1981 - 2015)
Panhellenic Socialist Movement (1981 - 2015)
Political Spring (1993 - 1996)
Popular Orthodox Rally (2007 - 2012)
Popular Unity (2015 - 2015)
Progressive Left Coalition (1989 - 2000)
The River (2015)
Union of Centrists (2015)

**Luxembourg**
Christian Social People's Party (1984 - 2013)
Communist Party of Luxembourg (1984 - 1989)
Democratic Party (1984 - 2013)
Socialist Workers' Party of Luxembourg (1984 - 2013)
The Left (2009 - 2013)

**Italy**
Brothers of Italy (2018)
Brothers of Italy - National Centre-right (2013)
Christian Democratic Centre (1996)
Christian Democrats (1983 - 1992)
Civic Choice (2013)
Civil Revolution (2013)
Communist Refoundation Party (1992 - 2006)
Daisy - Democracy is Freedom (2001)
Democratic Alliance (1994 - 1996)
Democratic Centre (2013)
Democratic Party (2008 - 2018)
Democratic Party of the Left (1992 - 1996)
Democrats of the Left (2001)
Free and Equal (2018)
Go Italy (1994 - 2018)
House of Freedom (2001 - 2006)
Italian Communist Party (1983 - 1987)
Italian Democratic Socialist Party (1983 - 1992)
Italian Liberal Party (1983 - 1992)
Italian Popular Party (1994 - 1996)
Italian Renewal (1996)
Italian Republican Party (1983 - 1992)
Italian Social Movement-National Right (1983 - 1992)
Italian Socialist Party (1983 - 1994)
Italy Europe Together (2018)
Labour and Freedom List (2013)
League (2018)
Left Ecology Freedom (2013)
More Europe (2018)
National Alliance (1994 - 2006)
New Italian Socialist Party (2001 - 2006)
Northern League (1992 - 2013)
Olive Tree (2001 - 2006)
Pact for Italy (1994)
Pannella List (1992)
Pannella-Riformatori List (1994)
Pannella-Sgarbi List (1996)
Party of Italian Communists (2001 - 2006)
People of Freedom (2008 - 2013)
Popular Civic List (2018)
Proletarian Democracy (1983 - 1987)
Proletarian Unity Party for Communism (1983)
Radical Party (1983 - 1987)
Rose in the Fist (2006)
Union for Christian and Center Democrats (2006)
Union of the Center (2008 - 2013)
Us with Italy (2018)
White Flower (2001)

**Netherlands**
Centre Democrats (1989 - 1994)
Centre Party (1982)
Christian Democratic Appeal (1981 - 2017)
Christian Union (2002 - 2017)
Communist Party of the Netherlands (1982)
DENK (2017)
Democrats'66 (1981 - 2017)
Forum for Democracy (2017)
Labour Party (1981 - 2017)
List Pim Fortuyn (2002 - 2003)
Livable Netherlands (2002 - 2003)
Pacifist Socialist Party (1986 )
Party of Freedom (2006 - 2017)
People's Party for Freedom and Democracy (1981 - 2017)
Radical Political Party (1981 - 1986)
Reformatory Political Federation (1981 - 1998)
Reformed Political League (1982 - 1998)
Socialist Party (1994 - 2017)

**Norway**
Centre Party (1981 - 2017)
Christian People's Party (1981 - 2017)
Conservative Party (1981 - 2017)
Labour Party (2013 - 2017)
Liberal Party (1981 - 2017)
Norwegian Labour Party (1981 - 2009)
Progress Party (1981 - 2017)
Red Party (2017)
Socialist Left Party (1981 - 2017)

**United Kingdom**
Alliance Party of Northern Ireland (2019)
Conservative Party (1983 - 2019)
Labour Party (1983 - 2019)
Liberal Democrats (1992 - 2019)
Liberal Party (1983 - 1987)
Social Democratic Party (1983 - 1987)
Social Democratic and Labour Party (2015 - 2019)
Ulster Unionist Party (1992 - 2015)
We Ourselves (1997 - 2019)

**Sweden**
Centre Party (1982 - 2018)
Christian Democratic Coalition (1985)
Christian Democratic Community Party (1991 - 1994)
Christian Democrats (1998 - 2018)
Left Communists Party (1982 - 1988)
Left Party (1991 - 2018)
Liberal People's Party (1991 - 2014)
Liberals (2018)
Moderate Coalition Party (1982 - 2018)
People's Party (1982 - 1988)
Social Democratic Labour Party (1982 - 2018)
Sweden Democrats (2010 - 2018)

