Attitude-behavior relationship on the issue of environmental protection

by

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Declaration

I, the undersigned Elisabetta Mannoni, candidate for the degree of Doctor of Philosophy at the Central European University Doctoral School of Political Science, Public Policy and International Relations, declare herewith that the present thesis is exclusively my own work, based on my research and only such external information as properly credited in notes and bibliography. I declare that parts of this dissertation have already been published in the journal *Parliamentary Affairs*. I declare that no unidentified and illegitimate use was made of work of others, and no part the thesis infringes on any person's or institution's copyright. I also declare that no part the thesis has been submitted in this form to any other institution of higher education for an academic degree.

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Abstract

This dissertation investigates the multifaceted relationship between environmental attitudes and pro-environmental behaviors.

The first empirical chapter systematically examines the attitude-behavior gap across ten pro-environmental behaviors using the International Social Survey Programme (ISSP) Environment IV data from 28 diverse countries. The results reveal substantial variability in behavioral consistency: environmentally concerned individuals consistently perform private actions such as recycling and product boycotts, yet significantly less frequently engage in public behaviors like protesting or joining environmental groups. The findings also corroborate the hypotheses that women are less likely to exhibit a gap for behaviors traditionally associated with gender stereotypes, while individuals from younger generations are less likely to do so for behaviors more evidently related to political participation.

The second empirical chapter addresses a critical gap in the conceptualization and measurement of pro-environmental voting behavior by introducing an original measure that links individuals' vote choices with expert-assessed party environmental stances and issue salience, based on data from the European Social Survey (ESS) and the Chapel Hill Expert Survey (CHES) from 26 European countries. The analysis demonstrates that moral obligation significantly predicts pro-environmental voting, while collective response efficacy does not. It also identifies a persistent green gender gap and notable generational differences, indicating that younger, more educated voters more consistently align their environmental concerns with their electoral choices.

The third empirical chapter utilizes a pre-registered survey experiment in Italy to explore the causal pathway between exposure to climate activism – specifically, protests targeting artwork – and environmental attitudes and behaviors. Contrary to common assumptions, the findings reveal predominantly null effects, suggesting that such disruptive activism neither substantially mobilizes public support nor provokes backlash. However, respondents' prior attitudes toward protest tactics moderate responses, with sympathetic individuals showing modest increases in environmental engagement.

Together, these studies contribute to theoretical and policy debates by providing nuanced insights into how environmental concern relates to pro-environmental behavior across different contexts and different types of behaviors.

Acknowledgments

Talking about the gap between attitudes and behaviors – the process of writing this thesis has come with its ups and downs. Despite a strong desire to finish, hard times were certainly part of the journey. In the past 4.5 years, I went through periods of immersive flow, with late nights in the lab or at home eating mainly quesadillas and banana oat milkshakes, as well as stretches of much-needed absolute detachment from this work. Whenever you think pursuing your PhD is the number one priority, life finds its own ways to remind you that there's much more you should be taking care of. If you're lucky enough, though, you have a whole team supporting you in facing both – the PhD and the life that happens while you're at it. I was, indeed, lucky enough, so I'm afraid this acknowledgments section won't be short.

The first thank you goes to Florian Weiler. Before starting the PhD, I was advised to choose a responsive supervisor – someone who wouldn't leave me waiting weeks for email replies, only to provide brief, cryptic comments. Florian matched that description very well: timely responses, thorough comments. I was also advised to choose a supervisor who would match my vibe and timing – if you are too lazy and unorganized, go for a pusher; if you are very independent and work at your own pace, go for someone who gives you space. I am not sure where I fit, but I can tell I found an understanding person to supervise my work. Someone who knew exactly when to send that reminder email after I had missed a promised deadline, but also when to step back and give me space to breathe during difficult personal times. He created the conditions to make my work easier and less lonely: I presented the very first draft of the first paper at a small seminar series that Florian had set up for his supervisees to present and give feedback to each other, and that was probably the nudge I didn't know I needed to really get started. He supported every last-minute request; taught me to dig deeper into theory and not take causal mechanisms for granted; endorsed my overload of teaching duties simply because he knew it gave me energy, even though it meant less time for the thesis; he just recently spent three hours helping me prepare for an important interview, and always pushed me to aim higher with my submissions (I will, I promise). So thank you, Florian, for the patience, the responsiveness, and the kindness – they made all the difference in this journey.

The second Thank you definitely goes to Levi Littvay, who said he was "happy to" join the supervisory panel when I asked, and then proceeded to reply to my first draft with some of the harshest feedback I had ever received. Hopefully I took the best out of it and then I probably have bothered him more than I should have as a secondary supervisee. All I can say today is that it was worth it. Levi is one of the most generous people I have met in academia. Always hyper-busy, but never too busy to accept a request for help. Always with a towering pile of reading material, yet never a pile so high that your draft can't find its way onto it. I have lost count of the rules-of-thumb I have learned talking to him and reading materials he suggested, which are now shaping the way I think about research (and

Table of Contents

List of Tables

List of Figures

Introduction

In the past few decades, climate change has become a defining global challenge, profoundly affecting policy agendas and individual behavior. The Intergovernmental Panel on Climate Change (IPCC) repeatedly warned against the accelerating pace of global warming (IPCC 2023). Alongside the growing scientific consensus, public concern about environmental issues has fluctuated over time, often altered by economic conditions, political discourse, and media coverage. In their recent longitudinal analysis, Franzen and Bahr (2024) have documented an overall increase in global environmental concern over the past three decades, pointing at periodic declines due to e.g., major economic downturns. Despite widespread recognition of the environmental crisis, a key overarching question arises: how does such heightened environmental concern translate into tangible behaviors?

While environmental concern has been widely studied as a driver of pro-environmental action, the relationship between attitudes and behaviors remains complex and inconsistent. In the early XX century, the sociologist LaPiere (1934) illustrated how what we labeled as attitudes or intentions could not be assumed to be a good predictor of actual behavior. The author warned against the temptation and deceiving tendency to use, in social research, individuals' answers to attitudinal questions included in questionnaires as proxies for actual behavior. "Only a verbal reaction to an entirely symbolic situation can be secured by the questionnaire. It may indicate what the respondent would do when confronted with the situation symbolized in the question, but there is no assurance that it will" (Piere 1934: 236).

In other words, how counterintuitive as it might seem to some, verbal intention to behave in a certain way and actual behavior do not necessarily coincide, and it would be misleading, to say the least, to conduct social research assuming otherwise. What seemed at first a

puzzling fact that would require more attention has ever since been at the center of numerous studies conducted mainly by social psychologists, who, over the decades, elaborated different theories to make sense of such a discrepancy. The first more widely acknowledged result of the progressive integration of new findings into the pre-existing theory is the distinction between attitudes and behavior and the understanding that these should by no means be used as proxies for each other, simply based on the data at hand. While that may seem obvious, research is not so rarely conducted on the basis of such a fallacious assumption (Dunlap & Van Liere 1978).

Given the increasing salience of climate change in political discourse, it is crucial to understand how pro-environmental attitudes and behaviors relate to each other, why concern does not always translate into action, and under what conditions it does. This dissertation systematically examines this issue by addressing three interrelated sets of research questions: First, under what conditions does environmental concern translate into pro-environmental behaviors, and when does a gap emerge? What psychological, social, and structural factors moderate the relationship between attitudes and behaviors? Second, how can pro-environmental voting be conceptualized beyond traditional Green Party support, and to what extent does environmental concern affect voting behavior when environmental issues are mainstreamed across party platforms? Finally, can exposure to pro-environmental activism impact behavioral engagement and environmental attitudes? Each of these research questions is addressed in an independent but interrelated study. The three studies contribute to advancing the understanding of the relationship between environmental concern and pro-environmental behavior.

Theoretical Contributions

The distinction and gap between environmental concern and pro-environmental behavior is at the crossroad of research in social psychology, behavioral studies, and environmental politics. If environmental concern alone is insufficient in predicting behavior, what additional factors explain variations in pro-environmental engagement? To tackle this question, one should understand the psychological, social, and structural barriers that prevent individuals

from aligning their actions with their attitudes.

A central contribution of this dissertation, particularly in the first chapter, is a reassessment of the green attitude-behavior gap by systematically unpacking its variations across different behavioral domains, acknowledging that different behaviors exhibit varying degrees of attitude-behavior consistency. While existing studies have often treated this gap as a generalizable phenomenon, this research shows that its magnitude is not uniform across behaviors. By distinguishing between private (e.g., recycling, reducing air travel, shifting towards a plant-based diet) and political (e.g., signing petitions, joining a protest, boycotting a product) pro-environmental behaviors, this dissertation provides a more granular understanding of when and why the gap between environmental concern and pro-environmental behavior emerges. Additionally, it examines key moderators of this gap (gender, generations, political ideology) offering new insights into which groups are most likely to act consistently with their concern, and discussing why that may be the case. Beyond providing further evidence on the value-action gap (Barr 2006), this contributes substantially to the literature on the growing green gender gap (e.g., Brough et al. 2016; El Khoury et al. 2023; Hunter et al. 2004; McCright 2010; Tindall et al. 2003), and adds relevant insights to the emerging literature on the role that younger generations play in fostering environmental engagement (e.g., Biswas 2021; Kong & Jia 2023; Liu et al. 2022).

The second major contribution of this dissertation lies in its conceptual and empirical refinement of pro-environmental voting. Traditionally, research has equated voting in support for the environment with support for Green parties – an assumption that is increasingly inadequate in contemporary politics. As environmental issues become mainstreamed across party platforms, citizens may prioritize environmental protection while voting for parties that are not explicitly labeled as Green. This dissertation, in its second chapter, introduces an original measure of pro-environmental voting that assumes even non-green parties can be rather pro-environmental in their stances. It does so by linking individual vote choice to party-level environmental salience and position data based on expert-assessed party positions (CHES 2019). This provides a more accurate and generalizable measure of environmental voting, which includes but is not limited to the support for Green parties. This approach

overcomes previous limiting assumptions about the political expression of environmental concern in voting and offers a more nuanced (rather than dichotomous) and context-sensitive measure of pro-environmental voting behavior, that reflect more the current salience of the issue in many political systems around the world. Besides contributing with a novel measurement and concept, the empirical findings of this paper too, add to the literature on the attitude-behavior consistency gap (Barr 2006), green gender gap in politics (El Khoury et al. 2023) and the key role of ideology in predicting pro-environmental behavior and the politicization of climate change (McCright & Dunlap 2011)

The third major theoretical contribution of this dissertation is its examination of the impact that climate activism – specifically, protests targeting artwork – has on attitudes and behaviors regarding environmental protection. While existing literature and media narratives often assume that such disruptive protests either alienate the general public or mobilize greater support, empirical evidence on is rather scarce, given the timeliness of the issue. Based on an original pre-registered survey experiment conducted in Italy, this dissertation provides robust causal evidence, as it systematically tests the impact of exposure to climate protests on multiple dimensions of pro-environmental stances. The findings challenge common assumptions about the backlash effects of climate activism targeting artwork - as no evidence is found to support that such protests significantly alienate the general public from the environmental cause. Rather, their effects appear nuanced and conditional on prior attitudes toward protest tactics. With that study, the dissertation contributes to the theoretical debates surrounding the impact of disruptive protests (e.g., Dixon et al. 2019; Feinberg et al. 2020; Hart & Nisbet 2012; Zhou 2016); and it substantially adds to the still very limited literature on climate protests targeting artwork (Kinyon et al. 2023; Shuman et al. 2024; Zamponi et al. 2024). Finally, it further spotlights the critical role ideological predispositions continue to play, corroborating the idea of an ongoing politicization of environmental issues in contemporary society, and confirming a finding that emerges solid throughout the entire thesis.

Taken together, these contributions provide a more comprehensive understanding of how environmental concern relate to environmental action. By building on established theories

and relying on fresh survey data, novel measurement strategies, and experimental methods, this dissertation contributes to the existing academic debates in political psychology and environmental politics.

Empirical Approach and Methodology

This dissertation strongly relies on survey data of various types and statistical methods. The choice of data sources and methods in this dissertation is motivated by the need to balance generalizability, measurement precision, and causal inference. Large-scale public opinion survey data from ISSP and ESS (employed in the first and second paper, respectively) allow for cross-national comparisons and generalizability. Dataset linking (between ESS and CHES) enhance measurement validity by integrating individual and party-level characteristics. However, observational data alone cannot establish causality, so the dissertation employs a pre-registered survey experiment, which allows to isolate causal effects of exposure to climate activism on environmental stances.

These choices do not come without limitations. For instance, in-depth qualitative interviews could clarify interpretations and mechanisms that are only supposed in this thesis but not directly tested. Broader data collections or more highly powered experiments could allow to test the hypotheses across more diverse contexts or to detect even very small effects. However, given budgetary constraints, this dissertation contributes innovatively by leveraging very fresh data, some of which is originally collected. It also advances conceptualizations and novel measurement strategies – such as the pro-environmental voting scores, which can be widely deployed in future studies on electoral support for pro-environmental parties. Finally, the dissertation focuses on timely yet understudied topics, such as climate protests targeting artworks – a phenomenon that, despite its relevance, is at the moment rather unexplored in political science.

Each dataset used in this dissertation was chosen to maximize measurement validity and timeliness of data. The ISSP Environment IV (International Social Survey Programme, Environment IV), released in 2023 – with a substantial delay due to the Covid-19 pandemic – was selected because explicitly designed to measure environmental attitudes and behaviors,

offering a rich array of behavioral indicators rather than treating pro-environmental behavior as a monolithic construct. That allowed for an unpacked, more nuanced analysis of the value-action gap, examining how high levels of environmental concern translate into different types of pro-environmental behavior. Moreover, ISSP includes data from understudied regions, such as Southeast Asia, including several autocratic regimes, thus providing new empirical insights beyond the usual focus on Western liberal democracies. The ESS10 (European Social Survey, Round 10), released in 2023 was chosen primarily for its timeliness and internationally acknowledged quality. It was linked to a party-level dataset based on expert survey data – namely, CHES 2019 (Chapel Hill Expert Survey). The decision to employ CHES data instead of relying on party manifesto data (e.g., Comparative Manifesto Project) to determine environmental salience for each political party, is due to the fact that party manifestos are deliberately crafted to sell a specific image of the party to the public and so they may overstate or downplay a party's true environmental commitment. By contrast, CHES expert assessments, (which are clearly not infallible either) are based on a broader evaluation of party stances and provide a more accurate reflection of where parties truly stand on environmental issues. Thus, CHES should offer a less biased and more reliable measure of party-level environmental commitment.

While large-scale surveys provide invaluable data, they are subject to social desirability bias (Fisher & Katz 2000), and that applies to both pro-environmental attitudes as well as to self-reported pro-environmental behaviors (Kormos & Gifford 2014). In an attempt to mitigate these concerns, this dissertation sets very high thresholds for classifying behaviors or attitudes as pro-environmental. That ensures that only respondents who meet demanding consistency criteria are labeled as actually engaging in pro-environmental behavior or being environmentally concerned.

This dissertation, in its last part, relies on an original survey data collection which includes a survey experiment. The reason why original data was collected is threefold: to capture the stances of public opinion on a very timely issue which had not been surveyed yet; to do so using an experimental design; and to actually observe behavior rather than rely on self-reported measures given the limitations mentioned above. As detailed in the third paper,

the survey experiment employed the reporting of a real-world climate protest event as the treatment, rather than artificial priming, to ensure that respondents reacted to a credible, real-world scenario and to avoid the use of deception. The experiment included a behavioral measure, as respondents at the end of the survey were offered the opportunity to donate their extra survey compensation to an environmental organization among the three listed, or else keep it for themselves – allowing for a real, observed behavioral outcome. It should be noted that the survey experiment followed a pre-registered design. This was done for transparency reasons, and as a guarantee against p-hacking or selective reporting (Simmons et al. 2011). The pre-registration, filled in before the data was collected, specified hypotheses, sample size, and analytical strategies, ensuring that findings were not influenced by post-hoc modifications.[1]

Structure of the Dissertation

The dissertation is structured around three standalone but interrelated papers, each addressing a specific dimension of the relationship between environmental attitudes and behaviors. The first paper (chapter 1) explores how individuals who are very concerned about the environment perform on a set of ten different behaviors and investigates the drivers of their attitude-behavior inconsistency. The second paper (chapter 2) challenges conventional measures of environmental voting and develops an alternative framework that links individual vote choice to the *greenness* of parties and researches the drivers of pro-environmental voting, among socio-demographic characteristics and psychological traits. The third paper (chapter 3), using original data from an online survey experiment, provides evidence on the impact of climate protests targeting artwork on public opinion environmental stances.

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[1]The pre-registration applies only to the survey experiment, as it is the only dataset employed in this dissertation that was collected by the author. Pre-registering secondary data analyses is less common and arguably less necessary once the dataset has been released and is publicly available.

1 "I'm worried, but": Unpacking the gap between environmental concern and pro-environmental behavior

Please note this chapter is based on the article *"I'm worried, but": Unpacking the gap between environmental concern and pro-environmental behavior*, Revised & Resubmitted to *Swiss Political Science Review*.

1.1 Introduction

Understanding why individuals fail to act in accordance with their stated intentions has been a key focus in social psychology for decades. When it comes to the specific issue of environmental protection, both standard and behavioral economics provide plenty of reasons why it does not serve the interests of either rational or boundedly rational individuals to behave pro-environmentally (Bazerman 2006; Gardiner 2010; Karp 2005; Quoidbach et al. 2013; Shu & Bazerman 2010; Sörqvist & Langeborg 2019). In fact, while concern for the environment, as well as some basic pro-environmental behaviors, like recycling, are now becoming increasingly widespread, more radical pro-environmental actions requiring substantial lifestyle changes remain far less common (Blake 1999). Nonetheless, people do not always fail to act consistently with their environmental concern, even when the

pro-environmental behavior may not maximize their utility. Who is more likely to adopt behaviors that align with their attitudes toward the environment? How does the type of behavior considered influence this alignment? Which social groups, if any, tend to act consistently with their environmental concerns, and for which behaviors? At a time when the call for action to protect the environment has been extended to virtually all stakeholders, addressing these questions becomes particularly relevant for policymakers seeking to foster sustainable practices among citizens or ensure their support for environmental policies that directly affect them. Environmental protection is, together with healthcare, an area where actual behavior is more commonly inconsistent with individual attitudes. The literature abounds with studies targeting one desirable, specific eco-friendly behavior – e.g., quitting smoking (De Young 1996), purchasing sustainable clothing (Carfora et al. 2021), or reducing processed meat consumption (Catellani et al. 2022). Such a single-behavior studies are fundamental for devising strategies and elaborating evidence-based policy recommendations aimed at bridging the attitude–behavior gap and helping individuals align their actions with their intentions. These studies provide invaluable, detailed insights and have greatly advanced our understanding of the psychological and contextual factors driving specific behaviors. At the same time, because they often rely on experimental or intervention-based designs, they tend to be time- and resource-intensive – not in a way that diminishes their value, but in a way that may limit their feasibility for systematically comparing a wide range of behaviors across diverse populations. The present study does not seek to replace such research, but to complement it by offering a broader, cross-behavioral perspective. While admittedly not causal and less granular, this type of analysis might provide a cost-effective foundation to identify patterns and hypotheses that more focused, behavior-specific studies may explore in greater depth. While pro-environmental attitudes notably encompass a variety of dimensions, this study focuses specifically on the dimension of environmental concern, thus measuring the green attitude-behavior gap as the difference between how worried individuals are about climate change and how pro-environmentally they behave.[1] Furthermore, to the best of the author's knowledge, this study makes a novel attempt to measure the gap for ten different

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[1] While the broader concept of green attitude-behavior gap is referred to throughout the paper, it should be noted that in the present study, the specific pro-environmental attitude considered in this study is environmental concern only.

pro-environmental behaviors that vary across key dimensions, such as cost, public versus private sphere, and stereotypical associations with masculinity or femininity. The analysis relies on a broad empirical basis, drawing on survey data from quite diverse societies. By examining the gap between environmental concern and pro-environmental behavior across these varied behaviors, this study contributes to a more comprehensive understanding of the factors driving (in)consistency between concern and action.

