

The Impacts of Climate Activism

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We review 53 studies on the impacts of climate activism. We present the existing evidence in a map of what we know about climate activism and its impacts. There is strong evidence that climate activism shifts public opinion and media coverage in a pro-climate direction, but this varies by context and the tactics employed. There is more moderate evidence that activism can pressure policymakers to communicate more about climate change, encourage voters to vote in a more pro-climate direction, and financially pressure carbon intensive companies. We review suggestive evidence that protest can influence emissions and environmental policy. Although these studies cover a wide swath of outcome variables, a majority examine intermediate variables, rather than long term impacts. Generalizability is challenged by a bias towards the U.S. and Western Europe. We call for greater focus outside those geographic areas and more attention to activism's impact on public policy and emissions.

Keywords: climate activism; collective climate action; climate change communication

Highlights

- We review 53 studies on the impacts of climate activism
- Activism has clear impacts on public opinion and media coverage
- Activism likely impacts voting and politician communication
- Suggestive evidence on activism's impact on policy or emissions
- Studies are biased towards the U.S. and Western Europe

Introduction

As global temperatures continue to rise and the effects of climate change are increasingly felt across the world, there has been a corresponding surge in climate activism¹ over the past decade (Fisher et al., 2023). Climate activists demand political and corporate action on climate change, using tactics such as protests, marches, and boycotts. They follow in the footsteps of historical social movements that have successfully earned major wins for causes such as civil rights and women's suffrage (Andrews & Gaby, 2015; McCammon et al., 2001). However, there is much debate around the impact of climate activism on different outcomes and what tactics should be used, such as the use of legal versus illegal actions, who should be targeted, and if violence can be justified (BBC, 2023; Bugden, 2020; Gulliver et al., 2021; Schuman et al., 2024).

In this review we have identified 53 of the most recent and rigorous studies evaluating the impacts of climate activism. We looked across a wide range of disciplines to find experimental, quasi-experimental, and observational work. We prioritized papers published within the last few years and met a combination of quality standards. To judge quality, we placed a strong emphasis on sample size, the strength and plausibility of causal inferences, and the extent to which the materials and context closely matched the real-world interventions and outcomes of interest. This research has been relatively siloed, spread between journals of business, finance, sociology, environmental management, political science, psychology, communication, and more. We look at the strength of evidence for a wide range of outcomes, and identify challenges and opportunities in this literature. For search terms and the full list of papers reviewed, see our Open Science Framework (OSF) project page at: <https://osf.io/huq7b/>.

¹In this review we interchangeably use the terms “climate actions” and “climate activism” to refer to the category of collective climate action.

Based on the research we review, we created a descriptive map of the impacts of climate activism (Figure 1). The map represents the existing evidence² between climate activism and different outcomes. This is a simplification of the many factors at play when assessing the effects of climate activism, but its purpose is to represent the key variables of interest and summarize what we can say with confidence based on the reviewed literature. In the map, we represent the strength of the evidence through the thickness of the lines and arrows between variables. The dashed lines in light grey represent links between variables that are explicitly or implicitly assumed to exist in the literature, but which have not been empirically tested by any of the studies in this review.