**Switzerland**
Christian Democratic People's Party of Switzerland (1983 - 2019)
Christian Social Party (2007 - 2011)
Conservative Democratic Party of Switzerland (2011 - 2019)
FDP.The Liberals (2011 - 2019)
Federal Democratic Union (1991 - 2019)
Independents' Alliance (1983 - 1999)
Liberal Party of Switzerland (1991 - 2003)
National Action for People and Fatherland (1983 - 1987)
Protestant People's Party of Switzerland (1983 - 2019)
Radical Democratic Party (1983 - 2007)
Social Democratic Party of Switzerland (1983 - 2019)
Swiss Democrats (1991 - 2003)
Swiss Labour Party (1991 - 2019)
Swiss People's Party (1983 - 2019)
Together on the Left (2019)

**Portugal**
Ass. of Independent Social Democrats (1980 - 1980)
Democratic Intervention (1987 - 1987)
Democratic Renewal Party (1985 - 1987)
Enough (2019 - 2019)
Left Bloc (1999 - 2019)
Leftwing Union for the Socialist Democracy (1980 - 1980)
Liberal Iniciative (2019 - 2019)
Popular Democratic Movement (1980 - 1985)
Popular Democratic Union (1980 - 1987)
Popular Monarchist Party (1980 - 1983)
Portugal Ahead (2015 - 2015)
Portuguese Communist Party (1980 - 2019)
Social Democratic Center Party (1980 - 1991)
Social Democratic Center-Popular Party (1995 - 2019)
Social Democratic Party (1980 - 2019)
Socialist Party (1980 - 2019)
Unified Democratic Coalition (1991 - 2005)

**Spain**
Centre Democrats (1982 - 1993)
Citizens - Party of the Citizens (2015 - 2019)
Communist Party of Spain (1982)
Liberal Party (1986)
More Country - Equo (2019)
People's Party (1989 - 2019)
Popular Alliance (1982 - 1986)
Popular Democratic Party (1982 - 1986)
Popular Unity (2015)
Spanish Socialist Workers' Party (1982 - 2019)
Union of the Democratic Centre/Centrist Bloc (1982)
Union, Progress and Democracy ( 2011)
United Left (1986 - 2019)
Voice (2019)
We can (2015 - 2019)

### 4.A.2 Summary Statistics

Descriptive statistics

| | Mean | SD | Min | Max |
|---|---|---|---|---|
| Env. salience | 5.34 | 4.65 | 0.00 | 31.46 |
| Greens vote share | 5.35 | 4.34 | 0.00 | 21.32 |
| Greens env. emphasis | 18.57 | 12.06 | 3.58 | 53.49 |
| Mean system env. salience | 6.68 | 3.60 | 0.49 | 20.36 |
| Party vote share | 16.00 | 12.63 | 0.28 | 51.29 |
| Party ideology | −1.82 | 23.11 | −64.29 | 72.50 |
| Government participation | 0.33 | 0.47 | 0.00 | 1.00 |
| Growth GDP per capita | 1.73 | 2.44 | −10.15 | 8.46 |
| $CO_2$ emissions (log) | 2.04 | 0.38 | 0.95 | 3.38 |

# Appendix 4.B Full results

Table B.1: Effects on parties' emphasis on environmental issues

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Lagged party system environmental emphasis | 0.320*** | 0.320*** | 0.298*** | 0.110** | 0.301*** |
| | (0.071) | (0.068) | (0.066) | (0.055) | (0.092) |
| Lagged green elecotral support | −0.014 | −0.040 | −0.060 | −0.399*** | −0.172* |
| | (0.056) | (0.053) | (0.054) | (0.064) | (0.094) |
| Lagged party system env.emphasis x Lagged green electoral support | | | | | −0.030*** |
| | | | | | (0.011) |
| Ideology | | −0.037*** | −0.037*** | −0.020* | −0.020* |
| | | (0.009) | (0.009) | (0.011) | (0.011) |
| Government party | | 0.344 | 0.332 | 0.610 | 0.598 |
| | | (0.444) | (0.400) | (0.373) | (0.366) |
| Lagged Vote Share | | −0.033* | −0.043** | 0.047 | 0.048* |
| | | (0.020) | (0.019) | (0.029) | (0.028) |
| Lagged GDP Growth | | | 0.235*** | 0.075 | 0.113* |
| | | | (0.062) | (0.058) | (0.062) |
| Lagged CO$_2$(log) | | | 0.504 | 0.355 | 0.077 |
| | | | (0.687) | (0.938) | (0.925) |
| Num.Obs. | 821 | 810 | 793 | 793 | 793 |
| R2 | 0.063 | 0.100 | 0.118 | 0.519 | 0.524 |
| R2 Adj. | 0.061 | 0.094 | 0.110 | 0.402 | 0.407 |
| Party FE | | | | × | × |

* p < 0.1, ** p < 0.05, *** p < 0.01.

*Note*: Coefficients estimated using OLS. Standard errors are clustered at the party level.