1.2   Pro-environmental behavior

Pro-environmental behavior (PEB) is a behavior that "consciously seeks to minimize the negative impact of one's actions on the natural and built world" (Kollmuss & Agyeman 2002: 240) and should be distinguished from the pro-environmental attitude, which usually entails a tendency to be concerned about the natural environment (Bamberg 2003). PEBs are affected by pro-environmental attitudes, psychological variables (e.g., moral obligation, response efficacy), socio-demographic characteristics of the individual and the context in which they find themselves (Barr 2006). These include the set of facilities and services accessible to the individual (e.g., Derksen & Gartrell 1993) or knowledge about environmental problems and the steps that one may take to attenuate them (e.g., Schahn & Holzer 1990). For instance, higher education level is positively associated with pro-environmental behavior (e.g., Meyer 2015), while living in more rural areas negatively affects it due to practical barriers related to lack of infrastructure compared to more urban settings (Dąbrowski et al. 2022). While prior studies have provided extensive insights into the role of psychological and contextual factors in shaping PEBs, less attention has been paid to systematically linking these drivers to the observed gaps between environmental concern and behavior. This study addresses this gap by examining that inconsistency across different behaviors.

1.3   Gender gap on pro-environmental behavior

A study conducted by Blocker and Eckberg (1997) suggested that while women exhibit greater environmental concern than men, this would not consistently translate into higher levels of

environmental action. Since then, a considerable stream of literature has started investigating the nuances of the so-called green or eco-gender gap also on pro-environmental behavior, and evidence consistently suggested that women are not only more worried than men about the environment but that they seem also more likely than men to adopt pro-environmental behaviors overall (Davidson & Freudenburg 1996; Diamantopoulos et al. 2003; Mostafa 2007; Zelezny et al. 2000). Scholars found evidence of the eco-gender gap across all sorts of behavior: from business management (Hu & Yang 2021), to reaction to sustainable brands (Newman & Trump 2023), sustainable consumption (Brough et al. 2016), or plant-based eating habits (Prättälä et al. 2007). However, a pattern emerged, as this gender gap is predominantly observed in the private sphere (El Khoury et al. 2023; Hunter et al. 2004). As for the political sphere, the literature presents mixed evidence. Some studies suggest that women do not act more pro-environmentally than men in the political domain – e.g., engaging with environmental activism (El Khoury et al. 2023; Hunter et al. 2004; Tindall et al. 2003). Other show that they do e.g., vote for more pro-environmental parties (Mannoni 2025), and support pro-environmental legislation in the European Parliament more (Ramstetter & Habersack 2020). Indeed, this behavioral gender gap might highlight consistency between environmental concern and pro-environmental behavior in women (Ramstetter & Habersack 2020). Such mixed evidence suggests that further research is needed to disentangle the social and structural factors that contribute to these gaps, especially when moving from private to public behaviors. Scholars have attributed the discrepancy in eco-gender gap between private and political behavior to the so-called 'double day' of paid and domestic work often demanded of women in most societies, where they perform a disproportionate share of household labor even when also employed full-time (Tindall et al. 2003). Brough et al. (2016) offered an alternative explanation, suggesting that gender stereotypes depict behaviors like eco-friendly consumption as more feminine or "unmanly" (Brough et al. 2016: 567). Their study revealed that gender-identity maintenance, being more of a concern among men than among women, reduces the odds of men adopting pro-environmental behaviors. Building on this, the present study investigates whether the gap between environmental concern and pro-environmental behavior systematically varies depending on whether a behavior aligns with stereotypical notions of masculinity or femininity. While prior evidence supports this expectation, this

research broadens the scope by examining a more diverse array of behaviors, enabling a systematic assessment of how gender stereotypes influence this attitude-behavior gap. As per which behaviors are traditionally related to stereotypical views of masculinity, these include driving a car or consuming meat. Evidence shows the persistence of a gender bias against female drivers, according to which women would be less apt to driving than men (Lawrence & Richardson 2005). Studies indicate that private car use is commonly perceived as a masculine activity, whereas public transport is associated with femininity (Kawgan-Kagan 2020) and show that men are more likely than women to own cars and prioritize the status associated with them (Sovacool et al. 2019). Likewise, plenty of evidence associated the consumption of meat to the idea of masculinity (see e.g., Rosenfeld & Tomiyama 2021; Rothgerber 2013; Stanley et al. 2023; Sumpter 2015; Timeo & Suitner 2018). Studies described meat consumption as a symbol of virility and power (Adams 1990), reporting how a variety of cultural outlets consistently suggested that "real men eat more meat" (Rothgerber 2013: 2). It illustrated how modern societies often associate red meat with masculinity, while lighter meats are viewed as healthier and more feminine, showing how this perception tends to encourage women to consume less meat and incorporate more fruits and vegetables into their diets compared to men (Sumpter 2015). Based on all the above, we may expect women who are concerned about the environment to find it easier to forgo driving a car or reduce meat consumption, as studies showed that both behaviors are associated to stereotypical views of masculinity. Similarly, we may expect women to find it easier than men to purchase more sustainable products, as green consumers are stereotypically seen as more feminine than non-green consumers (Brough et al. 2016). From this, the first hypothesis posits that women are more or less likely than men to exhibit a gap depending on how these behaviors are traditionally subject to gender stereotyping.[2]

Hypothesis 1: *Women are less likely than men to exhibit a gap when pro-environmental behaviors are stereotypically considered as more feminine or when non-pro-environmental behaviors are stereotypically considered as more masculine.*

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[2]See Table 1.1 to see which behaviors in the analysis belong to the category of those considered more feminine and those that do not.

1.4   Generational differences in pro-environmental behavior

Besides gender, age has increasingly captured the attention of scholars studying pro-environmental orientations. In particular, the role of age and generational differences remains debated, with no clear consensus on whether belonging to certain cohorts today makes individuals more or less likely to act consistently with their environmental concerns. However, emerging patterns suggest distinct generational trends in environmental behavior. Gen Z noticeably stand out for climate change activism (Hess 2021) – e.g., joining movements such as Fridays For Future (FFF) (Wallis & Loy 2021). They (together with Millennials) vote more consistently with their environmental concern compared to older generations (Mannoni 2025) and frequently discuss the need for climate action in daily life (Tyson et al. 2021). Finally, they are playing a key role in raising awareness about the climate crisis, educating older generations (Biswas 2021). Indeed, recent evidence increasingly suggests that a process of reverse socialization is taking place (Liu et al. 2022), where adolescents' and children's environmental knowledge and passion are influencing their parents' pro-environmental behavior (Kong & Jia 2023; Wang & Li 2024), instead of being influenced by them as traditional primary socialization would suggest. Much of the existing literature has focused on generational differences in pro-environmental attitudes or behaviors, without fully exploring whether some of these attitudes consistently translate into pro-environmental actions. This study addresses this gap by examining how generations differently manifest gap between environmental concern and pro-environmental behavior, testing this dynamic across a range of distinct behaviors. Growing up in an era where the consequences of global warming are more visible and accessible than ever thanks to modern technology, today's youngest generations have experienced environmental protection as a highly politicized issue. Unlike previous generations, their political socialization occurred during a time when climate change was not only a concern of Green parties but also featured in agendas and manifestos of many mainstream political parties. This exposure, sustained and consistent throughout their formative years, has likely influenced how younger individuals perceive and respond to climate change. As a result, it would be reasonable to expect them to react to a political issue with political tools, such as signing petitions or joining protests. Hence, the second

hypothesis posits that:

Hypothesis 2: *Individuals belonging to younger generations are less likely than individuals belonging to older generations to exhibit a gap for behaviors that are more evidently associated with political participation.*[3]

Finally, one last expectation emerges from pairing the two streams of literature above and looking at young women vs. young men. Recent polls conducted across various countries (see e.g., Burn-Murdoch 2024 for Germany, South Korea, United States, and United Kingdom; Valdés 2024 for Spain) have identified a new gender divide among young people. These polls reveal that young women tend to be highly progressive, while young men are significantly more conservative. This divide appears much wider in younger generations compared to older cohorts, giving the impression of a highly polarized generation. This suggests that the modern gender gap, first theorized by Inglehart and Norris (2000) – where women are more left-leaning than men – may be even more pronounced among today's younger populations. Based on that, the last expectation for this analysis is that the gap between environmental concern and pro-environmental behavior is narrower for young female individuals compared to their male counterparts, when considering more political behaviors. Thus, the third hypothesis to test:

Hypothesis 3: *Among younger individuals, women are less likely than men to exhibit a gap for behaviors that are more evidently associated with political participation.*

1.5   Data and Methodology

Given the timeliness of the issue, the analysis should rely on recent data to capture the behavior of the younger layers of society and the changes in terms of issue salience that recent environmental social movements and phenomena such as online activism might have brought. Furthermore, given the global nature of the issue and the widespread attempts to tackle it through behaviorally informed policies (Sunstein et al. 2017), this analysis should

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[3]See Table 1.1 to see which behaviors in the analysis belong to the category of those associated with political participation and those that do not. The differentiation is based on Van Deth 2014

also aim to be as broad in scope as possible. That means going beyond the most traditionally studied populations of Western democratic countries, including understudied countries from other continents – with particular interest towards those that are most affected by climate change (e.g., Southeast Asian countries) and those significantly contributing to it (e.g., the largest or fastest-growing economies). Because of that, this paper uses the ISSP Environment IV survey data (ISSP Research Group 2023). The original dataset includes data collected between October 2019 and May 2023 across 28 countries (N=44,100). Of those countries, 15 are European, including non-EU countries (Austria, Croatia, Denmark, Finland, France, Germany, Hungary, Iceland, Italy, Lithuania, Norway, Slovakia, Slovenia, Spain, Sweden, and Switzerland), seven from East Asia (China[4], India, Japan, Philippines, South Korea, Taiwan, and Thailand), plus Australia, New Zealand, Russia, South Africa, and the United States.

1.5.1   Public Environmental Concern (PEC)

Public environmental concern (PEC), also referred to as environmental concern or public concern for environmental quality, is an individual attitude towards the environment. Since the 1970s, efforts to gauge environmental concern have yielded varied results, and this attitude was often inferred through various assumed proxies, ranging from support for governmental ecological policies to knowledge of environmental issues to personal involvement in pro-environmental actions (Van Liere & Dunlap 1981). Recent, international surveys have incorporated direct questions regarding climate change worry, as indicators of environmental concern. In the ISSP Environment IV wave, a single question directly asked respondents how concerned they were about environmental issues. They could answer on a scale from 1 to 5, where 1 indicated "Not at all concerned" and 5 "Very concerned". To conceptualize and measure the gap between environmental concern and behavior, a dummy variable was created to measure the consistency gap only for those who declared the maximum level of concern (e.g., 5 "Very concerned"). It is important to acknowledge that using indicators of

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[4]The sample used for the logistic regression analysis presented below does not include China, since the country's dataset does not include information on one of the control variables (i.e., whether the respondent lives in a more urban or rural surrounding). However, to test the robustness of the results, the analysis was also conducted including respondents from China and the results remain substantially unvaried (see Table A.5 in the Appendix).

pro-environmentalism often risks encountering social desirability bias, wherein respondents may over-report their concern to align with societal expectations (Fisher & Katz 2000). Focusing the analysis on those who reported the highest level of concern should help mitigate this bias. Notably, the share of respondents in this category remains substantial, amounting to approximately one-third of the entire sample (32%). While some countries show values below 20%, others reach or exceed 50% (for detailed country-by-country distribution of this variable, please see Table A.1 in the Appendix). The resulting sample of individuals on which this analysis is based is therefore N=14,380.

1.5.2 Pro-environmental behavior (PEB)

The pro-environmental behavior variable is where the proper unpacking takes place, as it is measured neither as a single variable nor as an index derived from multiple variables. Ten different behaviors are tracked as self-reported by the respondents: (1) how often they flew in the previous twelve months; (2) how many hours in a typical week they spend in a car or other non-collective motor vehicle; (3) how many days, in a typical week, they eat beef or lamb or products containing them[5]; (4) how many rooms per person are there in the house or apartment where they live; (5) how often they sort waste for recycling purposes; (6) how often they boycott a product for environmental reasons; whether in the previous five years (7) they have been members of a group, (8) signed a petition, (9) made a donation, or (10) joined a demonstration or protest, whose aim was to protect the environment. All self-reported pro-environmental behavior variables were operationalized as dummy variables, identifying the most sustainable answer category for each behavior. In doing so, the most demanding option was always chosen as a threshold for a behavior to be identified as pro-environmental, as reported in Table 1.1[6]. The rationale behind this choice is threefold. First, similarly to the point made for environmental concern, questions of reported behavior on

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[5]Answers to this question are not available for Denmark.

[6]With the only exception of boycotting, for which also the second most demanding answer was considered pro-environmental behavior, given the ambiguous formulation of the question (see Table 1.1). This question, unlike others, asks the respondents not how often they perform a certain behavior, but how often they avoid performing it. That allows for the possibility that when a respondent answers "often" rather than "always", it does not necessarily indicate that sometimes they do buy non-eco-friendly products instead of greener options; it might even just indicate that they simply not always face the option of buying a product that is harmful for the environment, which they might actively choose to boycott.

salient issues like environmental protection might elicit social desirability bias (Fisher & Katz 2000), leading people to over-report their pro-environmental behavior or under-report their non-pro-environmental choices. Setting the threshold very high aims, at least to some limited extent, to balance the possible over-representation of pro-environmental behavior that may derive from that. Second, the severity of the climate crisis may influence what is considered pro-environmental behavior, depending on how widespread certain behaviors are. For instance, some individuals turning vegan might result from the broader unwillingness of many people to reduce their meat consumption at all. Third, since those behaviors are measured using different scales and four out of ten were measured dichotomously in the original survey, dichotomizing them all smooths comparability.

Table 1.1: Operationalization of pro-environmental behavior for each behavior considered. Source: own elaboration.

Label	Question	PEB = 1	PEB = 1 stereotypically feminine and/or PEB = 0 stereotypically masculine	PEB = 1 form of political participation
Fly	*In the last twelve months, how many trips did you make by plane? Count outward and return journeys, including transfers, as one trip.*	0 trips.		
Car	*In a typical week, about how many hours do you spend in a car or another motor vehicle, including motorcycles, trucks, and vans, but not counting public transport? Do not include shared rides in buses, minibuses, and collective taxis.*	0 hours/week.	✓	
Meat	*In a typical week, on how many days do you eat beef, lamb, or products that contain them?*	0 days/week.	✓	
Housing	*How many rooms are there in your home (apartment or house)? Do not count any separate kitchens, bathrooms, garages, balconies, hallways, or cupboards.*	1 room/person living in the household.		
Recycle	*How often do you make a special effort to sort glass or tins or plastic or newspapers and so on for recycling?*	Always.		
Boycott	*And how often do you avoid buying certain products for environmental reasons?*	Always; Often.	✓	✓
Group	*Are you a member of any group whose main aim is to preserve or protect the environment?*	Yes.		✓
Petition	*In the last five years, have you signed a petition about an environmental issue?*	Yes.		✓
Donate	*In the last five years, have you given money to an environmental group?*	Yes.		✓
Protest	*In the last five years, have you taken part in a protest or demonstration about an environmental issue?*	Yes.		✓

1.5.3   The green attitude-behavior gap

The attitude-behavior gap (see e.g., ElHaffar et al. 2020), also known as value-action gap, is defined as "the observed disparity between people's reported concerns about key environmental, social, economic or ethical concerns and the lifestyle or purchasing decisions that they make in practice" (Sustainable Development Commission 2006: 63), and substantially refers to the difference "between what people say and what people do" (Blake 1999: 275). As mentioned above, in this study, the specific pro-environmental attitude I rely on is environmental concern, measured as climate change worry. As per the behavior, while I cannot directly observe whether respondents really behave pro-environmentally, I rely on the measures of self-reported behavior reported in the previous section. Hence, based on the previously outlined variables of public environmental concern (PEC) and pro-environmental behavior (PEB), I conceptualize the gap as the distance between the highest level of environmental concern and an instance of pro-environmental behavior. It measures the extent to which someone who claims to be very concerned about environmental issues also reports their engagement with pro-environmental behaviors. It is operationalized as the result of subtracting the score each individual got on each pro-environmental behavior (0;1) from the attitudinal score of environmentally very concerned individuals (1).

$$\text{Gap} = \text{PEC} - \text{PEB} \qquad (1.1)$$

As a result, the gap for each individual, on each behavior will either be present (1-0=1), indicating inconsistency between environmental concern and behavior, or absent (1-1=0), indicating that for that specific type of pro-environmental behavior, the individual behaves consistently with their environmental concern. Each of the ten behaviors corresponds to a logistic regression model, incorporating the same independent and control variables detailed in the next section.