What We Know So Far

Impacts on the Public

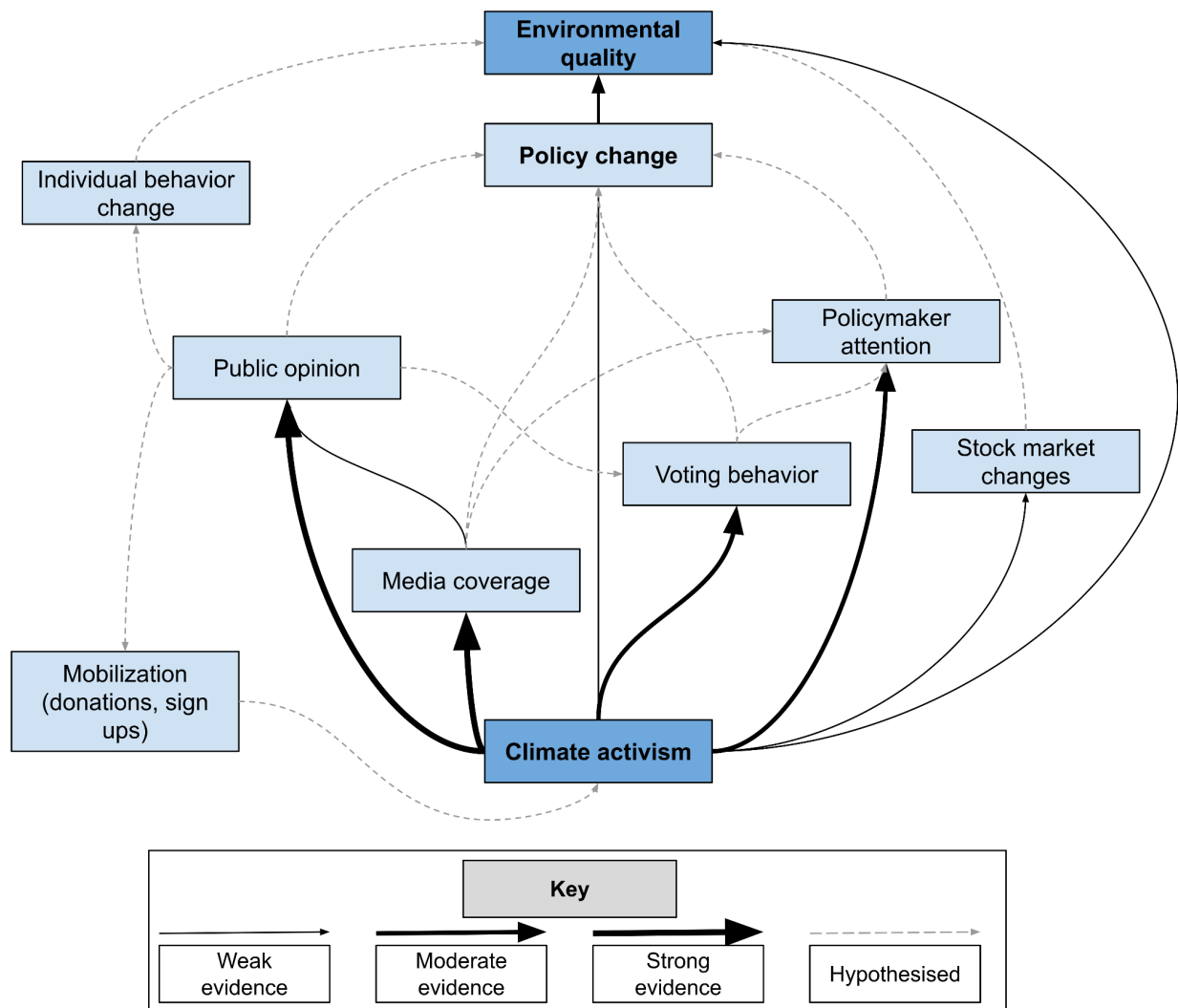
The largest evidence base we found concerns the link between climate activism and public opinion. As with many of the other types of outcomes, this relationship often depends on the specific dependent measures, tactics, and context. First, there is strong evidence that climate protests garner significant attention among the public. Protests can lead to massive increases in whether people have heard at all about the organization conducting the protests, and online search volume in which people seek out information about the protest or organization (Brehm & Gruhl, 2024; Gethin & Pons, 2024; Kenward & Brick, 2023; Ostarek et al., 2024; Schuster et al., 2023).

Beyond awareness, it is essential to understand whether collective climate action leads to increases in new supporters or opponents. In general, we find that collective climate action tends to shift public opinion in the direction of those actions (Kenward & Brick, 2023; Brehm & Gruhl, 2024; Shuman et al., 2024; Bugden, 2020; Özden & Glover, 2022a). In a panel study in Germany, for example, researchers found that concern about climate change increased by about 1.2 percentage points following protests (Brehm &

²It is inherently a judgement call to assign a label of weak, moderate, or strong to a body of evidence, when decisions have to be made on how to weigh multiple weaker studies against a few really rigorous studies, or when different studies have conflicting conclusions. We prioritized evidence arising from randomized control trials, that measured actual behavior, had larger sample sizes, and were more recently published (given the quickly changing context of climate activism).

Gruhl, 2024). Additionally, the increases in climate concern were larger when baseline concern levels were lower, and there was little evidence of backfire effects.

Figure 1. Map representing the strength of evidence for linking climate activism to various outcomes, based on the literature reviewed here.