# Appendix 4.C Inclusion of year fixed effects

Table C.1: Effects on parties' emphasis on environmental issues

| | (1) | (2) |
|---|---|---|
| Lagged party system env. emphasis | 0.118* | 0.176* |
| | (0.064) | (0.095) |
| Lagged green elecotral support | −0.324*** | −0.248* |
| | (0.085) | (0.134) |
| Lagged party system env.emphasis x Lagged green electoral support | | −0.010 |
| | | (0.012) |
| Num.Obs. | 793 | 793 |
| R2 | 0.591 | 0.591 |
| R2 Adj. | 0.460 | 0.460 |
| Party-level controls | × | × |
| Country-level controls | × | × |
| Party FE | × | × |
| Year FE | × | × |

* p < 0.1, ** p < 0.05, *** p < 0.01.

*Note*: Coefficients estimated using OLS. Standard errors are clustered at the party level.

# Appendix 4.D Spatial models

I corroborate my main results by estimating spatial temporal autogressive models or "spatial lag models"[11]. (Franzese and Hays, 2007, 2008). They are able to capture the spatial dependence among parties directly. Accordingly, the baseline model is defined by:

$$y_t = \rho_0 \mathbf{W} y_{e-1} + \beta X_{e-1} + \epsilon \tag{4.1}$$

where a party's emphasis at time $t$ (*i.e.*, election $e$), $y_t$, is a function of $\mathbf{W}y_{e-1}$, a vector of controls with data from the year of the last election, $X_{e-1}$, and $\epsilon$, the error term. $\mathbf{W}y_{e-1}$ stands for the product of a connectivity matrix ($\mathbf{W}$) and a temporally lagged dependent variable ($y_{e-1}$). In this setup, $E$ is the number of elections in the sample for a specific party. The construction of the spatial lag using the temporally lagged values of the dependent variable is based on the rationale that it takes time for information about the position of parties to influence positions. Developing manifestos is a "time-consuming process[...] which typically takes place over two-three year period" (Adams and Somer-Topcu, 2009); hence, I use parties' environmental salience at the last election when constructing the spatial lag[12].

For the operationalization of spatial dependencies, I use a spatial lag that captures the competition among parties in the same party system and pertain the hypothesis. $\mathbf{W}$ is a matrix with $E$ $NxN$ submatrices along the block diagonal in which $w_{ij}$ specifies the connection between parties $i$ and $j$, and $w_{ij} = 0$. For the spatial lag, $\boldsymbol{W^{Domestic}}$ assigns a value of 1 if two parties compete in the same country and 0 otherwise.

For theoretical reasons (Plümper and Neumayer, 2010), I do not row-standardize the connectivity matrix. The underlying theoretical assumption of row-standardization is that parties divide their attention across parties in proportion to perceptions of their relevance (Plümper and Neumayer, 2010). Williams (2015) argues, however, that row-standardization is not appropriate in the context

[11]The most common estimators for time-series cross section spatial lag models are spatial ordinary least squares (S-OLS) and spatial maximum likelihood (S-ML) I follow Williams(2015) who employ S-OLS

[12]The lag structure I assume addresses endogeneity, stemming from simultaneity bias.

of modeling party competition, because we would assume that the total weight given to other parties' emphasis will be the same no matter how many other parties the focal party hat to pay attention to (Böhmelt et al., 2016; Lehrer et al., 2017; Williams et al., 2015).

The results are in accordance with the main results of the paper. The first hypothesis of the paper examines how the issue owner's electoral threat influences parties' emphasis on environmental issues. I argue that parties de-emphasize environmental issues when green parties gain electoral support fearing further electoral alignment with the issue owner., Thus, I include the temporally lagged vote share of green parties within a party system (like in the main analysis).

Table D.1: Effects on parties' emphasis on environmental issues

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| $W_{e-1}$ | 0.033*** | 0.031*** | 0.033*** | 0.055*** |
| | (0.008) | (0.008) | (0.008) | (0.013) |
| Lagged green elecotral support | −0.306*** | −0.314*** | −0.300*** | −0.189** |
| | (0.078) | (0.079) | (0.082) | (0.084) |
| $W_{e-1}$ x Lagged green elecotral support | | | | −0.004** |
| | | | | (0.002) |
| Num.Obs. | 768 | 768 | 768 | 768 |
| R2 | 0.555 | 0.560 | 0.566 | 0.569 |
| Party-level controls | | × | × | × |
| Country-level controls | | | × | × |
| Year FE | × | × | × | × |
| Party FE | × | × | × | × |