1.5.4   Independent and control variables

The two key independent variables in the models are gender and generation of the respondent. As for gender, based on the available categories in the dataset, the analysis only distinguishes

between male and female. As for generations, based on their birth year, respondents have been assigned to Silent Generation (born between 1928 and 1945), Baby Boomers (born between 1946 and 1964), Generation X (born between 1965 and 1980), Generation Y – also known as Millennials – (born between 1981 and 1996), and Generation Z (born between 1997 and 2006). Besides those two key variables, the models control for education level (high, medium, and low[7]), with the expectation that individuals with higher education are more likely to have greater knowledge about environmental problems and solutions. This, in turn, may lead to a stronger tendency to bridge the attitude-behavior gap across most pro-environmental behaviors considered. Additionally, drawing from literature on the role of costs in shaping behaviors (Boulstridge & Carrigan 2000), and recognizing that costs vary both across behaviors and individuals, we might expect more affluent individuals to be better positioned to perform certain behaviors. For instance, they may be more likely to donate to environmental groups or boycott harmful products, as they can afford sustainable alternatives even when these are more expensive. Hence, even though education and income are usually correlated, and both somewhat reflect the socio-economic status, each model also controls for personal income level (high, middle, and low).[8] Furthermore, considering that individuals may encounter obstacles to pro-environmental behavior partly due to their living context (e.g., infrastructure or facilities), all models control for the level of rurality of the respondent's surroundings, distinguishing between living in a city, town, or countryside. The models also account for the respondent's country, which helps capture cultural differences and idiosyncrasies that may vary significantly across the diverse set of countries included in this analysis[9]. Finally, the ISSP dataset also includes three intentional items unrelated to the behavioral items used to measure PEB. The intentional items measure how willing respondents are (i) to pay much higher taxes, (ii) to pay much higher prices, and (iii) to

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[7]This is a recode of the variable EDULEVEL present in the original dataset (ISSP Environment IV), which included for all countries values ranging from 0 to 8. Values from 0 to 2 were assigned to the low education level category; 3 to 5 to the medium education level category; 6 to 8 to the high education level category.

[8]This is a recode of the personal income variable included in the original dataset (ISSP Environment IV). This variable included different scales for different countries. Hence, to harmonize the measurement, the variable was divided into terciles to obtain three comparable levels of what is deemed as low, medium, and high level of personal income in each country, given that those standards might differ quite significantly across different countries.

[9]But also differences across different regimes in terms of citizens' freedom to e.g., join a protest for environmental protection.

significantly accept lowering their standards of living to protect the environment. A factor analysis was conducted to create an index of pro-environmental intention. With a Cronbach alpha of .82, a valid index including all three items was built. Given its potential relevance as an antecedent to at least some types of pro-environmental behavior (see e.g., Rhodes & de Bruijn 2013) all models included this index as a control variable to further filter the pro-environmentalism of respondents.

1.6 Results and discussion

1.6.1 Descriptives

Table 1.2 below reports the gap ordered from the widest (i.e., the behavior on which individuals emerge as less consistent with their environmental concern) to the narrowest (i.e., the behavior on which individuals perform more consistently with their environmental concern). The second column indicates the average value of the gap across the sample. The sample here includes only those respondents who declared to be very concerned about environmental issues and provided an answer to all the socio-demographic questions asked. Given a high level of concern for the issue of environmental protection, individuals are more inclined to consciously decide to boycott products that may harm the environment or to recycle than to join a protest or an environmental group or even give up on using the car. The choice not to travel by plane also seems to register a particularly narrow gap; however, the fact that the data collection took place for many countries while the COVID-19 restrictions were in place might have contributed to these results, as many people who would have acted otherwise were not allowed to or deterred from traveling as they would under normal circumstance.

If we depart from this general snapshot and zoom into the differences between countries (see Figure 1.1), we can immediately spot a pattern. The four behaviors on the right (joining a group, signing a petition, donating money, joining a protest) exhibit rampant inconsistency between environmental concern and behavior in all countries. In no country, for these behaviors, a majority of aware individuals are translating their concern into those courses of

PEB	N	Average gap (mean)	Std. Dev.
Protest	14,132	0.90	0.30
Group	14,265	0.88	0.32
Car	13,372	0.79	0.41
Donate	14,139	0.77	0.42
Meat	13,424	0.75	0.43
Petition	14,198	0.70	0.46
Housing	13,730	0.55	0.50
Boycott	14,204	0.46	0.50
Recycle	13,885	0.32	0.47
Fly	13,659	0.26	0.44

Table 1.2: Average width of the attitude-behavior gap for each pro-environmental behavior considered. Source: own elaboration.

action (even though in all those cases, the timespan considered for reporting those behaviors was quite generous – i.e., five years, as reported in Table 1.1). Interestingly enough, these behaviors are the most political or public behaviors among those considered. Joining a demonstration or joining an environmental organization are virtually everywhere the behaviors for which it is more common to find an attitude-behavior gap. Almost everywhere, less than 10% of those who claim to be very concerned about the environment have done either at least once within the five years preceding the interview. A second noteworthy element Figure 1.1 showcases is the impact that country-level regulations might have on some behaviors. For instance, recycling is a behavior that public institutions might be able to incentivize more than many others by imposing fines on those who do not do it. If we look at the column for recycling, we notice how small the gap is in some countries (e.g., Switzerland, Italy, France, Germany) while there are many countries (e.g., South Africa, India, Russia, China, but also Croatia, Hungary, and Lithuania) where even the majority of those who are very concerned about the environment do not always recycle. Overall, Figure 1.1 confirms that not much has changed since the year 2000, when an analysis conducted in 23 countries had suggested that individuals engaged with public pro-environmental behavior quite similarly across countries, whereas local context affected much more private pro-environmental behaviors (Hadler & Haller 2011).

	Fly	Car	Meat	Housing	Recycle	Boycott	Group	Petition	Donate	Protest
Australia	28.7	98.0	92.8	79.0	27.9	52.9	92.5	65.7	76.7	93.1
Austria	6.2	84.2	81.8	63.1	28.2	55.7	92.8	63.0	68.8	93.7
China	11.6	64.9	54.5	54.0	78.6	74.1	94.6	97.1	91.1	99.5
Croatia	7.4	87.1	84.7	29.9	63.2	70.0	96.2	85.0	94.3	96.4
Denmark	49.5	89.5		68.2	33.5	59.1	96.8	82.5	82.3	93.6
Finland	35.7	82.5	86.1	64.4	29.6	62.0	89.8	79.3	81.7	96.5
France	12.9	90.0	88.5	81.4	14.0	38.5	93.5	64.1	86.5	88.3
Germany	10.1	91.8	78.7	76.2	19.0	41.5	93.8	71.4	78.6	93.3
Hungary	12.7	90.1	32.3	51.1	55.9	68.9	91.3	93.9	94.8	97.8
Iceland	41.8	67.9	92.2	60.4	25.1	62.6	98.1	68.7	76.3	93.6
India	22.6	96.8	86.3	9.9	83.1	56.5	87.8	86.8	83.2	80.0
Italy	30.1	75.5	93.8	62.0	17.5	67.2	84.2	86.0	91.8	94.3
Japan	18.2	90.2	88.3	78.0	33.1	52.0	94.7	92.7	94.3	99.8
Lithuania	30.4	84.2	47.1	43.8	52.5	80.0	98.7	87.9	96.8	97.9
New Zealand	36.4	80.2	89.5	71.3	23.7	51.2	98.9	62.0	74.1	92.1
Norway	56.6	76.1	92.0	83.1	25.4	64.1	98.0	79.8	73.9	94.2
Philippines	2.8	97.6	70.2	4.4	68.8	71.5	87.4	96.3	95.1	98.7
Russia	10.0	88.5	63.5	29.4	79.4	75.3	90.2	90.3	93.0	97.9
Slovakia	17.1	54.6	53.3	33.5	45.6	61.7	89.9	79.8	92.4	98.7
Slovenia	16.2	51.9	83.6	45.6	20.0	60.9	97.3	78.3	88.4	94.9
South Africa	17.6	85.7	89.2	29.7	93.1	80.4	98.2	93.9	94.5	94.4
South Korea	18.7	81.4	86.7	38.8	55.7	67.6	94.5	90.4	95.5	98.5
Spain	40.0	57.5	81.7	51.4	37.4	57.1	88.1	73.9	90.3	88.2
Sweden	31.0	82.4	85.8	75.1	23.3	56.8	96.4	79.1	74.3	95.2
Switzerland	57.5	85.6	86.9	74.9	16.8	40.4	91.6	64.9	67.2	90.2
Taiwan	22.7	85.0	43.0	70.4	33.7	62.4	86.6	90.9	90.7	98.7
Thailand	3.3	84.0	62.8	16.5	86.4	70.3	97.4	93.9	92.6	96.9
United States	28.9	92.8	89.3	69.0	43.9	65.0	90.7	76.8	78.9	94.5

Figure 1.1: Country variation of the attitude-behavior gap across ten different pro-environmental behaviors. Source: own elaboration.

1.6.2 Regression results

The regression analysis output partially corroborates the hypotheses outlined above and also reveals some interesting additional findings (see Figures 1.2, 1.3, and 1.4 below. Full regression results are displayed in Tables A.3 and A.4 in the Appendix). All the results presented below control for the country variable, which might have hidden significant contextual variables affecting the gap and intention, given its potential relevance as antecedent to pro-environmental behavior, as mentioned above. Among those who tell to be very worried about environmental issues, women are significantly more likely than men to act consistently with that worry when choosing which means of transportation to use, whether to eat meat or not, whether to sort out waste, which products to (not) buy, but also whether to sign a petition for environmental reasons. This supports H1, which states that women are less likely to show a gap for behaviors influenced by gender stereotypes. For example, avoiding meat and not driving a car are linked to masculinity, while boycotting products and choosing green alternatives are considered stereotypically more feminine. This finding also aligns with the recent literature on gender and pro-environmental behavior and with the idea that women, due to their "double day" of paid and domestic work, have less time to participate in more public behaviors. Instead, they channel their environmental concern into private, domestic actions that fit within their existing responsibilities. Figure 1.2 highlights these gender differences across behaviors, illustrating the predicted probabilities of exhibiting a gap between environmental concern and behavior for men and women.

As for generations, younger respondents are more likely to show consistency with their environmental stances, showing up in demonstrations or signing petitions for environmental protection. The results also indicate that younger generations are less inclined to stop traveling by plane, and, somewhat unexpectedly, are less likely to avoid harmful products or recycle waste. Consistently with H2, younger cohorts are less likely to exhibit a gap when the behavior considered is more political or public. Furthermore, the findings reveal that younger generations are more likely than older generations to show a gap in private, personal behaviors.[10] This resonates with the idea that young people express their pro-environmental

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[10]The housing choices here stand out as an exception. Data shows that the probability that younger individuals live in bigger houses or apartments, given their high level of concern for the environment, is very

behavior taking on more the role of citizens acting outside the household, rather than the role of consumers acting inside the household (Wallis and Loy, 2021). Figure 1.3 provides further insights into these generational patterns, showing how the predicted probabilities of exhibiting a gap vary by generational cohort. While the gender and generational differences discussed here are visually clear in Figures 1.2 and 1.3, Figures A.1 and A.2 in the Appendix provide graphs with fixed Y-axes to facilitate between-behavior comparisons. In addition to that, single country predicted probabilities, both for gender and generations, are also reported in the Appendix (Figures A.3 to A.22). While small sample sizes limit the reliability of single-country analyses among those highly concerned about the environment, countries like Switzerland, Spain, Russia, and South Africa provide more robust estimates due to larger samples (i.e., above N=750). In Switzerland, a green gender gap emerges in meat consumption, boycotting products, and donating money to environmental causes, while Russia displays green gender gaps in transportation habits, signing petitions, and donating money, with women systematically acting more consistently with their environmental concern. Generational differences in Switzerland and Spain support the finding that younger generations are less inclined toward behaviors like recycling or limiting air travel, although Gen Z in these countries stands out for higher participation in protesting for environmental causes. Interestingly, even in other countries with smaller sample sizes, Gen Z emerges as significantly more consistent with environmental concern for political behaviors, such as protesting (e.g., Hungary), signing petitions (e.g., Denmark, Hungary, Norway), and joining environmental groups (e.g., Iceland), suggesting that younger generations may favor collective over individual environmental action.

Finally, Figure 1.4 focuses on the interaction between gender and generation, showing the effects of this interaction on the attitude-behavior gap for each behavior. Among the youngest adults, gender differences in the attitude-behavior gap are minimal in both political and private behaviors. For private behaviors, the gap is particularly narrow, with the notable exception of meat consumption, where young women concerned about the environment are

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low compared to individuals born up until the 1960s. However, this could be explained by the very different housing markets those different generations faced, with the Baby Boomers being particularly lucky as they were born – as the label they carry reminds – at a time of generalized economic growth and lower housing prices.
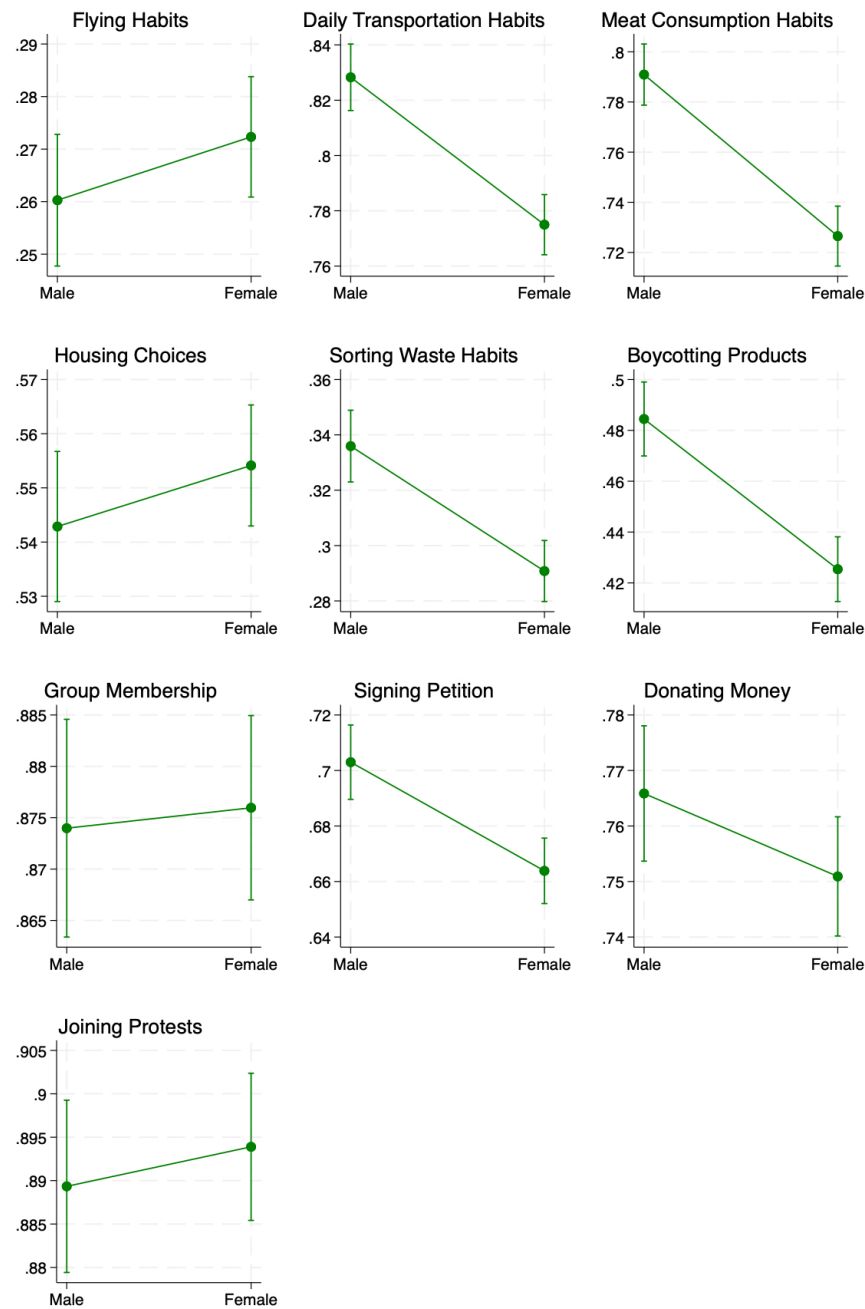
Figure 1.2: Predicted probabilities of exhibiting an attitude-behavior gap across pro-environmental behaviors by gender.

Note: The Y-axis varies across behaviors to better highlight the differences in predicted probabilities between gender categories for each behavior. The graphs display the predicted likelihood of exhibiting a gap between environmental concern and pro-environmental behavior, calculated from logistic regression models controlling for socio-demographic characteristics, environmental intention, and country. As the width of the gap in the overall population differs substantially across behaviors, a comparison between behaviors is more appropriately made using the graph with a fixed Y-axis, available in the Appendix, Figure A.1..
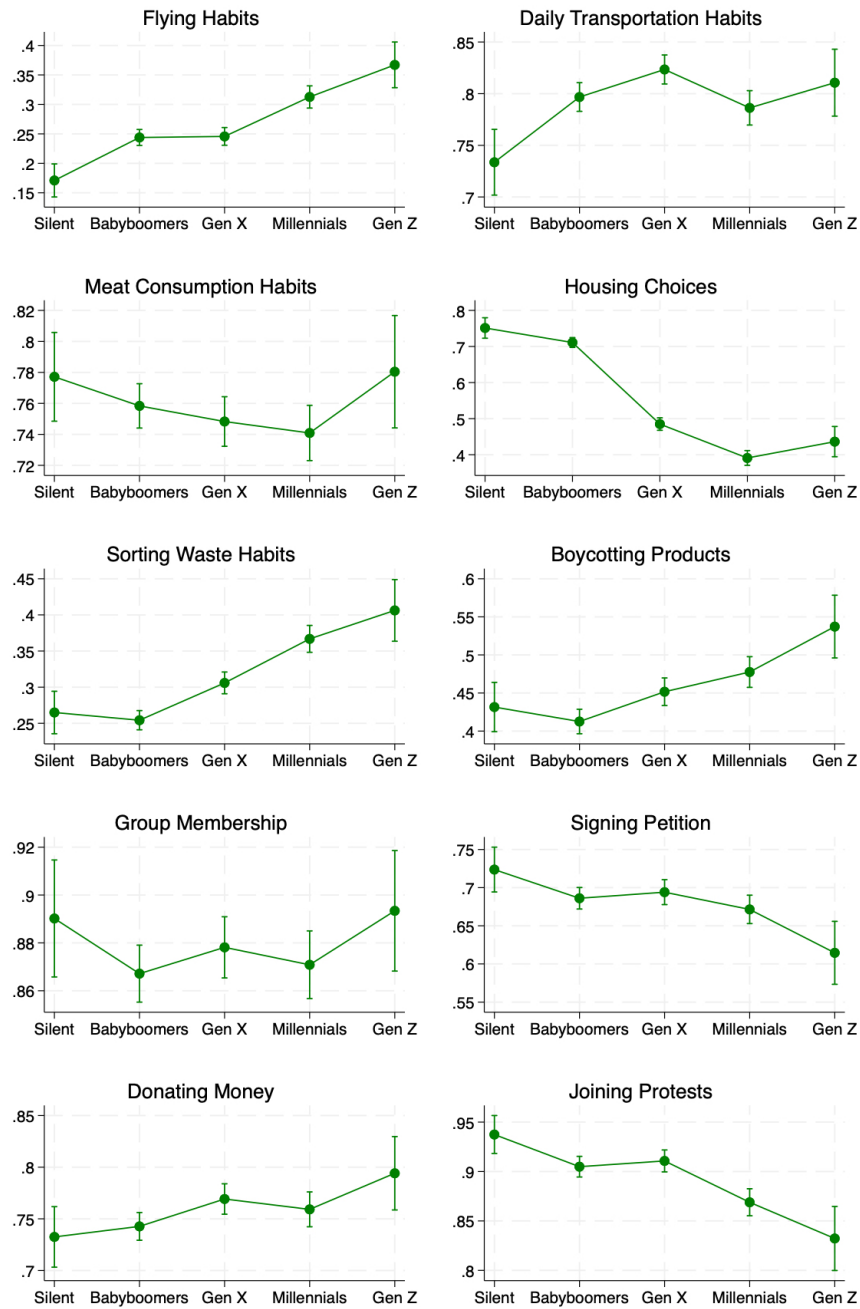
Figure 1.3: Predicted probabilities of exhibiting an attitude-behavior gap across pro-environmental behaviors by generation.