Note. The strength of evidence is based solely on the literature captured in this review. We balanced the amount, quality, and representativeness of evidence in deciding on the weights to assign to each link. This is somewhat subjective. We have separated mobilization and voting out from individual behavior change as the two types of public behaviors most relevant to climate activism.

Although climate activism tends to increase public support, it depends on the behavior and tactics used, and sometimes effects differ depending on the audience (Shuman et

al., 2024; Bugden, 2020; Özden & Glover, 2022a; Ostarek et al., 2024). In a survey experiment in a US sample, for example, results showed that support for the movement increased when the protest was a peaceful march, but not when it was violent (Bugden, 2020). Further, the study showed that this pattern was observed for Democrats and Independents, but not Republicans. When civil disobedience was described, it increased support only among Democrats. However, there was again no evidence of backfire effects, even for violent protests. Often, particularly for disruptive protests, there are often still concerns that such actions will reduce public support. In another study of disruptive protests by Just Stop Oil in the UK, however, no drop in support for climate policies was found (Özden & Glover, 2022a). If anything, there was a small *increase* in people's reported likelihood of participating in environmental activism.

It's important to note that backlash does happen (e.g., see Ostarek et al., 2024 for a study on animal rights protest), and it is plausible that disruptive or violent protest could lead to some negative outcomes that are rarely measured in the studies we reviewed, such as increasing support for counter-protest (de Kleer et al., 2024). It is also plausible for there to be no overall backlash on average, even if some backlash is observed for particular subgroups of the population (e.g., for people with lower baseline support for climate policies; Ostarek et al., 2024).

There is also growing evidence that the impact of collective climate action depends on the context of other actions being taken for the same cause. For example, the *radical flank effect* occurs when a more extreme faction within a social movement increases support for the moderate factions (Haines, 1984, 2022). For climate activism specifically, experiments have generally supported this finding (Dasch et al., 2024; Ostarek et al., 2024; Simpson et al., 2022).

Impacts on the Media

One potentially important outcome of climate activism is its impact on the media ecosystem, which determines how individuals beyond immediate witnesses hear about actions. The media has an agenda-setting role for climate change, and is a lens that shapes public and elite perceptions of climate activism (Chinn et al., 2020; Wouters &

Walgrave, 2017). Indeed, activists may hope to attain media coverage in order to shift the “Overton Window” of what views are socially acceptable on a given issue (Vo, 2019). Schifeling and Hoffman (2019) have found evidence of the *radical flank effect* in media coverage, whereby activism on divestment has helped previously-extreme ideas such as a carbon tax gain attention and legitimacy in the mainstream. Media coverage of global climate marches is also associated with internet search activity relating to climate change (Sisco et al., 2021).

Climate actions can attract more media coverage than domestic extreme weather events, though less than UN Climate Change Conferences (Lochner et al., 2024). Whether this attention is episodic or more sustained varies by country (Wozniak et al., 2021). The quantity and sentiment of media coverage may depend on the types and targets of actions (e.g., Kenward & Brick, 2024). For example, legal actions in the UK are generally covered more favorably than illegal ones, and receive more coverage. Actions that target industry tend to attract more coverage than those that target other actors, while actions that target the public are covered more favorably than those that do not (Scheuch et al., 2024). This disruption-favorability finding has also been replicated in a German context, where coverage of the more disruptive Last Generation group is more negative than that of Fridays for Future, which primarily engages in legal protest (Dablandar, 2024).

Impacts on the Political System

Another major target of collective climate action is both elected and unelected political stakeholders. Studies have relied on a variety of outcome variables to explore the impact of climate actions. These studies demonstrate that collective action is partially, but not entirely, politically effective, across these different outcomes. In the electoral realm, the two most often studied outcome variables are the impact of climate collective action on voters and elected officials. Valentim (2023), studying the Fridays for Future protest movement in Germany, finds that areas that were exposed to protests had a higher share of the vote (+2-2.5 percentage points) go to the Green party, and that repeated exposure

increased this effect.³ Fabel and colleagues (2022) replicated these findings, while also finding that protests shift votes from the far right AFD party to the Center-Right Christian Democrats, a more climate friendly right-wing party. These electoral effects may not generalize beyond one set of protests in one country, however.