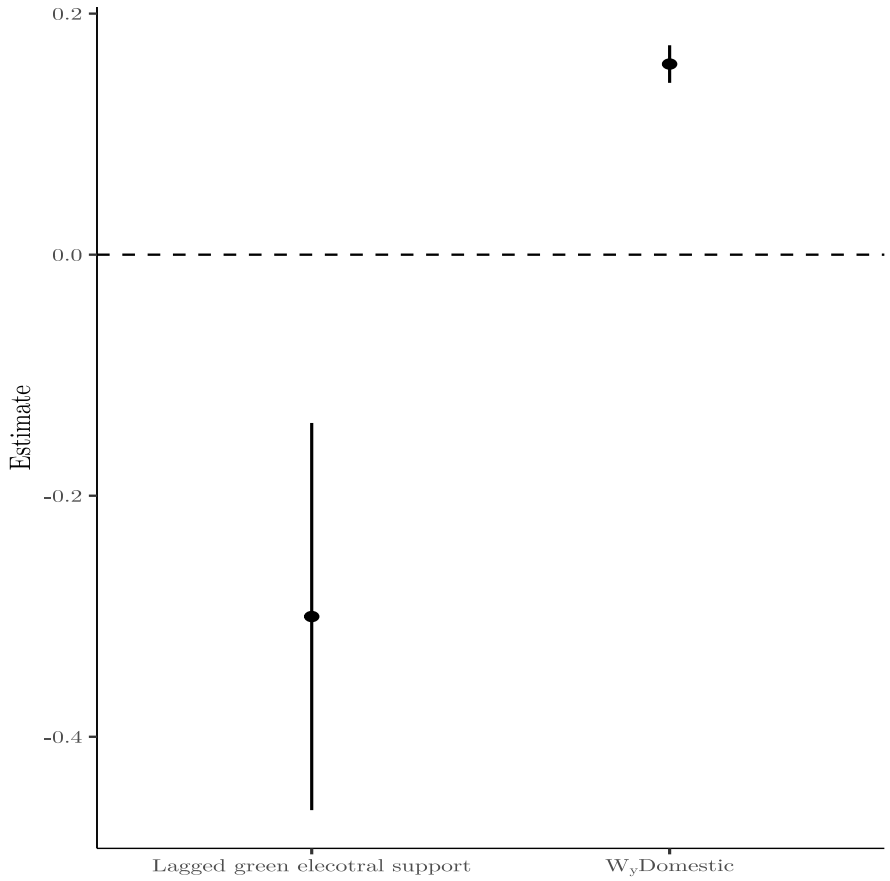
* p < 0.1, ** p < 0.05, *** p < 0.01.

Figure D.1 displays the average marginal effects of interest. For the spatial lag I calculate the instantaneous marginal effects[13].. Because the connectivity matrix is not row-standardized, the coefficient of the spatial lag cannot be interpreted directly, as the spatial lag tends to increase with the number of domestic rivals. In order to estimate the short-impact, Plümper and Neumayer (2010, p.430f) suggest multiplying the coefficient of the spatial lag by the average number of neighbors, which then allows for a direct interpretation of the marginal effects. The average number of neighbors is 4.85 for $\boldsymbol{W^{Domestic}}$.

[13]I am not computing long-term effects, because they rely on the assumption that once a party has shifted its position, all parties' policy positions remain stable for multiple elections.

The right estimate shows that parties are responsive to their competitors who are not considered issue owners and they are positively affected by their emphasis on the environment. In a more substantive way, consider a party competing in its party system with 4.85 neighbors. If all of its rivals increase their emphasis on environmental issues in the past elections by one unit (*i.e.*,$\mathbf{W}y_{e-1}$ increases by 4.85 units), ceteris paribus, then parties are predicted to increase their emphasis to environmental issues instantaneously by 0.2 units. Furthermore, the effect of green parties' electoral support is negative and significant.

Figure D.1: Average marginal effects of mainstream parties' emphasis on environmental issues and green parties electoral increase




*Note:* Graph displays point estimates and 95 percent confidence intervals. Estimates are based on Model 1. The horizontal dashed line represents an effect of 0.

# Appendix 4.E Different operationalization of outcome variable

I also construct a measure of environmental salience which is composed based on two dimensions of the CMP dataset: *per501* and *per416* (Abou-Chadi et al., 2020). The first dimension (*per501*) captures manifesto sentences that refer to policies in favor of protecting the environment, fighting climate change, and other 'green' policies. The second dimension captures opposition to growth that causes environmental harm and call for sustainable development. Because salience concerns attention parties devote to specific issues, which is captured directly by the number of (quasi-)sentences parties dedicate to issues, I use an additive measure of attention to environmental issues (*per501* + *per416*). The results are presented in Table E.1 and the results are almost identical to the results of Table 4.1.