Note: The Y-axis varies across behaviors to better highlight the differences in predicted probabilities between generational categories for each behavior. The graphs display the predicted likelihood of exhibiting a gap between environmental concern and pro-environmental behavior, calculated from logistic regression models controlling for socio-demographic characteristics, environmental intention, and country. As the width of the gap in the overall population differs substantially across behaviors, a comparison between behaviors is more appropriately made using the graph with a fixed Y-axis, available in the Appendix, Figure A.2.

more likely than their male peers to consume less meat. This finding aligns with existing research showing that plant-based diets are often perceived as less masculine (e.g., Salmen et al. 2022); suggesting that male Gen Zers and Millennials might be more concerned with gender-identity maintenance than their older counterparts. For political behaviors, such as group membership, signing petitions, donating money, and joining protests, there is no significant difference in the attitude-behavior gap between men and women in Gen Z, which contradicts the expectation that young women would show a smaller gap in these areas compared to their male peers (H3). Interestingly, Millennial women with strong environmental concern are more likely to sign petitions than their male counterparts. This interaction effect, as shown in Figure 1.4, does not contradict the literature that places the eco-gender gap primarily in the private sphere, but it suggests that, at high levels of environmental concern, this pattern varies across generations and behaviors. While these findings do not fully support H3, and the hypothesis remains largely unsupported by the data, they highlight relevant generational nuances in how behavioral consistency manifests across gender lines.

Hence, while the findings reveal some differences between women and men in the Silent, Baby Boomers, and Gen X generations across several private behaviors, this pattern is less clear among Millennials and Gen Z. Environmentally concerned younger women do not consistently fly less than their male counterparts; they do not drive less, nor do they live in smaller flats, recycle more, or boycott more frequently. In other words, the green gender gap appears to be narrower among younger concerned individuals compared to those from older generations. One possible explanation for this is the evolving gender norms among younger generations. Over recent decades, women in many societies have increasingly participated in spheres that were once dominated by men. However, this should not be interpreted as a complete overcoming of gender inequality; rather, the findings suggest that younger generations may face fewer constraints from traditional gendered behavioral norms. As a result, the traditional distinction between public and private spheres appears to play a diminishing role in shaping the green gender gap among these groups.
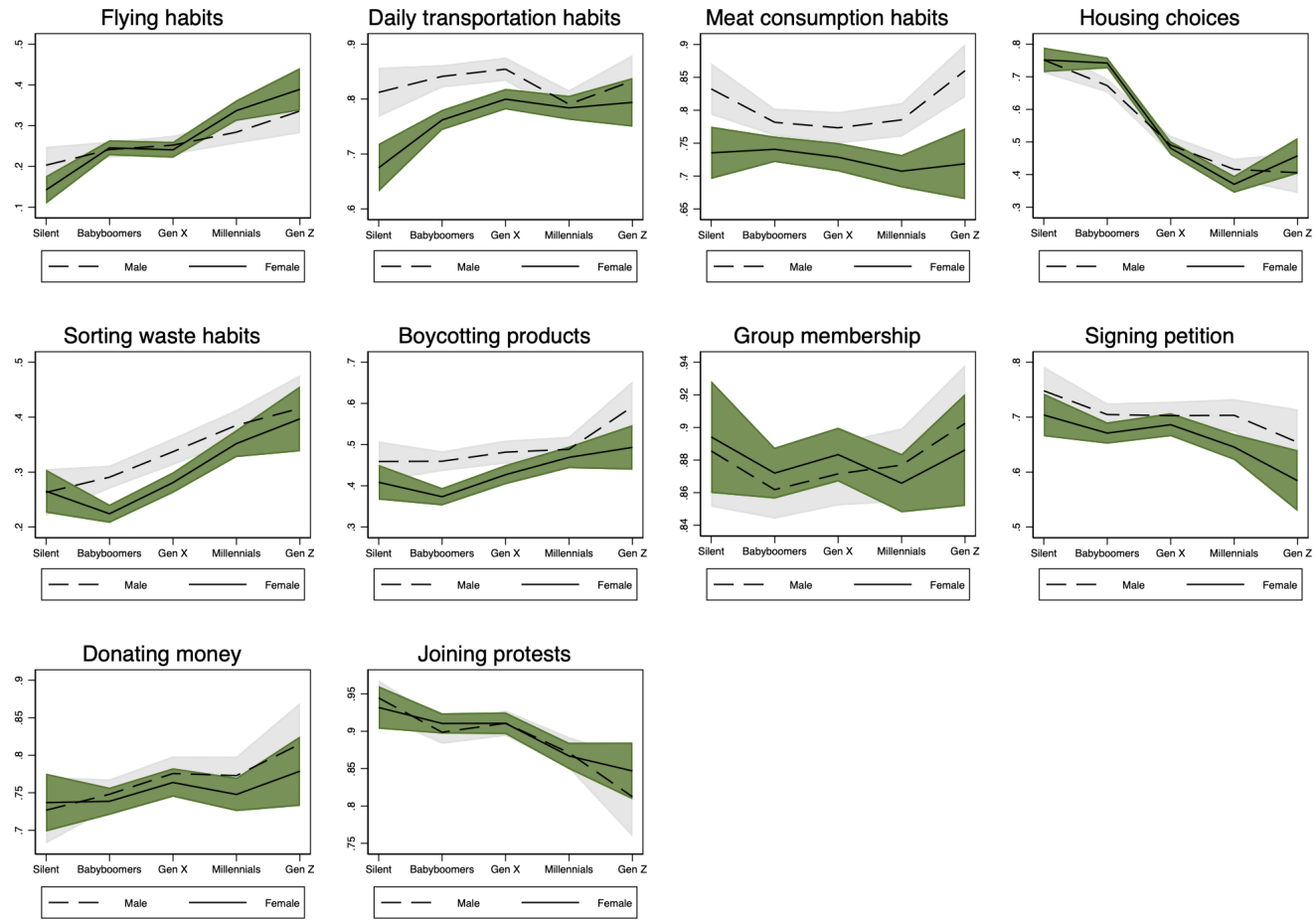
Figure 1.4: Predicted probabilities of having a gap between environmental concern and pro-environmental behavior by generation and gender.

1.7   Conclusion

This paper makes a first attempt to unpack the concept of pro-environmental behavior by measuring the gap between environmental concern and pro-environmental behavior across ten distinct behaviors reported by the same respondents. In doing so, it conceptualizes the green attitude-behavior gap as the difference between environmental concern and pro-environmental behavior. The analysis confirms that the gap varies significantly depending on the behavior. It is widest for actions like joining a protest or becoming a member of an environmental group, and narrowest for more common practices like sorting waste for recycling.

Measuring the gap between environmental concern and pro-environmental behavior provides insights into which social groups are more or less consistent in translating their environmental concern into specific actions. Among the more relevant findings, it emerged that women are more likely to act consistently with their concern when using public rather than private transportation, reducing meat consumption, recycling waste, and boycotting products for environmental reasons. Among environmentally concerned individuals, women are consistently less likely than men to exhibit a green attitude-behavior gap across all the behaviors analyzed. This finding seems to corroborate the idea that a green or eco-gender gap exists, according to which women tend to be, broadly speaking, more pro-environmental than men. Indeed, it adds to the literature on gender and the environment with fresh evidence from diverse countries. It shows that, even when equally very concerned, women are more likely than men to turn their environmental concern into action. This trend is particularly evident in the private sphere, with behaviors that are traditionally associated with masculinity.

However, interesting findings came about when zooming into different cohorts of men and women. Among the youngest adults, this neat distinction between having a green gender gap on private behaviors and not having it on political behaviors vanishes completely. For private behaviors, young women show a smaller gap than young men only in meat consumption. This does not contradict the well-established pattern that women tend to express stronger environmental attitudes and behaviors overall, but it suggests that – among the most concerned individuals – gender differences in consistency may be narrower than expected

for many behaviors. As for the political behaviors, instead, where based on the existing literature one would expect no green gender gap, young women emerge as (only slightly) more likely to sign petitions for environmental protection.

As for concerned younger individuals in general, they emerge as more likely to follow up on their environmental concern when it comes, for instance, to protesting – but not so when they should give up on air traveling, or recycling and boycotting products for environmental reasons. The consistency gap becomes more pronounced when behaviors shift from public to private domains. In this case, it seems that this social group is more at ease with expressing their concern by manifesting it in the public sphere rather than in the private one, which resonates with the increased politicization of the issue in recent years, which for Gen Z have been a critical period of socialization to politics. In other words, they seemed to be having political reactions to a political issue.

Single-country results, despite limitations due to small sample sizes, provide further evidence of the existence of a green gender gap, and strengthen the idea of younger generations being more likely to act consistently with their environmental concern in political behaviors.

These findings underline the importance of considering gendered and generational dynamics in environmental policymaking. Interventions could focus on combating gender stereotypes that influence behavior and leveraging evidence-based policy making to promote environmentally sustainable actions. Examples might include nudging policies to prompt recycling among younger generations even in private settings; providing affordable, low-carbon alternatives to air travel, such as subsidized rail networks; targeted educational campaigns on meat consumption and daily transportation, specifically tailored to male consumers in countries with persistent gender gaps.

A limitation in this study should be acknowledged. It cannot be ruled out that social desirability effect systematically varied across demographic groups, potentially reflecting stronger normative pressure to act pro-environmentally among women or younger respondents. That might have resulted in an underestimation of the concern-behavior gap for these groups due to over-reporting of favorable behaviors.

This analysis contributes to the research agenda on the green attitude-behavior gap, and it

does so by also extending the examination to often understudied countries around the globe. Future studies could conduct similar analyses including other understudied geographical contexts (e.g., Latin-American societies, also very exposed to the consequences of global warming). Furthermore, qualitative research could explore the barriers individuals face to engaging in pro-environmental behaviors, offering deeper insights into the green attitude-behavior gap across and within societies.

2 Pro-environmental voting: What it is, how to measure it, and its determinants among contemporary European voters

Please note this chapter is based on the article *Pro-environmental voting: What it is, how to measure it, and its determinants among contemporary European voters*, published on on *Parliamentary Affairs* in July 2024, available at https://doi.org/10.1093/pa/gsae017 (Mannoni 2025).

2.1 Introduction

The gap between pro-environmental attitudes and behavior has often been investigated to understand better the frequent mismatch between the two, usually focusing on specific instances of pro-environmental behavior, mainly related to consumption (Flynn et al. 2009; Newton & Meyer 2013; Babutsidze & Chai 2018; Essiz et al. 2023). In this research, I investigate the sociodemographic and psychological determinants of a specific type of pro-environmental behavior that has so far been overlooked by this stream of literature—namely, pro-environmental voting behavior – and its relationship with environmental concern. Plausibly, a reason why very little attention has been paid to it might be that sustainable behaviors are generally interpreted as being intrinsically valuable as they positively contribute to society, whereas making the same claim about voting for a political party that steadily stands for building a more sustainable society would undoubtedly be more controversial.[1]

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[1]It should be noted that normative claims of any kind are beyond the purpose of this research.

However, the issue of global warming has been steadily growing in salience lately (Baccini & Leemann 2021). That resulted not only in an increased amount of action coming from activists and social movements at an always larger scale (De Moor et al. 2021) but also in the current electoral successes of Green parties, which performed unprecedentedly well in some recent national, local, and European electoral contests (Ladner 2020; Pearson & Rüdig 2020; Reuchamps et al. 2020). With those premises and the salience of environmental issues only bound to further increase in the future, it becomes of the utmost relevance to understand the determinants of consistency between the individual vote choice and the opinion regarding this specific type of pro-environmental behavior. Do some individuals vote more consistently with their environmental concerns? Do the determinants of other pro-environmental behaviors influence pro-environmental voting as well? Does environmental concern among the public actually translate into pro-environmental voting behavior, and what are the antecedents of pro-environmental vote choices?

Measuring pro-environmental behavior does not come without challenges. While until the recent past, environmental protection used to be a prerogative of green parties who could be safely considered the owners of the issue (Spoon et al. 2014), that cannot be said to be true anymore, as in many countries nowadays a plethora of actors, including mainstream parties, have added the issue of environmental protection to their agenda and started addressing it with growing emphasis (Grant & Tilley 2019). Hence, in an increasing number of scenarios, voters are faced with potentially more than one credible option to choose from if they plan to vote consistently with their environmental concern—and analyses on pro-environmental voting should consider that.

In light of that, in this article, first, I propose to study pro-environmental voting behavior under the straightforward label of pro-environmental voting and define it as an instance of behavior that rests at the intersection of voting behavior and pro-environmental behavior and consists of voting for a party (or candidate) that stands for and significantly emphasizes environmental protection, regardless of whether that is the reason why the party was voted. Hence, while voting for a Green party or candidate might be the most obvious form of pro-environmental voting behavior, we shall not regard it as the only one. Therefore, in this article, first, I

calculate how pro-environmental each party in the twenty-six covered countries is using data on salience and position of the party on the environment from the CHES; second, I use such value as an attribute of the individual past vote choice; third, I regress that value on a set of variables that have been identified in the relevant literature as significant antecedents of either pro-environmental behavior or voting behavior, using the most recent data from the European Social Survey.

At a time when actors at all levels are urged to take action to protect the environment and salience about the issue is at its all-time high, with this article, I introduce the concept of pro-environmental voting and a way to measure it. In so doing, I set the basis for systematically measuring how individuals are translating their attitudes toward the environment into voting behavior, showcase differences across segments of the electorate regarding the tendency to use their vote to express their environmental concern and allow for replicability to track pro-environmental voting over time and in other electoral contests. Thus, building on theories from social and political psychology, voting behavior, and party competition, I aim to bring new interdisciplinary knowledge about pro-environmental behavior with this research.

The remainder of this article proceeds as follows. First, I review the existing studies that study voting behavior regarding the environment from different perspectives and propose a clear definition of a new concept under the label of pro-environmental voting. Then, I summarize the literature on the pro-environmental and voting behavior determinants and outline the hypotheses I will test in this article. It follows a section where I explain in detail the data and methodology used and the operationalization of each key variable, starting with the dependent variable – i.e. pro-environmental voting. The results are presented and discussed, and a conclusion summarizes the main findings and suggests avenues for future research.

2.2 Pro-environmental voting: An outcome-oriented rather than motivation-based definition

A proper conceptualization of pro-environmental voting, including a clear definition and relative measurement, is still lacking in the literature. While a handful of studies adopt the expressions of pro-environment voting or pro-environmental party support, they never refer to the same concept. A few studies (Vachon & Menz 2006; Kahn 2007; Herrnstadt & Muehlegger 2014; McAlexander & Urpelainen 2020) use the expressions pro-environment voting or environmental vote to refer to the voting behavior of legislators in the US Congress on environmental bills—that is, bills that introduce a policy that has a direct impact on the environment. They follow a tradition started by Dunlap and Allen (1976), who even proposed a 5-point scale to measure congressional voting as more or less pro-environment.

There is even less in the literature on citizens' voting behavior—instead of legislators. Hazlett and Mildenberger (2020) used pro-environment voting to refer to the support of the Californian electorate to four specific pro-environment ballot initiatives—i.e. costly climate-related policies. Similarly, Baccini and Leemann (2021) define environment vote as the "voting behavior of villages on ballot measures related to climate change" (Baccini & Leemann 2021: 472). In another article, Aguilar-Luzón et al. (2020) defined a pro-environmental vote as the vote cast "for a political party because it included measures for the protection of the environment in its electoral program" (Aguilar-Luzón et al. 2020: 5–6).

This last definition goes under the assumption that for a vote to be pro-environmental, it is necessary that the voter expressly chose that option for environmental reasons. In this article, I propose a different approach that does not consider the motivation but instead aims to assess the behavior as more or less pro-environmental solely based on the expected consequences of that behavior.

Whenever we attempt to assess any behavior as more or less pro-environmental (we often use for that purpose the term "sustainable"), the criterion based on which we conduct such an assessment does not have to do as much with what precedes the behavior (i.e. the motivation), as with what is likely to follow that behavior (i.e. the foreseeable consequences). We consider

traveling by train as more pro-environmental than traveling by plane, even for a traveler who could not care less about climate change and chose the train because it allowed them to be online for the entire trip. Likewise, we would agree that donating a large sum to WWF is more pro-environmental than donating nothing at all, even in the case of a donor who only donates to show off on social media afterward. That is because we know that trains contaminate less than airplanes, and we expect that money donated to WWF will somehow contribute to environmental protection. In other words, we label those behaviors as more or less green based on the likely consequences we can expect them to contribute to, not the motivation that led the individual to perform it.

Analogously, we should be able to establish a definition of pro-environmental voting that is outcome-oriented rather than motivation-based. This article precisely proposes to look at voters' choices and assess them as more or less pro-environmental based on the stance taken and emphasis put by the party voted on the issue of environmental protection, regardless of whether that was the reason that led the voter to vote for them or not. The Data and Methodology section below details the related measurement I propose for this concept.

2.3 Determinants of pro-environmental behavior and voting behavior

Thus, the underlying assumption of this article is that, similarly to what happens with other types of pro-environmental behaviors, even pro-environmental voting is a behavior that many individuals who define themselves as very concerned for the environment do not perform. The extant literature on pro-environmental behavior and the value-action gap suggest that this might be due to several reasons, being pro-environmental behavior determined not only by pro-environmental attitudes like environmental concern but also by psychological variables as well as the socio-demographics and the cultural context in which an individual is embedded (Barr 2006).

As for psychological antecedents to pro-environmental behavior, one example is response efficacy, namely "the belief that the adaptive response will work, that taking the protective

action will be effective in protecting the self or others" (Floyd et al. 2000: 411). In other words, response efficacy is the belief that engaging with a certain behavior will contribute to the fight against a specific threat—in this case, climate change. Unsurprisingly, evidence has shown that individuals with higher levels of response efficacy are more likely to engage with pro-environmental behavior as they see more of a point in doing so than others (Bradley et al. 2020).

Response efficacy can be further distinguished into collective and personal efficacy. Collective efficacy measures to what extent people think they can be successful at protecting themselves from a threat by acting together; personal efficacy refers to how successful they think they can be by acting alone (Lam 2006).