In examining the impact of protests on elected officials, Barrie et al. (2024) found that local climate protests in the UK encouraged MPs to speak more about the climate, but only online. Rogers et al. (2024) also found that protests encouraging home insulation funding increased mentions of home insulation in the UK Parliament. Schürmann (2024) replicated these findings in the German context, finding that Fridays for Future protests increased pro-environmental political communication. Nisbett et al. (2024) went further, crediting the passage of major climate policies in the UK to climate protests, based on new narratives in political communication.

There is far less evidence on whether protests can pressure lawmakers to vote in a more climate-friendly way, or affect policy. There is some evidence, however, that climate protest can influence policy outcomes at a more micro level. For example, Temper et al. (2020) find that a quarter of projects targeted by protests are delayed or canceled. In sum, there is good evidence that climate protest can influence voting and political communication, at least in Europe, but there is a lack of evidence on if those intermediate variables translate into policy change.

Impacts on Other Outcomes

There are several additional dependent variables in our reviewed literature that do not fit neatly into the categories of public opinion, media, and political outcomes, but nonetheless have clear implications for the impacts of climate collective action. Chief among these are financial variables, connected to protest tactics that aim to put financial pressure on the fossil fuel industry. Hansen and Pollin (2022) find that divestment movements in particular fail to inflict long term financial damage on companies they target but can be an effective way to shift public opinion. Studying the connection between

³Considering that in the 2021 Federal Election the Greens won about 15% of the vote, this is a significant electoral effect.

general climate protests and the performance of the general stock market, climate protests may reduce the value of carbon intensive companies (Ramelli et al., 2021) and raise the value of environmentally friendly ones (Schuster et al., 2023). However, these effects are often short lived (Ramelli et al., 2021) and can be confined to specific regions (Schuster et al., 2023). Longer term declines in company share value, which is likely necessary to put true pressure on company business models, is more common when there is a sustained protest movement targeting a specific company (Lewis et al., 2017). The potential tradeoff between the breadth of a protest and the depth of its financial impact needs further research.

Ultimately, the variable with the closest relationship to actual climate impacts is carbon emissions. While studying the link between protests and emissions raises methodological challenges (Fisher & Nasrin, 2021), several recent studies have proposed that protests have an effect on emissions. Hungerman and Moorthy (2023), for example, found that places with lower levels of Earth Day protest in the United States in 1970 had higher air pollution 20 years later. We recognize that the impact of protest tactics may have changed dramatically in the last 50 years, but cite Hungerman and Moorthy (2023) as an example of a study examining the long term impacts of climate activism. In the shorter term, Rogers et al. (2024) attempted to quantify the emissions reductions from the Insulate Britain Campaign, finding that those reductions were highly cost-effective. There are some indications that the relationship between protests and emissions reductions might be regional in nature, with a strong correlation between emissions and protests in Europe and Asia but not elsewhere (Adedoyin et al., 2020). Since policy is an important mediating variable on the path between protest and emissions, it is important, even if difficult, to try and disentangle their impacts from one another. Muñoz et al. (2018) do just that in the United States, finding that state level emissions decline with increases in environmental protest. While all of these studies are encouraging, most of them do not try to make causal claims in the face of the methodological challenges involved, leaving unknown the degree to which the relationship between collective action and emissions is causal in nature.

Limitations in this Literature

Selection of Outcomes

Many of the studies we identified examine intermediate or secondary outcomes, without linking them to policy change that will lead to emissions reductions. However, there is an active debate within the literature that casts doubt on the meaningfulness of shifting public opinion as a means of achieving political change (Young & Thomas-Walters, 2023). Evidence from other historical social movements suggests that instead success is more likely to come from focusing on the elite sectors that can force politicians to confront the climate emergency. Indeed, none of the studies included here provide evidence that public opinion has such an impact. Even within the political sphere, more studies look at proxies such as political communication than at policies or legislation. Given the difficulty in causally attributing new policies of environmental impacts to a single variable this focus is understandable, but studying later stage variables is not impossible. See for example the impact evaluation of the Insulate Britain campaign conducted by Rogers et al. (2024), or innovative evaluations of activism for other causes, such as those by Black Lives Matter (e.g., Ebbinghaus et al., 2024). We encourage more ambitious projects like these, even though they are challenging.