Table E.1: Effects on parties' emphasis on environmental issues

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Lagged party system env. emphasis | 0.389*** | 0.363*** | 0.348*** | 0.168*** | 0.487*** |
| | (0.066) | (0.066) | (0.066) | (0.062) | (0.111) |
| Lagged green elecotral support | 0.016 | −0.031 | −0.022 | −0.335*** | 0.000 |
| | (0.066) | (0.064) | (0.075) | (0.072) | (0.136) |
| Lagged party system env.emphasis x Lagged green electoral support | | | | | −0.047*** |
| | | | | | (0.013) |
| Num.Obs. | 945 | 810 | 793 | 793 | 793 |
| R2 | 0.059 | 0.123 | 0.140 | 0.543 | 0.550 |
| R2 Adj. | 0.057 | 0.118 | 0.133 | 0.432 | 0.440 |
| Party-level controls | | × | × | × | × |
| Country-level controls | | | × | × | × |
| Party FE | | | | × | × |

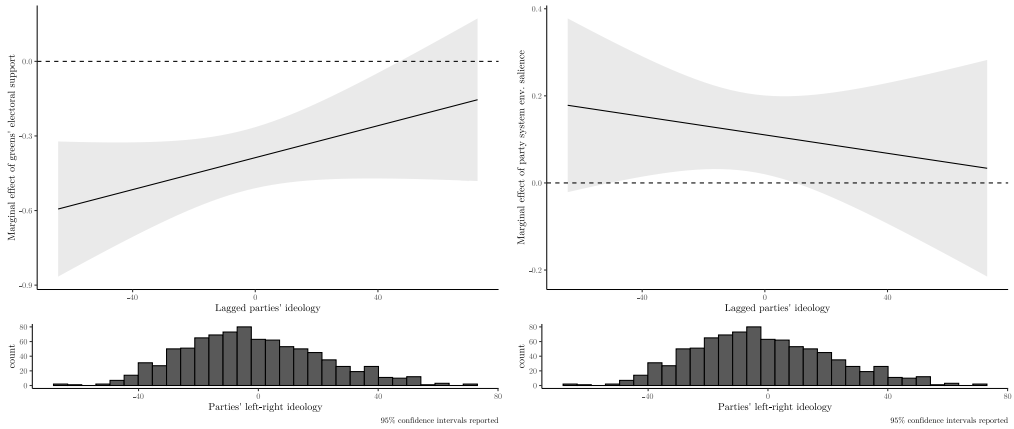
* p < 0.1, ** p < 0.05, *** p < 0.01

# Appendix 4.F Party-system's effect conditional on ideology

Studies (*e.g.*, Farstad, 2018; Ladrech and Little, 2019) have shown that existing preferences associated with traditional left-right politic matter for the emphasis that parties put on issues. Thus, the effect of the party-system agenda can differ based on parties' ideology. I test this by interacting my two main variables of interest *Green Party Support*, *Rivals' Environmental Emphasis* with parties' ideology. The average marginal effects of the two variables conditional on ideology are presented in Figure F.1. Subfigure F.1a presents the average marginal effect of green parties' electoral support. It shows that green parties have a negative effect on parties' environmental emphasis no matter their ideological positions. Only for extreme right parties I observe a non-significant effect. Subfigure F.1b presents the average marginal effect of non-issue owners' emphasis on environmental issues. It shows that parties of the left and the centre side of the ideological spectrum are the ones that increase theirs emphasis on environmental issues when other competitors of the party system dedicate space of their manifestos to environmental issues.

Figure F.1: Average marginal effects of party system conditional on ideology

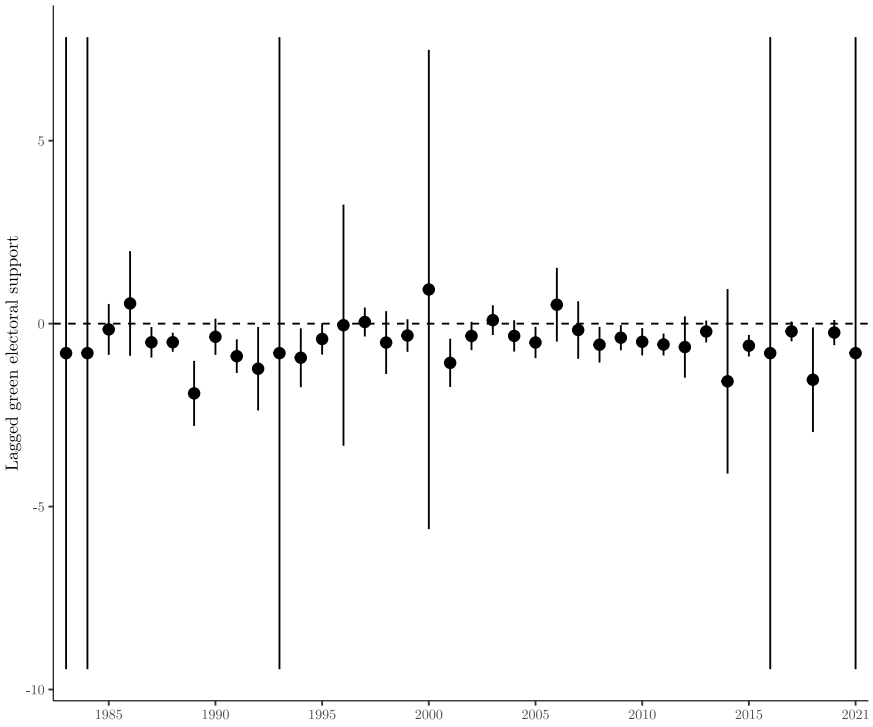
(a) Green electoral support (b) Non issue owners emphasis