Indeed, from a rational perspective, the contribution that one private citizen can make to the fight against climate change by changing even drastically their behavior for their lifetime is negligible, whereby we would not expect public opinion to show high levels of personal efficacy on the issue of climate change. Similarly, even in voting behavior, the odds of one vote being a game-changer are usually close to zero—it follows that casting a vote to contrast climate change is perhaps one of the least rational actions an individual may perform if their aim is to contrast climate change with their own action. Nevertheless, some individuals still choose to engage in such behaviors. This might be due to high levels of collective response efficacy, meaning they consider that even small actions, if done by a collectivity—not just by themselves—might have a higher impact. Based on this, I expect to find a positive association between collective response efficacy and pro-environmental voting.

Hypothesis 1: *Voters with higher levels of collective response efficacy are more likely to cast a pro-environmental vote.*

Another psychological antecedent to pro-environmental behavior is a moral obligation, that is, the feeling that behaving pro-environmentally is one's moral responsibility (Wu et al. 2021).

Unlike other types of pro-environmental behavior, pro-environmental voting is secret, as it is technically private. As such, any publicly performative act that one may decide to derive from it would not enjoy the same level of spontaneity that naturally public acts such as

joining a strike would do—e.g. people can express a pro-environmental vote, but they cannot take a picture of it (or at least they should not), which means that the "public recognition" incentive for behaving pro-environmentally does not exist in the case of voting behavior. That makes this behavior less subject to social desirability bias and pressure deriving from social norms than other pro-environmental or political behaviors. Because of that, I expect that those who feel a sense of personal responsibility to act in defense of the environment would engage more with the personal, private behavior of pro-environmental voting:

Hypothesis 2: *Voters with higher levels of moral obligation are more likely to cast a pro-environmental vote.*

As per the socio-demographics and the cultural context in which an individual is embedded (Barr 2006), scholars agree first of all on the positive effect higher education has on the tendency to engage with pro-environmental behavior (Meyer 2015). Furthermore, evidence is increasingly confirming the presence of a green gender gap, indicating women are more likely to opt for more sustainable actions than men (Brough et al. 2016; Vicente-Molina et al. 2018) and more approachable by targeted interventions aimed to foster pro-environmental intentions (Kube et al. 2024), to the point that misogyny was found to play a role in anti-environmental political communication (Pettersson et al. 2023).

Given that younger individuals are more likely to pay the consequences of global warming than older individuals, it would be reasonable to expect to find a higher level of engagement with pro-environmental action among them. Nevertheless, there is not as much evidence supporting the claim that being younger or belonging to younger generations means acting more pro-environmentally. However, for an even more specific instance of pro-environmental behavior than pro-environmental voting—namely, voting for Green parties—evidence has consistently found that voters of younger age tend to vote for Green parties substantially more than older voters (Dolezal 2013) and that is true even when controlling for period and generational differences (Tilley & Evans 2014; Lichtin et al. 2023). As for generational effects—which seem to be often more relevant than life-cycle effects when it comes to voting in Europe (Maggini 2016)—it has been found that individuals who were politically socialized in the 1980s and 1990s (in Western Europe) tend to be more supportive of Green parties

than the previous generations (Lichtin et al. 2023) as during their formative elections they had the opportunity, unlike previous generations, to familiarize with the Green party as one of the options on their ballot paper. Consistently, the same research shows that the youngest generations of today, socialized to politics in the 2000s, are even (slightly) more likely than those socialized in the 1980s–90s to like the Greens and vote for them.

However, while this might hold for Western European countries, the picture might change once we include the electorate from other countries where the Green parties did not enter the stage until much later than the 1980s–90s, as is the case for some Eastern and Central European countries. While the situation in the late 1980s and 1990s was quite different in the different regions of the European continent in terms of party supply and electoral support to parties, I nevertheless expect the current widespread increase in salience on the issue of environmental protection to have led to significant differences between those voters socialized in the 80s–90s and those socialized in the 2010s–20s, in such a way that younger voters—that in the last few years include those belonging to the generations of Millennials and Z—cast more pro-environmental votes than older voters—mainly from Babyboomers backward—even when controlling for environmental concern.

Hypothesis 3: *Younger voters tend to cast more pro-environmental votes than older voters.*

2.4   Data and methodology

Timing is a dimension that we cannot overlook when it comes to environmental protection. So, for this analysis, I used very recently released data, which allowed me to capture the behavior of the youngest voters and the increase in salience on climate change that movements like Fridays for Future, which started in 2018, might have brought.

On the other hand, the nature of the dependent variable (i.e. an instance of voting behavior) inevitably restricts the scope of the research to countries where free and fair elections take place, allowing, in principle, voters to cast their votes solely based on their preferences. Because of that, in this article, I focus on contemporary Western, Southern, Central, and Eastern European democracies and test the set of propositions that were outlined above via

linear regression analysis based on a pooled dataset that includes novel comparative survey data at the individual level, combined with preexisting comparative party-level data.

For the individual-level variables, I rely on the ESS Round 10 survey data, which was collected between September 2020 and September 2022. Due to the COVID-19 pandemic, nine countries could not conduct the usual fieldwork for data collection and therefore switched to a self-completion mode (CAWI and PAPI), while the remaining twenty-two countries used ESS's usual face-to-face fieldwork approach (CAPI). Web and face-to-face modes might lead to e.g. different response rates (Heerwegh & Loosveldt 2008) and attract slightly different samples—for instance, online surveys might attract more knowledgeable respondents than face-to-face, but they might also be less subject to social desirability bias (Duffy et al. 2005). However, voting behavior, the main variable of interest in this case, was found to be an area of study for which very similar results come out when comparing face-to-face and internet-based surveys (Duffy et al. 2005).

The dataset includes information on attitudes toward several issues, including environmental protection and the vote recall regarding the last general election held in the respondents' country. Moreover, it includes answers to questions that measure the extent to which respondents feel morally obliged to engage with pro-environmental behavior and their levels of response efficacy. This dataset also allows me to control for the critical individual-level sociodemographic variables frequently recognized as significantly associated with pro-environmental behavior (e.g. education, income, generation, gender, town size). ESS Round 10 covers thirty-one European countries, including most EU Member States.

While ESS data provides a good proxy for voting behavior, the research question addressed here requires further information to qualify each vote choice as more or less pro-environmental. I do that using data from the 2019 Chapel Hill Expert Survey (CHES) (Jolly et al. 2022). The 2019 CHES was administered in early 2020 to collect the answers of more than four hundred political scientists specialized in political parties. It includes information on where each of the 277 parties is positioned on a set of issues, among which is the environment. As such, CHES is an ideal dataset to define each vote choice as more or less pro-environmental, as it includes both estimates of party positions on the issue of environmental protection

and the salience that each party attaches to the issue. The 2019 CHES covers the political parties of thirty-two European countries, including all EU Member States.

The resulting pooled dataset includes data on 209 political parties and coalitions2 from twenty-six European countries3 (N̄31,339), primarily but not exclusively members of the European Union, where the last general national election before the data collection took place between June 2017 and September 2021.

2.4.1   Pro-environmental voting

The key dependent variable in this study is pro-environmental voting. I define pro-environmental voting as voting for a party that takes a pro-environmental stance and for which environmental protection is also relatively salient—regardless of whether such a combination of party stance and salience is why the voter supports that party.

As anticipated above, the 2019 Chapel Hill Expert Survey (CHES) proposes two indicators related to the environment. One indicates the party's position on environmental protection, and the second measures the relative salience of environmental sustainability in the party's public stance in 2019.

Using these two variables, it is possible to assess how pro-environmental a vote choice is (regardless of whether the party voted belongs to the Green party family or not).4 Those two variables measure two quite different features of any vote choice. On the one hand, the position variable tells us which stance a party would take on the issue if asked. This information, while relevant, does not say anything about how relevant the issue is for that party—i.e. how likely it is that a party would do something to pursue the goal of environmental protection. In other words, a party could score very high on this variable but focus primarily on different issues and only make its stance on the environmental issue clear when the occasion arises in the debate.

On the other hand, the salience captures the importance that that party is attributing to that issue, which might play a key role in persuading the voters that the party will eventually act upon their stance. This variable seems to measure the "greenness" of a vote choice from a more manifested perspective. In light of these considerations, the need emerges to create a dependent variable capable of capturing both features–i.e. the party's position on the issue

and the space it leaves to it in the agenda.

Hence, to measure pro-environmental voting behavior, I combined the party's salience on the issue of environmental protection with its position. More precisely, following the consolidated measurement adopted by Hobolt and De Vries (2015) to measure EU-issue entrepreneurship, I multiplied, for each party, its salience score on environmental protection with the distance between its position and the average position of all parties in the system on the same issue (environment issue distance).

In CHES, the party's position on the issue is measured on an 11-point scale, where 0 indicates that the party "strongly supports environmental protection even at the cost of economic growth," while 10 indicates that the party "strongly supports economic growth even at the expense of environmental protection." I inverted the scale to ensure that lower values corresponded to less pro-environmental positions and higher values to more pro-environmental ones. I then measured the environment issue distance by subtracting the party's position from the average position of all parties in the same country.

The salience, too, is measured on an 11-point scale, where 0 indicates that the issue has "no importance" in the party's public stance, whereas 10 indicates the issue has "great importance." By multiplying the salience score by the environment issue distance, I got for each party a measure of how relevant the environmental issue is and the extent to which it takes a more pro-environmental position than the average party running for the same election.5

2.4.2 Environmental concerns and psychological variables

Among the main independent variables in this analysis, there are environmental concerns and two psychological variables—i.e. collective response efficacy and moral obligation.

Environmental concern, also known as public environmental concern (PEC) or public concern for environmental quality, can be defined as an attitude toward the environment. Starting from the 1970s, efforts to measure environmental concern have led to different results, at times hardly comparable due to remarkable differences in conceptualization, both substantially and theoretically—at times, PEC was intended as attitudes toward single environmental issues (e.g. pollution, population, natural resources); at times, as an attitude toward the whole set

of environmental problems. Furthermore, in theoretical terms, this attitude was deduced by various supposed proxies ranging from the support for governmental ecological policies to the knowledge of environmental issues to the personal engagement in pro-environmental behavior (Van Liere & Dunlap 1981). Besides inevitably providing misleading conclusions, such an overlap between attitudes and behavior defeats the purpose of this research—i.e. to identify the determinants of pro-environmental voting and keep the levels of environmental concern constant.

The choice to include a direct question regarding environmental concerns in the most recent, prominent surveys allows us to overcome those issues and get a good enough measure by directly asking respondents how worried they are about global warming. In this particular analysis, I use ESS Round 10 data, which includes the question, "How worried are you about climate change?." The answer is measured on a 5-point scale, where 1 means "Not at all worried," 2 "Not very worried," 3 "Somewhat worried," 4 "Very worried," and 5 "Extremely worried."

When using indicators of pro-environmentalism, one needs to be aware that the related items are likely to be subject to social desirability bias, which in this case might lead people to over-report their concern if they think that would give a better image of themselves based on social expectations (Fisher & Katz 2000). Due to that, when dichotomizing the resulting variable to distinguish voters with high levels of environmental concern from those with little or no concern, I only considered those who answered "Very worried" or "Extremely worried" as having high levels of environmental concern and all the others as having little or no concern at all about the issue.

Then, I measure the two psychological variables, i.e. moral obligation and collective response efficacy, applied to tackling climate change. We have defined moral obligation as the feeling that behaving pro-environmentally is one's moral responsibility. Hence, using the ESS Round 10 data, I measured moral obligation as the answer to the question, "To what extent do you feel a personal responsibility to try to reduce climate change?". The answer was given on an 11-point scale, where 0 meant "Not at all" and 10 "A great deal." As per the second psychological variable, we defined collective response efficacy as the belief that people can

successfully defend themselves from a given threat if they collectively undertake a certain course of action to fight against it. Using ESS data, I measured collective response efficacy on environmental protection as the respondent's answer to the question, "Now imagine that large numbers of people limited their energy use. How likely do you think it is that this would reduce climate change?." The answers to this question varied across surveys; depending on the group to which the respondents were randomly assigned, they could be proposed an 11-point scale, a 5-point scale, or a 4-point scale answer option. For comparison purposes, I standardized them and created one common variable for all.

2.4.3 Other independent variables

One last critical independent variable would be age. To test the effect of age, given that respondents from different countries voted in their last national elections in different years, for practical reasons, the respondents have been grouped by cohorts: Silent generation (1930–1945), Babyboomers (1946–1964), Generation X (1965–1980), Generation Y, also known as Millennials (1981–1996), and Generation Z (1997–2006). The last two are grouped in the analysis to ensure a fair distribution of observations in each group.

Besides the usual sociodemographic controls (e.g. gender, level of education, income, and rurality), the models also control for a few other variables considered relevant predictors of voting behavior.

First and foremost, respondents' self-placement on the left-right axis. Right-wing parties, and especially radical right populist parties, have been found to adopt conditional, "yes-but environmentalism" (Caiani & Lubarda 2024: 14), support animal welfare in particular, and domestic environmental protection (Schwörer & Fernández-García 2024). However, empirical evidence suggests that environmental protection tends to be generally prioritized by more leftist parties (Armingeon & Bürgisser 2021; Berker & Pollex 2023). Besides that issue, those parties will tend to emphasize other issues and policy goals. And a voter who is concerned about global warming but mostly has conservative stances on other issues might disagree with those. It is reasonable to expect a more progressive voter to be more likely to vote consistently with their environmental concern than a more conservative one.

Then, the respondents' position on other issues. Since a political party that stands in favor

of the protection of the environment will most likely also stand in favor of other (progressive) policy goals, which might predict that vote choice even more, one of the models in the analysis will also control for the respondent's stance on other three issues that are often part of the package of issues brought forward by some of those parties—inclusive approach to immigration, civil rights for the LGBTQ+ community, and European Union integration.

Moreover, in line with the theory on postmaterialism (Inglehart 1981), in the models, I include the respondent's satisfaction with the economy of their country to control for the possibility that only those individuals in Europe who feel the primary, more material needs among the general population in their country are met, feel like they can care about issues like environmental protection.

Finally, we know that electoral systems and specific electoral rules most likely impact electoral outcomes (Lijphart & Grofman 1984). From disproportionality to effective thresholds (Taagepera 1998), several aspects of the rules governing each country's electoral competition might influence the likelihood that a party might succeed in getting representation. Each model will control for the country of the respondent to account for all sorts of country-level differences.

2.5   Results and discussion

The results of the linear regression analysis (see Figure 2.1 below) corroborate some, but not all, of the hypotheses tested. First of all, in light of the theory elaborated by Barr (2006), data suggests that pro-environmental voting as an instance of pro-environmental behavior is positively associated with moral obligation as hypothesized (H2). In other words, voters who feel personally responsible for doing something in defense of the environment tend to cast a pro-environmental vote more than those who do not. That holds even when controlling for the stance of the respondent on other different issues that are often salient for parties that favor the environment in Europe—namely, nondiscrimination of the LGBTQ+ community, of immigrants, and European Union integration.

However, contrary to expectations, the other psychological variable included here — i.e., collective response efficacy – did not emerge as a relevant predictor of pro-environmental
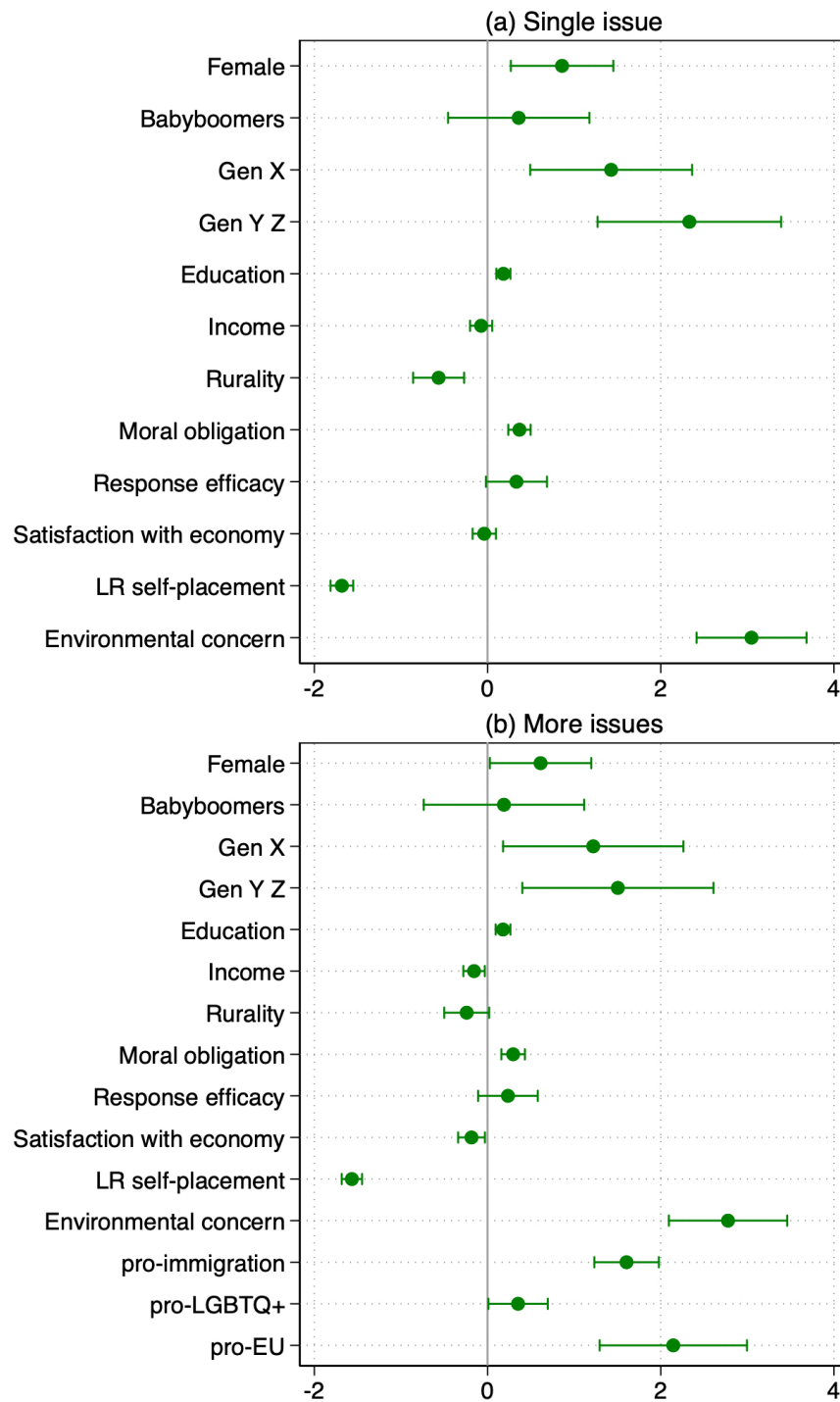
Figure 2.1: OLS estimates (pro-environmental voting). (a) single-issue model, (b) more issues model. Full estimates are reported in the Appendix, Table B.2.

voting. Hence, H1 is not supported by the data, and no statistically significant association emerges between collective response efficacy and pro-environmental voting. This suggests that those who believe that acting collectively to counteract climate change will work are not statistically keener to cast a more pro-environmental vote than those who think otherwise.