Methodological Critiques

The methodological approaches employed in the literature so far have been diverse, but one of the most common methods was event-study or difference-in-differences (DiD). DiD studies compare the changes over time between a treatment and control group, assuming that both groups would have had parallel outcomes in the absence of treatment. These studies use observational data and some kind of collective climate action as a non-randomly-assigned treatment. While these estimators are useful in that they allow us to study the impact of protest in a non-experimental setting, DiD methodology is fast-evolving and most papers we reviewed using DiD relied on the outdated Two-Way-Fixed-Effects (TWFE) regression (see Roth et al. 2023, for the shortcomings of TWFE). Future researchers using DiD in this field should consider other estimators (see Weiss et al.,

2024 for suggestions). Our methodological concerns extend to some public opinion studies as well: they often have small sample sizes, which can affect the balancing effects of random assignment and lead to spurious results (Goldberg, 2019).

Aside from methodological concerns, we acknowledge that publication bias may affect our conclusions in ways we cannot fully account for. We attempt to address this by reviewing both published and unpublished work (e.g., preprints), as well as highlighting informative null results⁴. But still, it is plausible that findings suggesting that climate activism leads to positive effects are more likely to be published, potentially leading to overconfident conclusions.

Generalizability of the Findings

The focus on Western, Educated, Industrialized, Rich, and Democratic (WEIRD) populations is a long-recognised issue in psychology and other social sciences (Henrich et al., 2010), and the work we review here is no exception. Although we identified a large body of studies on climate activism, there is an overwhelming bias towards Western democracies, particularly Germany, the UK, and the US. We found very little research from non-democracies or the Global South, such as China and India. This limits what we can say about the effects of climate activism in places with different forms of political governance or freedom of the media.

Future Research

Based on the literature we have reviewed here, we put together an agenda for future research on the impacts of collective climate action (Table 1).

Table 1. A future research agenda for evaluating climate activism.

Agenda Item	Detailed Explanation
Expand geographic base	There are many different types of governmental, economic, and media systems around the world, and climate activism may have very different impacts in non-Western Europe and U.S. contexts.

⁴e.g., Hansen & Pollin, 2022 on fossil fuel divestment.

	We have identified many strong research designs in this review, but they need to be replicated elsewhere.
Go beyond the “if” to the “how”	Not enough studies have compared different climate actions to identify which audiences and tactics are the most effective for achieving different outcomes. This knowledge is vital to understanding climate activism on the ground. Future research could include qualitative theory-based approaches to unpack contributing factors in complex systems.
Address the distal impacts	Arguably the most important impact of any climate action is achieving actual policy or environmental change, and yet we found very few studies looking at these outcomes. Future research should demonstrate that outcomes have meaningful impacts. This includes going beyond measures of intentions and measuring real behavior whenever possible (Lange et al., 2023).
Examine climate action at multiple levels	Most of the studies in this paper examine large scale climate actions, many at the national level. However, many of the most energetic climate actions in recent years have taken place at more micro levels, for example towns in the United States (Scheuch, 2024) or college campuses (Aron et al., 2024). Given that these efforts are proliferating and require far less effort than large scale protests, more studies should examine the outcome of these micro protests.
Improve rigor	Unfortunately, even among our selection of the most rigorous available studies, there were still some methodological issues. In particular, experimental studies need to ensure they are adequately powered, and difference-in-difference studies need to ensure they are using the most up-to-date estimators.
Look long-term	Very few studies have looked at the long term impacts of climate activism. We know from persuasion research that much of the effects of persuasive information quickly attenuates. Is it the same for climate activism?

In conclusion, we have identified a large and robust literature evaluating many of the impacts of climate activism, but there still remains much to do on the subject. We can say with confidence that climate activism is generally a positive force, but we need more research to more deeply understand the impacts of the climate movement.

Acknowledgements

Thank you to members of the Social Change Lab and the Yale Program on Climate Change Communication for constructive feedback on earlier versions of this paper. This research was supported by the U.S. Energy Foundation, MacArthur Foundation, and Arthur Vining Davis Foundations.

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*Note: + indicates one of the 53 papers that evaluate the impacts of climate activism, * are papers of special interest, and ** are papers of outstanding interest.*

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Barrie and colleagues describe the results of a large-scale study examining the effects of climate protest on political speech in the United Kingdom. They specifically focus on the effects of Fridays for Future (FFF) protests from June 2017 to December 2019. The outcome of interest was the climate change content of parliamentary speeches and tweets from legislators. Results show that Fridays for Future protests lead to substantial increases in climate-related tweets, but no difference in offline parliamentary speeches. This study is especially important because it focuses on a highly influential audience (i.e., legislators) and draws the important distinction between online and offline speech.