# Appendix 4.G Dynamic effect of green parties' success on mainstream parties emphasis on the environmental

Past literature (*e.g.*, Spoon et al., 2014) has proposed a potential positive effect of green parties success on mainstream parties' emphasis on environmental issues. For testing a possible diverse effect of green parties' success I run some additional models that condition their effect on time. Figure G.1 demonstrate that green parties' electoral success has a negative effect across time. These results offer additional support to first hypothesis of this paper.

Figure G.1: Effects of green electoral support across time




*Note:* Graph displays point estimates and 95 percent confidence intervals. The horizontal dashed line represents an effect of 0.

# Conclusion

Research has demonstrated that support for climate change mitigation is widespread but far from universal. Both the general public and political elites are divided over environmental issues. Substantial minorities continue to believe that climate change and its associated dangers are exaggerated (Hornsey et al., 2016; McCright et al., 2016b; Poortinga et al., 2011). At the same time, there are growing differences among parties' agreement on climate change (Dunlap et al., 2016; Marquart-Pyatt et al., 2014; Zhou, 2016).

The dissertation focuses on environmental salience and examines the drivers of environmental attitudes among the public and political parties. In particular, the thesis disentangles the above relationships through four chapters/papers. The first three papers focus on environmental attitudes among the general public. The last one focuses on environmental attitudes from a different perspective: it examines political parties' decision to highlight environmental issues.

Paper 1 examines the effect of countries' global integration on individuals' participation in environmental movements. According to the world polity thesis (Boli and Thomas, 1997; Meyer et al., 1997), individuals from nations which are more integrated into the global society have a greater likelihood of expressing environmental concern and participating in environmental movements (Schofer and Hironaka, 2005). However, I posit that this positive effect of countries' integration is mediated by people's predispositions, in particular by their political ideology. The world society stimulates pro-environmental attitudes for individuals on each side of the ideological spectrum. Individuals on the left are more receptive to the world polity's messages and thus keener to participate in environmental organizations. On the other hand, right-leaning individuals are more hesitant

to participate in environmental activism due to their ideology's incompatibility with the policies for environmental reform that usually require market regulation and state intervention. I test my hypothesis with a sample comprising individuals in 40 European countries between 1981 and 2020. The results show that globalization's effect on environmental activism is stronger for left leaning individuals than for their right leaning counterparts.

Paper 2 examines the transnational influence of natural disasters on environmental attitudes abroad. An extensive literature has highlighted that the personal (local) experience of natural disasters can be a focal point that forms environmental views (Baccini and Leemann, 2021; Bergquist et al., 2019; Howe et al., 2014; Konisky et al., 2016; Li et al., 2011; Reser et al., 2014; Walker et al., 2011; Whitmarsh, 2008). Experience of an extreme environmental event induces that climate change is perceived as "more real, immediate, and local" (Carlton et al., 2016). Yet, natural disasters are not confined to state borders. In addition to the local effect identified by previous research, the paper argues for a transnational-level influence, beyond domestic boundaries. The argument is based on two interrelated mechanisms that pertain to the flow of information across borders as a necessary requirement for diffusion to emerge and people's processing of information on events in nearby states. Both mechanisms imply that people will be more aware of environmental disasters in proximate countries and will be more likely to develop feelings of fear, distress, and uncertainty due to these events. Ultimately, my co-authors and I argue that public opinion on the environment is likely affected even if a disaster occurred in a nearby country. We test the proposed cross-national influence of natural disasters on a sample of 32 European countries between 2002-2020. The results provide support for the main hypothesis of the paper, and they show that when deaths, caused by natural disasters in nearby states, increase, environmental salience at home increases too.