Regarding the sociodemographic variables, data suggests that female and more highly educated voters tend to cast pro-environmental votes more than male voters and voters with a lower level of education. That constitutes a relevant insight, as on the one hand, it brings up evidence for the existence of a green gender gap even on pro-environmental voting; on the other hand, it corroborates the expectation that education is a relevant predictor for pro-environmental behavior.

Income does not seem to play a substantive role in this case, nor does being or not satisfied with the state of one's country's economy, suggesting explanations for pro-environmental voting do not necessarily stem from the materialism vs. postmaterialism divide.

Living in more rural areas, which predicts a tendency to cast a less pro-environmental vote in the single-issue model, ceases to be statistically significant when the model includes attitudes toward issues other than the environment, suggesting that one's town size does not play a key role in determining the "greenness" of their vote choice.

Moreover, regarding other independent variables, both models present substantial evidence to support the claim that more right-wing individuals are less prone to cast a pro-environmental vote than the more leftist voters and that pro-environmental attitudes strongly predict pro-environmental voting even when controlling for attitudes on different issues. In other words, and intuitively enough, having a high level of personal environmental concern instead of being mildly or not at all worried about the issue is positively associated with more pro-environmental voting—more than any of the other issues that might be expected to be often part of the policy package of parties who want to contrast global warming (see Figure 2.1).

Finally, concerning the expectations regarding the role of age, younger voters seem to vote more pro-environmentally than older voters. As mentioned above, voters were grouped by cohorts, and voters from the two youngest generations (Generation Y, also known as

"Millennials" and Generation Z) were grouped to ensure a fair number of observations in each category. What emerges from the results seems to go in the direction of the hypothesis outlined above (H2).

First, in contemporary Europe, voters belonging to younger generations tend to cast pro-environmental votes more than older ones—this holds in both models. Second, that is particularly the case at high levels of environmental concern. Figure 2.2 clearly shows how, when the level of concern is mild, low, or nonexistent, the differences across cohorts are practically nonexistent. Contrarywise, it is where the voters feel very or extremely concerned about the environment that the real difference in voting behavior rests, as younger voters tend to "carry" their environmental concern into the voting booth more than others, being somewhat more loyal to their pro-environmental attitude than older voters.6 More specifically, voters belonging to Generation X, Millennials, and Z are all more consistent in their voting behavior with their environmental concern than voters who belong to the Silent Generation, and Millennials and Z are also more consistent than Babyboomers — which, interestingly enough, is often the generation of their parents.

2.6 Conclusion

The gap between environmental attitudes and behaviors has been extensively studied, often focusing on specific behaviors regarding consumption. However, less attention has been given to pro-environmental voting behavior, for which no clear definition or common measurement exists today. With the issue of environmental protection gaining prominence, measuring pro-environmental behavior and understanding the factors influencing it becomes crucial.

In this article, I aim to fill this gap by first introducing the concept of pro-environmental voting and a measurement for it. As environmental protection has become more prominent in politics, a wider pool of parties is increasingly addressing the issue, providing voters with multiple options to express their environmental concerns. As climate change entered the agenda of many parties, even when voters choose a party based on other issues, the environment might still benefit from it due to its current prominence in the public arena. Thus, the primary contribution of this article lies in its broadened conceptualization of
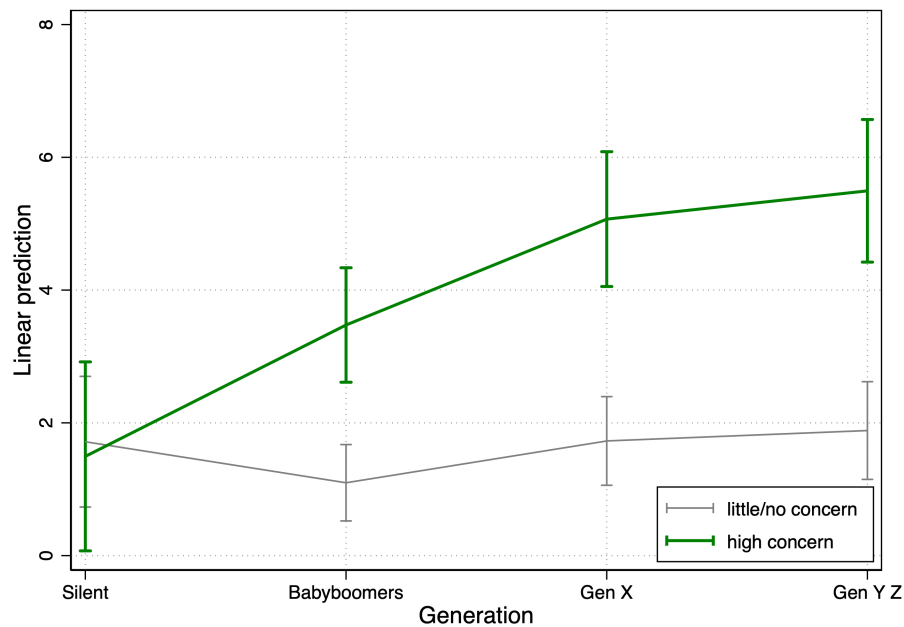
Figure 2.2: Marginal effects of generation on pro-environmental voting by levels of environmental concern. "Little/no concern" refers to respondents who said they are somewhat worried, not very worried, or not at all worried about climate change; "High concern" refers to respondents who said they are very or extremely worried about climate change.

pro-environmental voting that transcends mere support for Green parties.

Because of that, I propose a definition of pro-environmental voting as voting for a party that takes a pro-environmental position and for which environmental protection is also relatively salient, regardless of the reason behind the vote choice. By coupling data on party stances and issue salience with individual voting choices, I measure pro-environmental voting and explore its determinants over twenty-six European countries where elections were held between 2017 and 2021.

The results of the analysis support some of the hypotheses put forward. In line with Barr's theory on pro-environmental behavior (2006), individuals who feel personally responsible for environmental protection are more likely to vote pro-environmentally. However, contrary to expectations, high levels of collective response efficacy do not positively affect pro-environmental voting behavior. Hence, not all psychological variables tested seem to be relevant antecedents of pro-environmental voting.

In addition, results corroborate the presence of a green gender gap even in voting behavior,

which is the key role of education in predicting more pro-environmental behavior. However, they suggest that neither income nor satisfaction with the country's economy predicts pro-environmental voting, questioning the prominence of postmaterialist theory for explaining pro-environmental voting behavior.

Somewhat reflecting the existing theory on parties' stances on the environment, right-wing individuals are much less likely to cast pro-environmental votes than left-wing voters.

Last but certainly not least, findings reveal that younger voters tend to cast more pro-environmental votes than older ones. Quite surprisingly, this is especially evident at high levels of environmental concern. The youngest voters in contemporary European societies, namely those belonging to Generation Z and Millennials, are significantly keener to vote pro-environmentally compared to Baby Boomers, who are often the generation of their parents.

This finding paves the way for two possible interpretations. One explanation might be that older individuals might be simply more subject to social desirability when expressing their level of pro-environmental concern, i.e. they are overreporting their worry about climate change much more than younger people, and their gap in pro-environmental voting behavior does not mirror more than that. An alternative explanation could be that the smaller gap in younger generations between their environmental concern and pro-environmental voting behavior reflects being socialized at a time when climate change started to receive progressively more attention among the public, being often treated as the single most pressing issue to deal with at all institutional levels.

3 Mona Lisa isn't smiling anymore: Climate protests targeting artwork and their impact on public opinion

3.1 Introduction

On May 29, 2022 in the Louvre Museum in Paris, a 36-year old man, dressed as an old woman on a wheelchair, smashed a pie against the Mona Lisa portrait as an act of protest against the institutional inertia vis-à-vis the climate crisis. It soon proved to be not an isolated case, but rather the beginning of a series of similar actions echoing that act of protest, as activists in several other countries targeted mostly famous artworks in popular and crowded museums or squares (Kinyon et al. 2023), aiming to draw attention on the climate crisis. As a reaction, besides becoming a target of the authorities, who issued harsh legislation to penalize their actions (see e.g., Visconti 2024 for the case of Italy), those activists inevitably grabbed the notice of public opinion and the media on the way. They became liable to the criticism of the many bystanders who did not appreciate the act of targeting valuable pieces of art, and faced widespread criticism in global media, which often portrayed them as vandals staging blitzes in museums, and their actions as counterproductive to the environmental cause (López & Davis 2024).

Two years into this new wave of climate protests, this research addresses the questions of whether they really are attracting more criticism than approval among the public, and

weather this is negatively impacting citizens' stances on the environment, curbing their environmental concern and making them less willing to engage with pro-environmental behaviors. Evidence suggests that the target of these protests is not public opinion anymore, but rather governments, and the aim is to require them to comply with what scientists suggest and take action to contrast climate change (De Moor et al. 2021; Zamponi et al. 2024). Indeed, due to government short-termism, these institutions often fail to implement long-term policies on climate change (Improta & Mannoni 2024). As a result, activists resort to direct action against governments, aiming to pressure decision-makers into overcoming short-term incentives and committing to long-term environmental policies. However, even though public opinion is not their main target of interest, popular approval is nevertheless a relevant asset for protesters (Giugni 1998; Lipsky 1968; Wouters 2019), and the success or failure of protests may primarily depend on their impact on public opinion (Thomas & Louis 2014). When backed by a sympathetic public, protesters stand higher chances to bring forward the desired policy change as public opinion might amplify their demands and exert further pressure on the legislators (Agnone 2007). Even from a psychological perspective, shared grievances enhance perceived collective efficacy, which is what in turn keeps the collective action going (van Stekelenburg & Gaidyte 2023). In light of that, this research builds on the assumption that studying how climate protests targeting artwork affect public opinion holds relevance even when the protesters were not primarily aiming to get the public to side with them in the very first place.

Measuring the impact of exposure to those protests on pro-environmental attitudes and behavior is not easy for at least two reasons. First, public opinion on the environment is influenced by many factors (see e.g., Brough et al. 2016; Kemmelmeier et al. 2002; Kvaløy et al. 2012; McCright 2010; Vázquez 2020), making it difficult to isolate the impact of art-targeting protests from the rest. Second, because measuring pro-environmental behavior is a challenge in itself (Lange & Dewitte, 2019). Under the label pro-environmental behavior fall dozens of different possible behaviors. The vast majority are barely observable and can only be measured by asking individuals to report them – which poses serious challenges in terms of reliability of data, due to social desirability bias (Fisher & Katz, 2000). Finally,

environmental attitudes are also heavily affected by social desirability bias nowadays.

In light of that, I conducted a pre-registered[1] survey experiment, to test whether priming individuals to think about climate protests targeting artwork negatively impact their pro-environmental attitudes and behavior. As detailed below, instead of asking to self-report pro-environmental behavior, I actually measured it as the choice made by participants within the study to turn down a monetary bonus offered to them to donate it to one of the environmental organization proposed. By making the protest salient only to the treated group, I could measure whether these demonstrations and the alleged criticism they aroused are potentially detrimental for the cause as the interpretation of some early public opinion survey would suggest (Mann 2022)[2].

By leveraging two original data collections, this study offers relevant insights on both the occurrence, perception, and impact of climate protests targeting artwork. The findings add to the existing research on protests and public opinion, as well as to the literature on the factors influencing environmental concern and pro-environmental behavior. They also hold relevance beyond the academic community, especially for those interested in understanding the potential broader effects that such actions might have on the public at large.

3.2   Impact of protests on public opinion

Protests have long been recognized as a powerful agent of societal change through their impact on public opinion (Louis 2009). However, it is not always the case that protests manage to be effective in garnering support among the general public. Scholars have documented both instances where protest actions successfully shifted public attitudes (Sawyer & Gampa 2018) and even voting behavior (Wasow 2020), as well as cases where they struggled to engage key sectors of the public, alienating audiences and ultimately failing (Mudrov 2021). Indeed,

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[1]An anonymized version of the project and pre-registration summary, is available at this link: https://osf.io/nk7zt/?view_only = 9907aae4e74049b8ae8dbca3cf25b4e6. The content is currently anonymous to allow blind peer-review.

[2]"But actions that subject ordinary commuters to delays when they're just trying to get to work in the morning, or subject art gallery visitors to the unpleasant, wanton apparent destruction of iconic artwork, are simply choosing the wrong targets. They are alienating potential allies in the climate battle. And protests that simply make no sense at all when reduced to a photo and a headline – which is what the vast majority of the public will see – are potential public relations disasters." (Mann 2022, para. 20)

according to the extant literature, a key factor in determining their success or failure is the type of protest tactics they employ (Mudrov 2021; Shuman et al. 2024).

Non-violent tactics, such as peaceful protests or acts of civil disobedience, are generally more likely to elicit attitudinal change (Feinberg et al. 2020; Orazani & Leidner 2019; Thomas & Louis 2014). Violent demonstrations, on the other hand, seems to work better than non-violent on policy-related outcome (Tompkins 2015). However, protests do not occur in a vacuum, but rather in a setting where the media plays a pivotal role. Media coverage can amplify the voice of protesters but often does so in a selective fashion, framing events in ways that shape public perceptions. Violent protests are more likely to attract media attention compared to non-violent protests (Feinberg et al. 2020). That, however, can be detrimental for violent protesters (Baranauskas 2022) as the media tend to depict them as deviant, delegitimizing their actions in the eyes of the general public (McCluskey et al. 2009). On the other hand, non-violent protests, which are more likely to be perceived as legitimate, struggle more to gain high media coverage, significantly limiting their reach. This creates a tension for activists known as the *activist's dilemma* (Feinberg et al. 2020), wherein the same actions that can guarantee higher visibility and broader reach are also those that are most likely to erode support and alienate the public.

Whether protesters garner public support also depends on individuals' ideology. Studies have shown that individuals are more inclined to support protests in areas that align with their existing values or political affinity (McCright & Dunlap 2008; Olsen 1968). Moreover, right-wing individuals, are reported to be less supportive of protests in general compared to left-wing-oriented individuals, suggesting an ideological asymmetry in protest support. This may stem from the fact that liberals tend to advocate for social change, while conservatives are generally more focused on defending the status quo (Jost et al. 2017).

One could argue that because protest and civil disobedience is predominantly undertaken by progressive movements, it is naturally more susceptible to criticism from conservatives who may oppose not just the means but also the substantive claims of the protesters. However, recent experimental evidence suggests that conservative individuals disapprove of both conservative and liberal protests, whereas liberals show significantly greater support for

non-conservative protests than for conservative ones (Barker et al. 2021). Furthermore, the assumption that conservatives uniformly defend the status quo is not entirely accurate. Research indicates that more radical right-wing individuals also advocate for social change, albeit in a reactionary direction (Becker 2020). This strengthens the argument that support and opposition to protests may not always be rooted in the nature of the tactics but rather in disagreement with the ideological goals of the movement. Yet regarding climate protests, a study conducted on US American public, Bugden (2020) found that Republicans were the least supportive of them, regardless of the protest tactic adopted; Independents were supportive only of the peaceful marches, while Democrats both of peaceful marches and acts of civil disobedience. These findings seem to be in line with the literature on polarization of public opinion on the issue of climate change (McCright & Dunlap 2011), and the role of ideology in predicting more pro-environmental political preferences (Mannoni 2025), with more left-wing individuals being usually more likely to stand for environmental protection.

3.3   Climate protests targeting artwork

In the last few years since 2018, new central actors have emerged in the landscape of protests for environmental protection, the most popular being Fridays For Future (FFF), and Extinction Rebellion (XR) – the former mostly adopting strikes as main protest tactic, the latter relying more on acts of civil disobedience. In 2021, XR activists launched a permanent civil disobedience campaign called Last Generation ("Ultima Generazione", UG) (Zamponi et al. 2024), and when in April 2022 a new network labeled A22 was founded, UG soon split from XR to join it – as did other teams in several European countries, the United States and New Zealand (Kinyon et al. 2023). On May 2022 the first act of art pseudo-vandalism occurred in Paris, targeting the Mona Lisa, and ever since different teams of the A22 Network in different countries engaged with similar acts of civil disobedience for the climate. Between May 2022 and August 2024, 60 of those events occurred. From Figure 3.1, which shows the distribution by country, Italy clearly emerges as an outstanding case, as 21 (more than one every three events) took place there. In January 2024, a new law was passed in Italy, upon a proposal of the Meloni government, to sanction the "destruction, dispersion, deterioration,

defacement, defiling, and unlawful use of cultural or landscape assets"[3], setting very harsh administrative fines ranging from ten thousand to sixty thousand euros, and likely violating the European principle of *ne bis in idem*[4] (Visconti 2024), suggesting an intention of the legislator to act quickly to send a message and nip the protests in the bud.

Existing survey data suggests that climate protests targeting artwork have not been well received by the Italian public. According to a CATI survey conducted in May 2023 (IPSOS 2023), 54% of respondents considered the protests by eco-activists who deface monuments or block roads as "unacceptable", while only 35% found them "excessive but understandable given the importance of the issues addressed". The remaining 11% either did not express an opinion or did not respond. More recent data confirmed that general trend: a February 2024 poll reported that only 22% of Italians supported climate activists, highlighting widespread public skepticism toward their actions (Diamanti 2024).[5]
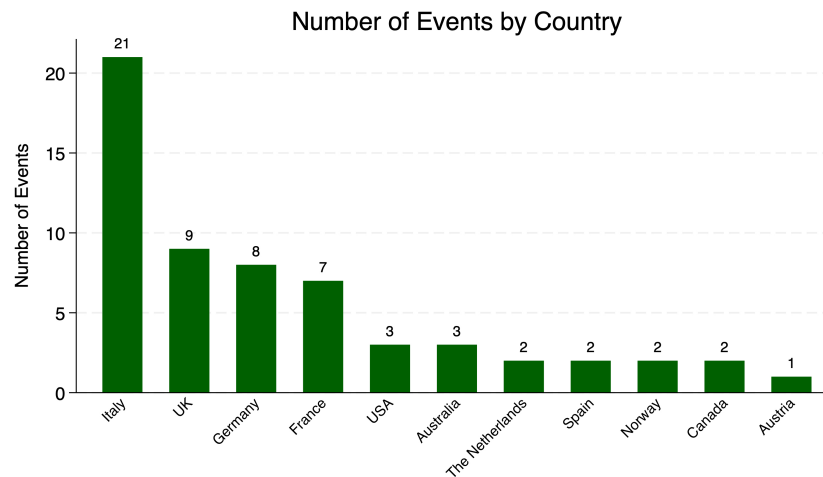
Figure 3.1: Number of art pseudo-vandalism events by country. Source: own elaboration.