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⁺Ramelli, S., Ossola, E., & Rancan, M. (2021). Stock price effects of climate activism: Evidence from the first Global Climate Strike. *Journal of Corporate Finance*, 69, 102018. <https://doi.org/10.1016/j.jcorpfin.2021.102018>

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Rogers and colleagues report on the effects of the Insulate Britain campaign on political discourse and government policy. Following Insulate Britain, a series of nonviolent disruptive protests on UK motorways in 2021, mentions of home insulation by the media and in Parliament increased significantly. The Great British Insulation Scheme was announced about a year following the campaign, and the researchers suggest that there is a 10% chance that Insulate Britain sped up the policy package by about one year, around 0.51 tons CO₂/£ in reductions. This study is important particularly because of its practical focus and its analysis of the efficiency of taking certain actions, expressed in the level of CO₂ reduction.

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Schuster and colleagues examine the effects of 11 global climate strikes by FFF on stock prices in Europe and the United States. Results show that all strikes led to significant changes in stock valuation, but the direction and magnitude of the effects depend on a combination of: the level of public attention the demonstration receives, the companies' environmental performance grades, whether effects are anticipated or reactive, and whether it's in a European or US context. This study is important because it examines a highly important, real world, and rarely studied dependent variable, and accounts for several key contextual factors that moderate the effects.

⁺Shuman, E., Goldenberg, A., Saguy, T., Halperin, E., & van Zomeren, M. (2024). When are social protests effective? *Trends in Cognitive Sciences*, 28(3), 252–263.
<https://doi.org/10.1016/j.tics.2023.10.003>

⁺Shuman, E., Saguy, T., van Zomeren, M. & Halperin, E. (2021). Disrupting the system constructively: testing the effectiveness of nonnormative nonviolent collective action. *Journal of Personality and Social Psychology*, 121(4), 819-841.
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Simpson and colleagues conduct two survey experiments that investigate whether radical social movement factions increase support for moderate factions. They independently manipulate whether the treatment faction has a radical or moderate agenda and whether it employs radical or moderate tactics. Results show that, within the same movement, a radical faction increases support for a moderate one, and that this is driven more by differences in tactics than their agenda. They find this is likely, in part, because radical factions make moderate factions appear less radical and increase identification with the moderate faction. These findings are important because they emphasize that social movements are not monoliths, but rather a collection of factions that influence how one another is perceived.

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<https://doi.org/10.1016/j.jenvp.2021.101596>

⁺Swim, J. K., Geiger, N., & Lengieza, M. L. (2019). Climate change marches as motivators for bystander collective action. *Frontiers in Communication*, 4.
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⁺Temper, L., Avila, S., Bene, D. D., Gobby, J., Kosoy, N., Billon, P. L., Martinez-Alier, J., Perkins, P., Roy, B., Scheidel, A., & Walter, M. (2020). Movements shaping climate futures: A systematic mapping of protests against fossil fuel and low-carbon energy projects. *Environmental Research Letters*, 15(12), 123004.
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^{***}Valentim, A. (2023). *Repeated exposure and protest outcomes: How Fridays for Future protests influenced voters*. Open Science Framework.
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Valentim finds through analysis using a difference-in-differences design that exposure to Fridays for Future (FFF) protests in Germany led to an increase in votes for the Green Party. Further analysis finds that repeat exposure to protests increases the effect and persuades voters of the FFF policy positions, and these effects spill over to other European countries. This focus on real voting outcomes makes this study especially important, and in particular how these effects might not be confined to the places where the protests occur.

⁺van Dijk, P. H. J. M. (2021). The impacts of climate protests on opinion and policy: The case of the Netherlands 2019 [Master Thesis].
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Wouters, R. & Walgrave, S. (2017) Demonstrating power: How protest persuades political representatives. *American Sociological Review*, 82(2), 361–383.
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⁺Wozniak, A., Wessler, H., Chan, C., & Lück, J. (2021). The event-centered nature of global public spheres: The UN climate change conferences, Fridays for Future, and the (limited) transnationalization of media debates. *International Journal of Communication*, 15(27). <https://ijoc.org/index.php/ijoc/article/view/14843>

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⁺Young, S. (2019). Protests, regulations, and environmental accountability in Cambodia. *Journal of Current Southeast Asian Affairs*, 38(1), 33–54.
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