Paper 3 analyzes the effect of the Conference of the Parties (COP) on environmental attitudes of the local communities that host them. I push forward the idea that IOs affect social actors (Bakaki and Bernauer, 2017; Bearce and Cook, 2018; Chapman, 2012; Greenhill, 2020; Tingley and Tomz, 2020, 2022; Wallace, 2019) by focusing on one specific tool of IOs, namely international meetings. I stress that international meetings, like the COP, occur in a specific place at a specific time and

therefore can have localized effects. International meetings attract significant attention and a series of events accompany the main event – i.e., negotiations. Local political authorities, social movements, and the media are among the most important actors that gather in the host city and surround the event. Therefore, on the one hand, through the arrangement of these meetings, IOs send signals to the public by legitimizing certain policy options (Bearce and Cook, 2018), such as climate mitigation or human rights protection. On the other hand, in addition to the effect that negotiations can have on the public, the "side-events" publicize even more the message proposed by IOs and the participating states. Empirically, I test my expectation by focusing on COPs that took place in European cities between 2003-2022 and I test their effect on environmental attitudes of the local populations. The analysis consists of two parts. First, I examine changes in environmental preferences before and after a COP. I show that individuals from regions that hosted the COP significantly increased their environmental concern. Second, I concentrate on one COP meeting – COP26 that took place in Glasgow in 2021 – and provide further evidence for the proposed effect.

Paper 4 moves the focus from the public to political parties. In this paper, I focus on party competition, and in particular on mainstream parties' decision to engage with environmental issues. I posit that parties' emphasis on environmental issues is contingent on the electoral success of issue owners and on the environmental emphasis of non-issue owners. Parties have an incentive to de-emphasize environmental issues as soon as issue owners – i.e., green parties – gain electoral support, because the risk of partisan realignment with green parties is high (Abou-Chadi, 2016). On the contrary, parties adjust their strategies in response to issue shifts by their non-issue owner competitors. Parties cannot completely ignore public concerns since voters may perceive it as an action of indifference to their worries (Spoon and Klüver, 2014). This positive influence, however, is contingent on the issue owner. In systems where the green parties have larger support among the electorate, the influence of the mainstream rivals becomes insignificant. Between halting the success of the issue owner and replying to other mainstream rivals, parties prefer the former, because it is regarded as a more direct and possible cost-effective strategy. I test the above theoretical argument by examining the dynamics of party competition on environmental issues in 17 Western European

countries in the period from 1980 to 2021. The results are in line with my theoretical expectations. Issue owners and non-issue owners affect differently parties' decision to emphasize environmental issues. Results also provide evidence that, as green parties increase their electoral support, the effect of non-green rivals' environmental emphasis decreases.

# Contributions and implications

I contribute to the literature on environmental salience by concentrating on the debate around climate change in Europe. Europe is an interesting case. While the European Union is among the largest greenhouse gas emitters[14], it also aspires to be the first climate-neutral continent by 2050[15]. Cooperation at the EU-level does not only require coordination of the state members, but also support from domestic audiences. Without support from domestic social actors, EU's climate change mitigation goals will be difficult to be implemented. Additionally, there is high variation in environmental salience between countries. Parties and individuals do not always support climate change mitigation unanimously.

I capture differences in environmental salience by focusing on two different but equally important domestic social actors: the general public and political parties. Understanding the environmental behavior of these two actors is of great importance. People who are more concerned about climate change, and act upon it, are more likely to support mitigation policies (Bouman et al., 2020; Hagen et al., 2016). However, even if individuals mobilize for the environment and are concerned about it, parties are the actors who ultimately decide to bring environmental issues in the policy debate. Party competition heavily shapes government policy and national governments in turn remain central to policymaking on climate change (Farstad, 2018). Parties also link the issue of climate change to the public, and vice versa, and have important roles in shaping public attitudes.

When it comes to individuals, research has stressed the importance of individual and national level characteristics that influence people's environmental attitudes (Bechtel et al., 2019; Diamantopoulos

[14]https://www.euronews.com/green/2023/05/17/fact-check-is-europe-the-only-part-of-the-world-that-has-reduced-its-greenhouse-gas-emissi

[15]https://www.consilium.europa.eu/en/eu-climate-change/

et al., 2003; Hamilton and Saito, 2015; McCright and Dunlap, 2011; Gillham, 2008; Knight and Messer, 2012; Marquart-Pyatt, 2012; Oreg and Katz-Gerro, 2006; Pisano and Lubell, 2017; Whittaker et al., 2005). I build on this literature and expand it by studying international influences on environmental public attitudes. Regarding political parties, research has documented that there is a strong relationship between environmental salience among the public and parties' responses to climate change (Abou-Chadi et al., 2020; Adams et al., 2004; Spoon et al., 2014). What is less known is the party system dynamics that affect parties' decision to talk about the environment. I add to this literature (Abou-Chadi, 2016; Green-Pedersen, 2019; Meguid, 2005) by examining the role of rival parties on mainstream parties' decision to engage with environmental issues.