Note: The count for Italy includes the event that occurred in the Vatican Museums, Vatican City.

As displayed in Figure 3.2, while the first year after May 2022 saw an initial boom of art

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[3]It. L.n. 6/2024, Art.1

[4]The Latin expression translates literally to "not twice for the same thing") and expresses a principle aimed at ensuring that no legal action can be instituted twice for the same act.

[5]This general skepticism towards climate protest targeting artwork is consistent with broader trends in Italian public opinion, which tends to value cultural heritage highly. When asked about sources of national pride, around half of respondents cited Italian art and literature as their primary reason (in comparison, only a quarter pointed to the country's cuisine) (IPSOS 2023).

pseudo-vandalism events organized by climate activists overall, followed by lower frequencies in the following periods, the trend in Italy (dark green line in the graph) seems to be relatively more constant over time, including in the aftermath of the new legislation passed in January 2024.
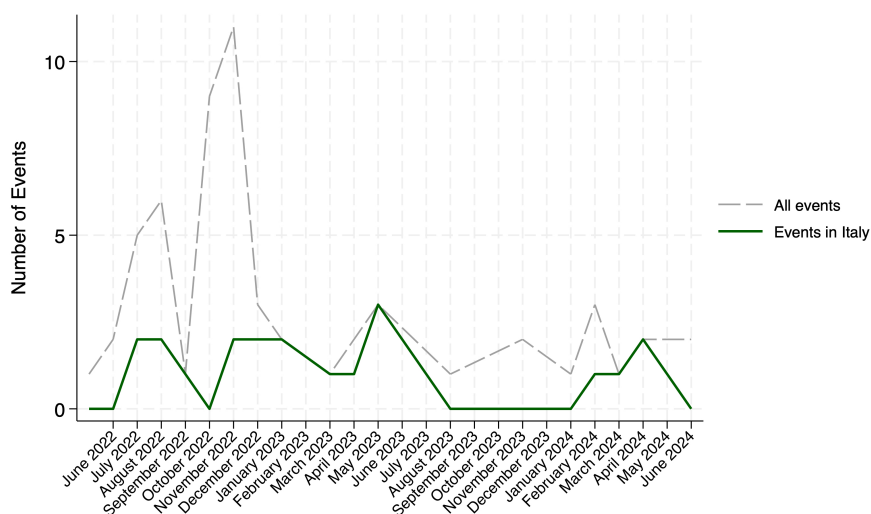
Figure 3.2: Number of art pseudo-vandalism events by month. Source: own elaboration.

The present study examines whether climate protests involving art pseudo-vandalism are counterproductive, generating more backlash and antipathy than sympathy among the public. Such expectation would resonate with the literature on *backfire effects*, according to which exposing conservatives to pro-environmental stimuli (such as pro-environmental protests) actually decreases their support for the cause (Dixon et al. 2019; Hart & Nisbet 2012; Zhou 2016). While it has been suggested that backlash effects might be rather rare in the context of climate protests (Bugden 2020), the potential influence of repeated exposure to negative media framing – portraying climate activists targeting artwork as vandals – should not be underestimated. In fact, by systematically referring to these protests in the news as acts of vandalism, global media portrayed them as de facto violent demonstrations[6], and that likely influenced their perception in the eyes of the general public. Indeed, echoing the terminology frequently employed by global media, the term of *museum vandalism* was adopted even in

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[6]According to ACLED's (2023) definition of violent demonstration, "This sub-event type is used when demonstrators engage in violence and/or destructive activity. Examples include physical clashes with other demonstrators or government forces; vandalism; and road-blocking using barricades, burning tires, or other material (...) ".

the scholarly community (Kinyon et al. 2023) in the earliest phase of this phenomenon. Here, connotating these protests as disruptive (as in Mann 2022 and Shuman et al. 2024) but also seconding the concerns raised by Araya Lopez and Davis (2024) regarding the suitability of labeling them as acts of vandalism, in this study I refer to them as climate protests targeting artwork and adopt the definition provided by Zamponi, Ferro and Cugnata (2024). In their article on the evolution of the climate movement in Italy, they introduce the concept of *art pseudo-vandalism* to describe actions that mimic damage to art or monuments but, as they use washable paint or non-permanent glue, cause no actual harm to the artwork (Zamponi et al. 2024, p. 258).

3.4   Causal Mechanisms and hypotheses

Drawing on the literature presented above on protest perception, media framing, and ideological predispositions, and following Beach and Littvay (2020), I propose two causal mechanisms through which climate protests targeting artwork may affect public opinion. The first mechanism leads from the climate protests targeting artwork to a backfire effect via disapproval of the tactic. The second leads from the climate protests targeting artwork to polarization, via selective receptivity based on ideological predisposition. In particular, as displayed in Table 3.1, art pseudo-vandalism, as a disruptive tactics, gets high media coverage (McCluskey et al. 2009), and media tends to frame it in a negative, delegitimizing way (Baranauskas 2022). As a consequence of the fact that they get higher media coverage than non disruptive protests, individuals are likely to be exposed to that information. Furthermore, as a consequence of the fact that the media coverage is negative and delegitimizing, the public develops what we may call *tactic disapproval*. When protest tactics are perceived as too radical or misdirected, they risk generating criticism more than sympathy (Feinberg et al. 2020). Indeed, it is likely that the public does not limit their disapproval to the protesters but extends it to the broader movement or aim they represent. Given that climate protests targeting artwork have been systematically framed as acts of vandalism by major media outlets (including the more neutral news agency like the one used for the experiment in this study) (López & Davis 2024), their exposure may provoke negative emotional responses,

leading to decreased pro-environmental concern and engagement.

The second mechanism, illustrated in Table 3.2, suggests that individuals interpret climate protests targeting artwork through the lens of their ideological predispositions. While media coverage plays a role in shaping public discourse, individuals do not passively absorb information but filter it based on their existing political beliefs. Research indicates that conservatives tend to favor pragmatic, rigid, and authoritarian approaches to problem-solving (see the rigidity-of-the-right hypothesis, e.g., Jost et al. 2003). Contrarily to left-wing people, they tend to prefer stability, order, familiarity, and loyalty to their opposites – e.g., change, novelty, or rebellion (Jost 2009). And, as mentioned above, they prefer to protect the status quo rather than advocating for social change (Jost et al. 2017), which leads right-wing individuals to usually be less supportive of protests in general, compared to left-wing individuals. Consistently with this, in the Italian context, reactions to the climate protests targeting artwork were such that right-wing and radical right-wing representatives strongly condemned the acts; left-wing representatives were rather ambiguous in their responses; and radical left representatives expressed support. These elite cues are relevant factors to understand how different ideological groups may interpret the protests and their legitimacy. Right-wing individuals (perhaps even confirming their views thanks to elites cues), are likely to perceive the protests as radical and disruptive, reinforcing skepticism toward both the activists and the broader environmental cause. Conversely, those with more radical left-wing may interpret the protests as a legitimate, even necessary, form of civil disobedience, aligning with their broader ideological commitment to environmental protection. This process, that we may call *selective receptivity*, is expected to result in polarization: right-wing individuals react negatively, distancing themselves further from environmental activism, while radical left-wing individuals may become more sympathetic or engaged. Unlike the backfire effect, which predicts a general negative response across the public, polarization implies a selective backfire: right-wing individuals become more alienated from environmental activism, while left-wing individuals might react more favorably (radical leftists) or remain unaltered in their stances (center-leftists). Table 3.3 below summarizes the hypotheses to be tested for expected outcome and relative mechanism.

Cause	→	→	→	Outcome
Climate activists engage in acts of civil disobedience targeting artwork	Media heavily cover the protests, framing them in a predominantly negative light, often portraying activists as vandals	The individual is exposed to frequent, negative media coverage of these events	The individual develops an antipathy toward the tactic (*tactic disapproval*)	The antipathy toward the protest tactic extends by association to the cause the activists are advocating for

Table 3.1: Causal process leading from climate protests targeting artwork to backfire effect via tactic disapproval.

Cause	→	→	→	→	Outcome
Climate activists engage in acts of civil disobedience targeting artwork	Media heavily cover the protests, framing them in a predominantly negative light, often portraying activists as vandals	The individual is exposed to frequent, negative media coverage of these events	The individual interprets the events through their ideological lens (*selective receptivity*)	Right-wing individuals see the protests unfavorably; radical left-wing individuals see them favorably	Right-wing individuals distance themselves from the activists' cause; radical left-wing individuals increase their support for it

Table 3.2: Causal process leading from climate protests targeting artwork to polarization effect via selective receptivity.

Table 3.3: Pre-registered hypotheses on the effect of climate protests targeting artwork on pro-environmental attitudes, intentions, and behavior.

Causal Mechanism	Hypothesis	Sign
Backfire Effect		
Tactic Disapproval	Climate protests targeting artwork have a negative effect on pro-environmental attitudes, intentions, and behavior.	$(-)$
	Climate protests targeting artwork have a negative effect on the intention to engage with political pro-environmental behavior.	$(-)$
	Climate protests targeting artwork have a negative effect on pro-environmental behavior.	$(-)$
	The negative effects of exposure to climate protests targeting artwork are stronger for individuals who disapprove of the tactic compared to those who endorse it or express no opinion.	$(-)$
Polarization Effect		
Selective Receptivity	The effects of climate protests targeting artwork on public opinion are moderated by ideology.	$(+)/(-)$
	Climate protests targeting artwork polarize the public, having a negative effect on pro-environmentalism among right- and radical right-wing individuals, while producing a positive effect only among radical left-wing individuals.	$(+)/(-)$

3.5   Data and Methodology

The study relies on evidence from an original online survey experiment conducted in Italy between August 28 and September 11, 2024 (n=1,004)[7], representative for gender, age, and region[8]. To the best of the author's knowledge, during the period of data collection, no climate protest targeting artwork took place (in Italy or elsewhere), which might have somehow biased the results. The data collection mode was CAWI (computer-assisted web interview). Measuring attitudes towards environmental protection is likely subject to social desirability bias, which makes respondents overreport behaviors or attitudes deemed as

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[7]Power analysis suggested that detecting a small effect (-5%) would require a sample of over 3,000 respondents per group, unfeasible due to budgetary constraints. Hence the study was designed to detect medium effects (-10%), for which power calculations indicated a required sample of 776 respondents per group. The final sample (N = 1,004) met this threshold. Post-hoc calculations confirmed that the study was sufficiently powered to detect medium effects (-10%) on all the dependent variables.

[8]Estimated time for completion was below 10 minutes.

socially more acceptable and underreport those considered more undesirable or controversial (Fisher & Katz 2000). While avoiding such bias altogether in interview-based social science research is not realistically possible, CAWI is usually considered less subject to it, since respondents feel less pressured by the presence of the (virtual) interviewer, compared to CATI (computer-assisted telephone interview) or face to face interviews (Kreuter et al. 2008). To estimate the effect of exposure to climate protests targeting artwork on public opinion, I performed OLS regressions for continuous dependent variables and logistic regressions for binary outcomes. Baseline models include only the treatment indicator, while additional specifications incorporate socio-demographic controls (e.g., gender, age, education, financial hardship) and political predispositions (i.e., ideological self-placement) to assess robustness. To test whether the effect of protest exposure varies across political ideology, interaction models include an interaction term between treatment and ideological self-placement. All models use robust standard errors. The next sections clarifies the experimental design, providing details on the treatment and outcome variables, as well as all other relevant variables included in the full models.

3.5.1   Treatment

In the study, participants were randomly assigned to either one of two conditions: treatment (T) or control (C). The experiment did not involve deception. Treated participants were exposed to a short piece of news reporting an act of protest targeting a rather famous piece of artwork – the Mona Lisa – by then targeted twice within less than two years. The treatment consisted of priming the respondents who would see the short text (173 words) of the article, as well as the reported image showing two activists in action (see C.1 in the Appendix). The news article shown to treated participants was taken from a real, non-manipulated, published article from a non-ideologically characterized Italian news agency AGI (Bianchini 2024). The chosen article reported an event that occurred in the Louvre Museum in January 2024 targeting the Mona Lisa. The article directly quoted the activists and did not explicitly criticize nor endorse their actions. However, consistent with the frame adopted by Italian media on the issue, the act was labeled as an instance of vandalism. The participants in the control group did not see the article nor the picture, nor they were asked whether they

approved that strategy to raise awareness on climate change; instead, they were directly taken to the next set of questions.

The rationale behind the treatment design relates to the role that media framing and coverage play in shaping public opinion (Scheufele, 1999) and public perceptions of protests (Brown & Mourão, 2021). When making judgments, individuals do not accurately assess all the information they have ever encountered; but rather rely on the information that media coverage made readily available and easier to recall (Iyengar 1994). After prolonged exposure to a consistent media frame, individuals tend to retrieve the narratives they have stored when primed to think about a related event or topic (Matthes 2007). Applying that to the specific case here examined, the consistent negative framing of climate protests targeting artwork by Italian media should influence the information retrieved by respondents who are primed to think about these events.

Furthermore, by the time the survey experiment was conducted, no incidents of climate-related art pseudo-vandalism had occurred for a few months, in Italy or abroad. The timing strengthens the quality of this research design, as it allows us to assert with more confidence that participants in the control group – not prompted to think about climate protests targeting artwork – had little reason to retrieve their prior views on these events when answering questions on the broader issue of environmental protection and climate change. Consequently, this should minimize the risk of contamination and enable to observe a cleaner effect of the treatment on the measured outcomes.

To ensure that treated participants engaged with the priming stimulus, respondents in the treatment group were asked their opinion on the protest tactic as a strategy to raise awareness about climate change immediately after being exposed to the news article. While it is not, strictly speaking, a formal manipulation check due to the absence of a comparable measure for the control group, this measure effectively confirms that the treatment group processed the protest-related information, offering valuable insight into their engagement with the stimulus. Following this, respondents in both groups answered questions aimed at measuring their attitudes toward environmental protection, their intention to engage in political participation for the environment, and their pro-environmental behavior. Depending

on the outcome variable examined, the analysis employs linear or logistic regression analysis to test the significance of between-group differences.

3.5.2   Outcome variables

Table 3.4 below reports the exact question wording for each item included in the final part of the survey, after the treatment, to measure the outcome variables.

Environmental concern

Environmental concern is a multidimensional concept comprising three components: a cognitive dimension, consisting of awareness that environmental harm is caused by human activities; an affective dimension, usually expressed through emotional reactions to the threat of environmental destruction; and a conative dimension, which can be understood as the readiness or intention to take action to address the issue (Franzen & Bahr 2024). This study includes measures for all three aspects of environmental concern. The affective dimension was covered by two items. A question asked "How worried are you about climate change?", and had a four-point answer scale, the options being "not at all worried", "a little worried", "very worried", or "extremely worried". Then a statement reading "It's pointless to do what I can for the environment if others don't do the same", which respondents could either select if they agreed or leave it unselected if they did not. To measure the cognitive dimension, two items read "Much of what is said today about environmental threats is exaggerated", "Climate change is not dependent on human action". Respondents could either agree or disagree with each. Finally, the conative aspect was covered by the statements "I feel a moral responsibility to contribute to protecting the environment", and "The government should protect the environment even at the cost of increasing taxes", which respondents could select if agreeing, and three questions to measure the intention to engage with political participation for environmental protection: "Would you ever join a protest for the environment?", "Would you ever sign a petition for the environment?", and "Would you ever share on your social media a post to spread awareness on the issue of climate change?". All three items had a four-point answer scale, ranging from "definitely no" to "definitely yes". Table 3.4 below summarizes for each item both the dimension of environmental concern they fall under, as

well as the specific indicator they measure.

Pro-environmental behavior

Besides pro-environmental attitudes, the study tests the effect of climate protests targeting artwork on pro-environmental behavior. Measuring pro-environmental behavior is challenging, as self-reported pro-environmental behavior tends to be more subject to social desirability bias than attitudes (Kormos & Gifford 2014). Measuring it right after a treatment in a survey experiment design is even more challenging, given that the behavior – even if self-reported – needs to take place *after* the exposure to the treatment. To overcome these issues, in the present study I attempt using two proxies for two instances of political pro-environmental behavior – namely, pro-environmental voting and donating money to a pro-environmental organization.

As for the former, based on Mannoni (2025), I consider pro-environmental voting as an instance of pro-environmental behavior, following an outcome-oriented rather than motivation-based criterion. Hence, I calculate the greenness of each vote choice by linking the survey responses to data from the party-level expert survey CHES, multiplying for each party its salience score on environmental protection with the distance between its position on the environment and the average position of all parties in the system on the same issue (Mannoni 2025). However, since the aim of this study is to test the impact of the treatment on pro-environmental voting, it is not possible look at past vote choice. Hence, I here rely on a common proxy for voting behavior – i.e., vote intention. While it is technically not an observed pro-environmental behavior, it is the best proxy that might possibly be used for pro-environmental voting. The pro-environmental voting score calculated for each party is linked to the party selected by each respondent as they answer the question, "If there were elections tomorrow, which party would you vote for?". In the case of Italy, this translates into a variable with values ranging from -6 (in the case of the League) to 22 (in the case of the Greens and Left Alliance). To facilitate interpretation and reduce the impact of extreme values and very large confidence intervals, the variable was then recoded into an ordinal one, ranging from score 1 for the least pro-environmental party to 6 for the most

pro-environmental option.

Regarding observed pro-environmental behavior, I measured it as the final choice to either keep the monetary bonus for themselves or else donate it to one of three pro-environmental organizations listed (Legambiente, WWF, or Greenpeace)[9]. Since participation in the protest cycle by these environmental organizations was not prominent (Zamponi et al. 2024), they should represent a good measure of commitment to contributing to pro-environmental organization whose reputation is not directly linked with that of protesters engaging with art pseudo-vandalism.

3.5.3   Other relevant variables

The analysis includes models controlling for socio-demographic variables and ideology. Gender is measured asking the respondent whether they are a woman, a man, non-binary or prefer not say. Based on their birth year, respondents were assigned to cohorts: Silent generation (1930–1945), Babyboomers (1946–1964), Generation X (1965–1980), Generation Y, also known as Millennials (1981–1996), and Generation Z (1997–2006)[10]. Regarding the financial condition of the respondent, the survey included a question on perceived economic hardship – i.e., how they manage to make ends meet at the end of the month, ranging from "with great difficulty" to "with great ease". The level of education was operationalized as low (up to middle school completion), medium (high school completion), and high (holding a university degree). Finally, as a proxy for ideology, the models include the respondent's self-placement on the left-right axis, originally measured in the survey on a 10-point scale where higher values indicate more right-wing self-placement.

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[9]As a result of this fieldwork, €100 were donated to WWF, €76 to Legambiente, and €59 to Greenpeace.

[10]Note that the analysis could not include respondents born in 2006 as the recruitment started from 2005 to ensure minors were not surveyed.