The research presented in this dissertation studies the conditions stimulating an increase in environmental salience. This has important policy implications: when environmental salience in a country increases there is a window of opportunity for bolder environmental policies. Most likely, governments can find it easier to push for mitigation and adaptation policies if both parties and individuals engage with climate change issues. In addition, I show that events of different kind (like natural disasters or international meetings) can create the preconditions necessary to advocate for climate change policies.

The thesis provides evidence of some important factors influencing environmental salience in European countries. It highlights the importance of international influences on public opinion and the role of rival parties on mainstream parties' environmental salience. These results can be used for better understanding the dynamics of environmental salience in contexts besides Europe. Internationalization is a process that many regions across the globe have experienced. The propagation of pro-environmental attitudes, the access to news about natural disasters, and the organization of international meetings, like the COP, are not confined to European borders. On the contrary, individuals across the globe are affected by similar messages and processes. In addition, political parties are pivotal actors in all democratic states. The interaction between issue owners –i.e., green parties– and non-issue owners determines parties' emphasis strategies. However, it is worth noting that these strategic dynamics can only happen in multi-party systems. In two-party systems, like that

of the U.S., parties do not compete with both issue owners and non-issue owners; thus, the dynamics of party competition on environmental issues change.

## Weaknesses

As any research endeavor, mine was subject to constraints such as limited resources, data, and time. Paper 1 was my first research paper. Although I had a clear theoretical idea which unpacks the relationship between international integration and environmental protest, data constraints did not allow me to fully explore my research question. There are not many available sources that offer data on environmental protest. The European Value Survey (EVS) is the only dataset that I found and that included a question relative to environmental protest (i.e., participation in environmental organizations). It allowed me to create my outcome variable and to offer some evidence on the proposed influence of countries' integration on environmental activism. Of course, the variable is far from ideal since it only captures participation in environmental organizations and is recorded in five time points. Ideally, I would like to have created a yearly dataset of environmental protest events.

Paper 2, which examines the transnational influence of natural disasters, would benefit from more extensive checks of our proposed theoretical mechanisms. The theory suggests several different mechanisms, egocentric and sociotropic ones, which link disasters abroad with public-opinion changes at home. It could be useful to be able to empirically distinguish between these mechanisms and to fully clarify which are the more influential factors. The data materials we used did not allow us to distinguish among mechanisms. However, it would be worth having more time for better testing the mechanisms behind the main argument.

Concerning paper 3, which focuses on the influence of the COP meeting on individuals' environmental attitudes, I would have liked to be able to geolocate individuals at a finer unit. European surveys on public opinion geolocate individuals at NUTS levels. Although they are narrow enough for analyzing my argument, COPs take place in specific cities. Ideally, I would like to have fielded an experiment at one of the European countries that have hosted the COP. In that way I could improve the internal validity of my estimates. Conducting an experiment would require both time

and resources that I did not have during my PhD.

Finally, regarding paper 4, which focuses on the dynamics of party competition on environmental issues, I would have liked to be able to examine both salience and positions on environmental issues. The Comparative Manifesto Project (CMP), which is the data source I used for my analysis, does not provide information about parties' positions on environmental issues. Therefore, in the paper I solely focused on environmental emphasis. However, the paper would greatly benefit from a distinction between positions and salience. The CMP provides access to manifesto corpora. I would have liked to use these text-as-data for creating a measurement of parties' positions. At the time of writing the paper I only had a basic understanding of textual analysis. If I had more time, I would have tried to elaborate my analysis using manifesto corpora.

## Avenues for future research

The dissertation adds to the debate of environmental salience by examining different perspectives of environmental behavior. Besides the future research directions that I have highlighted in each paper, the thesis as a whole provides several interesting questions to explore in further research on environmental salience. First, one question worth exploring is whether similar dynamics of environmental salience exist outside of Europe. A focus on a different region could corroborate existing results or potentially show important regional differences. Second, further research should study behaviors of other actors, like NGOs, or companies. In this thesis I focus on two social actors (i.e., the public, political parties) relevant in environmental politics. Climate change though is an issue that requires behavioral change by virtually the entire population (Bakaki and Bernauer, 2017). Thus, delving into what drives environmental attitudes of various social actors is essential for understanding the barriers of an effective energy transition.

In addition, within each actor, there is a lot of variation to be explored. For instance, concerning the public, I explore influences on people's participation in environmental movements, their environmental concern, and their intention to vote for the green parties. However, environmental salience is also expressed through other types of behavior, such as willingness to pay higher taxes,

recycling habits, and participation in demonstrations. Concerning political parties, I analyze their engagement with climate change through the space they dedicate on the issue in their manifestos. Parties, however, can also engage with environmental issues through their speeches in parliamentary debates or through their communication. Future research should focus on various behaviors of different social actors for better mapping the different aspects of environmental salience.

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