Table 3.4: Outcome variables.

Concept & dimension	Indicator	Question wording
Environmental concern		
affective	Climate change worry	*How much does climate change worry you?*
	Response efficacy	*It's pointless to do what I can for the environment if others don't do the same*
cognitive	Denialism	*Much of what is said today about environmental threats is exaggerated*
		Climate change is not dependent on human action
conative	Moral obligation	*I feel a moral responsibility to contribute to protecting the environment*
	Policy preference	*The government should protect the environment even at the cost of increasing taxes*
	Joining protest	*Would you ever join a protest for the environment?*
	Signing petition	*Would you ever sign a petition for the environment?*
	Online activism	*Would you ever share on your social media a post to spread awareness on the issue of climate change?*
Pro-environmental behavior		
political	Pro-environmental voting	*If there were elections tomorrow, which party would you vote for?*
political	Donating money	*Thank you for completing the survey. As anticipated at the beginning, in addition to the base compensation provided for your participation, you have been assigned an additional bonus of 1 euro. You can choose whether you prefer to receive the additional bonus or donate it to one of the environmental protection organizations listed below*

3.6   Results

The findings presented in Figure 3.3 below consistently show null effects across all tested dependent variables. The treatment, which exposed participants to a controversial climate protest targeting a piece of artwork, does not appear to significantly influence pro-environmental attitudes or behaviors. These results suggest that exposure to such protests does not provoke a measurable backlash in support for environmental action. Given that this study was sufficiently powered to detect medium effects $\geq 10\%$, the consistent null results across all models provide strong evidence against medium or large impacts of climate protests on public opinion. This suggests that such protests are unlikely to meaningfully shift public opinion, either positively or negatively.

Full regression models can be found in the Appendix (Tables A1 to A11), and include for each dependent variable, robustness tests controlling for socio-demographic variables and ideology. In the baseline model, only including the treatment variable (see Figure 3.3), the treatment seems to have a slightly statistically significant *positive* effect on the willingness to share social media content to raise awareness on climate change. However, Table A9 in the Appendix shows the significance of this effect diminishes when controlling for socio-demographic factors and ideology.
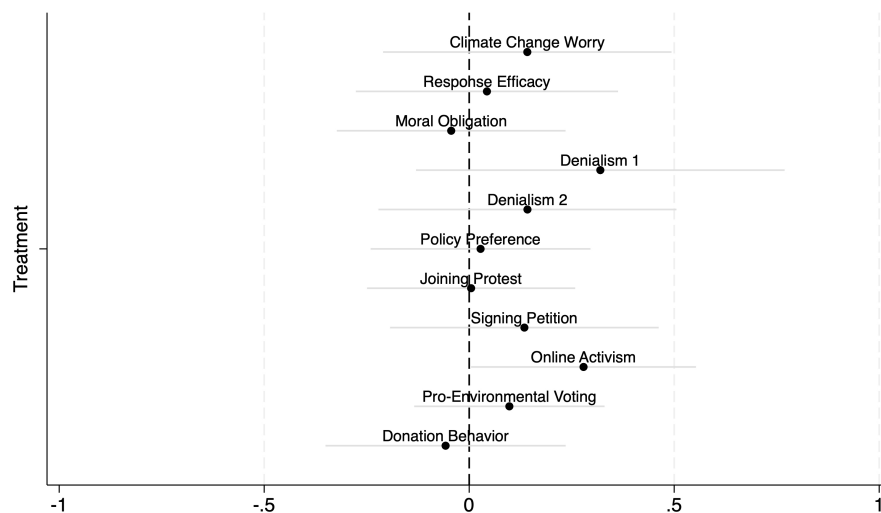
Figure 3.3: Coefficient plotting of treatment effects on each dependent variable. Error bars represent 95% confidence intervals.

Indeed, the first hypothesis anticipated a backfire effect, whereby exposure to the protest would negatively affect pro-environmental attitudes and behaviors. However, across all models, the treatment effect consistently fails to achieve statistical significance, providing no evidence to support this hypothesis. These results challenge the widespread assumption that protests targeting artwork alienate the public or undermine support for environmental causes. Rather than harming pro-environmental attitudes or discouraging behaviors, these protests seem to leave public opinion rather unchanged.

The analyses presented in Table 3.5 delve into the moderating role of participants' attitudes toward the protest tactic. Specifically, they distinguish between those who endorsed or were uncertain about the tactic ("I endorse it/DK") and those who outright rejected it ("I do not endorse it"), comparing both groups to those in the control group, who were not primed to the protests. These results offer a nuanced look into whether antipathy toward the protest tactic influences the effects of the treatment on pro-environmental outcomes. The results suggest that endorsement of the tactic influences some responses to the protest, but also leaves room for further reflection on its broader implications.

For climate change worry, the treatment effect is statistically significant and positive among those who endorsed or were unsure about the tactic. In contrast, no significant effect on worry is observed among those who affirmed they did not endorse the tactic. This asymmetry suggests that protests targeting artwork might deepen existing convictions among those already sympathetic while failing to sway those with unfavorable preconceptions.

The most pronounced effects emerge in the conative environmental concern – i.e., the dimension that concerns the intention to do something good for the environment. Those endorsing or undecided about the tactic reported a higher willingness to join protests and, to a lesser extent, engage in online activism. These findings suggest that climate protests targeting artwork may have mobilized sympathizers, providing them with a sense of urgency or shared purpose. However, no such effects are observed among those who rejected the tactic, who seemed to have remained rather unaffected across those measures. This polarization might suggest a selective resonance of these acts of civil disobedience, which have the potential to activate engagement among some while leaving others indifferent.

Across most attitudinal outcomes, including moral obligation and support for climate policies, the treatment effect is not significant for either group. This null result suggests that these protests, while potentially capable of mobilizing behavior among sympathizers, do not necessarily alter fundamental attitudes toward environmental protection or policy support. Similarly, the lack of significant effects on donation behavior, regardless of endorsement, indicates that the protest tactic may not translate into changes in pro-environmental actions.

With regard to the hypothesis on selective receptivity, the combined graph below (Figure 3.4) presents the interaction between ideology and treatment across all dependent variables. Each graph displays predicted probabilities derived from logit regressions, except for pro-environmental voting, which is a continuous variable and is therefore represented by linear predictions from an OLS regression model. As clearly illustrated in the graphs, there is no evidence that individuals respond to the treatment differently based on their ideological predispositions. While ideology, measured by the left-right scale, consistently emerges as the single most significant predictor across models (see Tables A1 to A11 in the Appendix), the interaction terms between treatment and ideological positioning remain statistically insignificant throughout. This suggests that selective receptivity does not operate in this context, meaning that being exposed to climate protests targeting artwork neither amplifies nor diminishes pro-environmental attitudes and behaviors among individuals with different ideological orientations. These findings reinforce the broader conclusion of a null treatment effect, demonstrating that ideological predispositions explain general attitudes on environmental protection, regardless of the exposure to the protests. While this research effectively rules out medium and large effects, it cannot entirely dismiss the possibility of smaller effects due to limited power for detecting subtle differences. However, the absence of significant interactions suggests that climate protests targeting artwork do not meaningfully engage, persuade, or alienate different ideological groups to a substantial extent.

Table 3.5: Regression results of tactic disapproval

	(1) Worry	(2) Efficacy	(3) Denialism1	(4) Denialism2	(5) Moral	(6) Policy	(7) Protest	(8) Petition	(9) Online	(10) PEV	(11) Donation
Control	0	0	0	0	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
I endorse it / DK	0.881**	-0.222	0.783	0.119	-0.305	0.364	0.613**	0.522	0.955***	0.639***	-0.0871
	(0.441)	(0.284)	(0.533)	(0.347)	(0.251)	(0.242)	(0.263)	(0.355)	(0.316)	(0.217)	(0.280)
I do not endorse it	0.0259	0.106	0.241	0.147	0.0162	-0.0498	-0.113	0.0634	0.161	-0.0193	-0.0513
	(0.185)	(0.174)	(0.238)	(0.196)	(0.151)	(0.145)	(0.136)	(0.174)	(0.146)	(0.124)	(0.157)
Constant	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	1004	1004	1004	1004	1004	1004	1004	1004	1004	740	1004

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
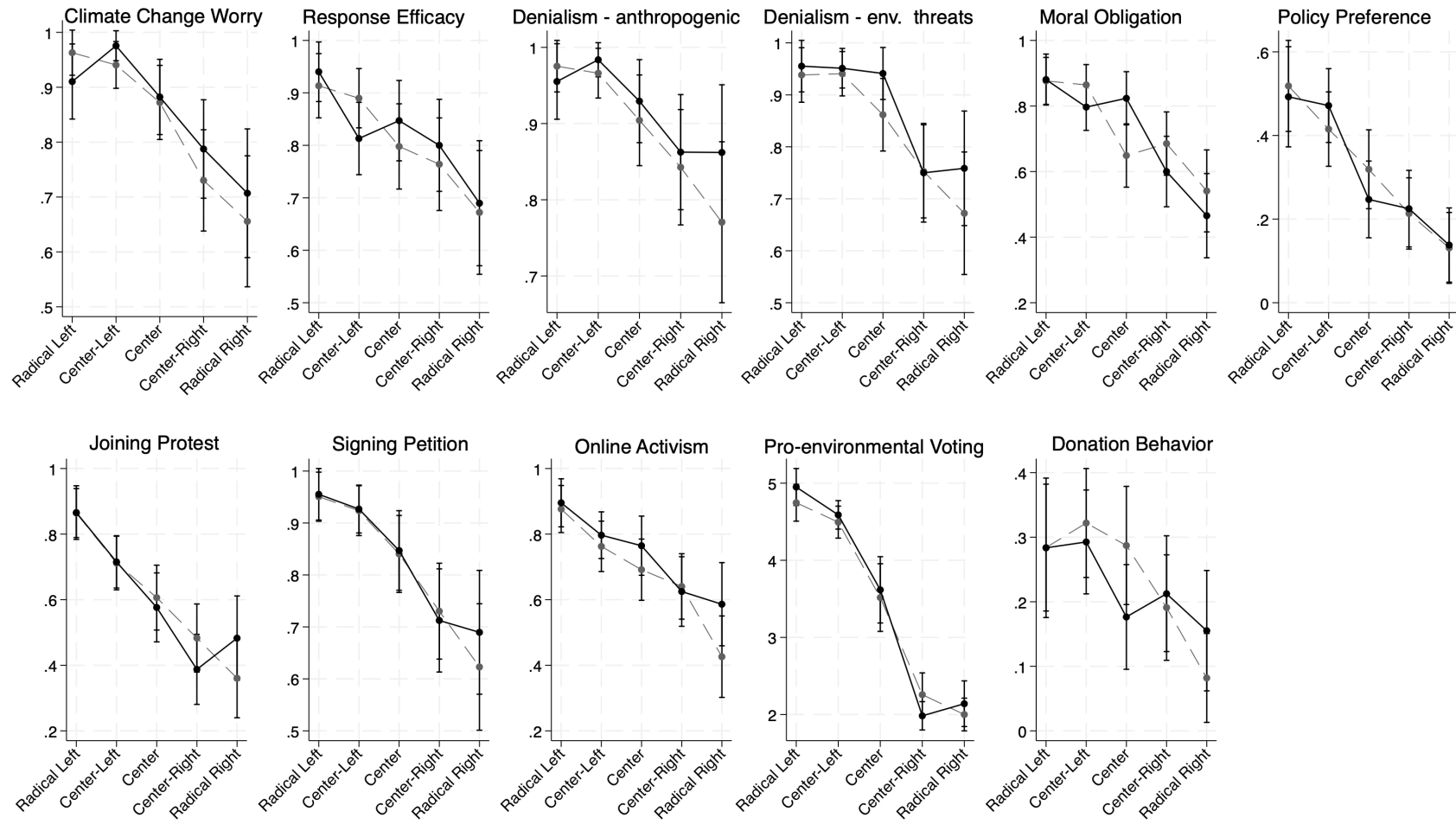
Figure 3.4: Effect of treatment by ideological self-placement. The thin dashed black line refers to the control group; the thick solid black line indicates the treatment group. Error bars represent 95% confidence intervals.

Note: All models are logistic, except for Pro-environmental voting, which is OLS.

3.7   Conclusion

This paper investigates the impact of climate protests targeting artwork on public opinion, specifically on environmental concern and pro-environmental behavior. Using data from an original survey experiment conducted in Italy, the study examines whether exposure to these protests generates backlash, mobilizes support, or has no significant impact at all. The treatment consisted of exposing respondents to a real news report on an act of art-targeting protest, which received widespread media coverage and public attention. By analyzing 11 dependent variables through a total of 55 regression models, this research offers a systematic and nuanced evaluation of the potential effects of such contentious protest tactics.

The findings are quite consistent. Across all models, the treatment coefficients were statistically insignificant. Whether examining affective, cognitive, or conative environmental concern or pro-environmental behaviors, there was no evidence to suggest that exposure to climate protests targeting artwork influenced these outcomes. These results remained consistent across alternative specifications, including those controlling for relevant socio-demographic variables and ideology. While left-right self-placement emerged as the most significant predictor of pro-environmental attitudes and behaviors, its role was independent of the treatment, and interaction terms between ideology and treatment consistently failed to reach statistical significance. This reinforces the conclusion that the treatment effect is null, regardless of individuals' political alignment.

Overall, these findings challenge the assumption that art-targeting protests have widespread detrimental effects on public support for environmental causes, while also failing to substantiate claims that they mobilize greater support. However, there is some evidence suggesting that the effectiveness of these protests might depend on prior attitudes. For those who do not antagonize the protesters and their tactics, exposure to climate protests appears to increase environmental concern and willingness to act. Conversely, the protests do not seem to either engage or shift the perspectives of those already opposed. Thus no evidence in this study supports the idea of a polarizing potential of such contentious demonstrations. In this light, the results suggest that while these protests may deepen the commitment of a subset of

supporters, they might be unlikely to broaden the movement's base by earning sympathizers, or further alienate skeptics, as hypothesized in this paper.

A few limitations must be acknowledged. First, the study focused on short-term reactions to a single instance of protest. Future research could examine whether repeated exposure or alternative treatments could produce different effects. Second, while the null results observed here suggest that these protests do not have significant negative effects on pro-environmental attitudes or behaviors as measured in this study, it is possible that small effects went undetected due to limited statistical power. Future studies should consider larger sample sizes or alternative experimental designs to detect subtler effects. Third, the study was conducted in a specific national and temporal context, which may limit the generalizability of the findings to other countries or cultural settings where protests, media narratives, and government reactions may differ significantly.

Despite these limitations, this research makes an important contribution to the literature on the effects of climate protests on public opinion. It provides empirical evidence that challenges anecdotal assumptions and media-driven narratives about the consequences of these contentious tactics. While climate protests targeting artwork are unlikely to meaningfully shift public opinion, the issue of environmental protection remains deeply politicized, with ideological divides shaping attitudes more than exposure to activism itself.

Finally, although that was not the main aim of this analysis, it provides once more strong evidence to support the idea of the politicization of the issue of environmental protection. Among the socio-demographic factors considered, predictors such as gender, generation, education, and financial hardship were relevant in some models but not consistently so. In contrast, a right-wing ideological self-placement emerged as a persistent and robust predictor of less pro-environmental stances, regardless of experimental group, dependent variable, or social subgroup. These findings suggest that environmental protection should not be framed by scholars as a valence issue, i.e., a universally shared priority, but rather as a positional one, strongly and mainly characterized by ideological divides.

Conclusion

This dissertation integrated insights from political psychology, electoral research, and environmental politics to examine the relationship between environmental concern and pro-environmental behavior across multiple dimensions and in different contexts. Heavily based on fresh survey data, the findings from each empirical study contribute to advancing the theoretical and methodological debates on the green attitude-behavior gap, support for pro-environmental parties, and the impact of climate activism on public opinion.

The first empirical study explored the persistence of the attitude-behavior gap across ten distinct pro-environmental behaviors. The results revealed a first, clear pattern: individuals highly concerned about environmental issues are far more likely to engage in private pro-environmental behaviors, such as recycling and boycotting products, than in public behaviors, such as joining protests or environmental groups. The study identified a particularly pronounced gap for political pro-environemental behaviors, where very few environmentally concerned individuals engage consistently in activism or forms of political participation for the protection of the environment. A possible explanation for this is that institutional characteristics, such as country-level regulations like increasingly mandatory recycling policies, might have contributed in narrowing some of the gaps measured.

In addition to that, the analysis revealed that demographic differences play a substantial role. The findings corroborate the idea of an existing green gender gap, with women consistently exhibiting smaller consistency gaps compared to men. This is particularly the case in behaviors associated with stereotypical views of femininity or masculinity, such as using sustainable transportation (vs. driving a car) or reducing meat consumption (vs. consuming meat). The analysis on generational differences indicated that younger cohorts (Gen Y, also

known as Millennials, and Gen Z) display higher consistency in political behaviors yet a larger gap in private behaviors, reflecting their tendency to express environmental concerns publicly rather than privately. This reinforces the idea of an increased politicization of the issue of environmental protection which might be perceived by the youngest generations as a *political* issue which needs to be addressed with *political* actions.

The second empirical study focused on pro-environmental voting, introducing an innovative measure of support to pro-environmental parties, by linking individual voting data from the European Social Survey (ESS) with party-level environmental positions from the Chapel Hill Expert Survey (CHES). Results revealed a positive association between moral obligation and pro-environmental voting. This suggests that voters who feel personally responsible for environmental protection are significantly more likely to cast more pro-environmental votes. Contrary to expectations, though, collective response efficacy – the belief in the effectiveness of acting collectively to face a common threat – did not significantly predict pro-environmental voting, calling into question widely held assumptions about its role in political behavior.

From the analysis, gender emerged as significant predictor, with women more inclined to vote pro-environmentally than men. This provided further evidence to corroborate the idea of a green gender gap, already found in the first paper and in a growing body of literature. However, income and satisfaction with the state of the economy showed no substantial influence, questioning postmaterialist explanations traditionally used in the literature, and the widespread understanding that pro-environmental options are a prerogative of the wealthier sections of society. Ideological self-placement consistently predicted pro-environmental voting, confirming that right-wing individuals are significantly less likely to engage with political pro-environmental behaviors. Additionally, and perhaps most interestingly, strong generational differences emerged; younger voters (again, Millennials and Gen Z) displayed greater consistency between environmental concern and voting behavior than older cohorts, especially at higher levels of environmental concern. These findings reinforce the idea that generational experiences and socialization around climate issues significantly impact pro-environmental behavior, and that – once again – the youngest generations might address

environmental protection with *political* means at their disposal more than older cohorts do. The third empirical study investigated the impact of exposure to climate protest targeting artwork on individuals' environmental stances. The analysis was based on a pre-registered survey experiment conducted in Italy. Contrary to expectations, the findings showed predominantly null results, indicating that there is no evidence in this study to support the idea that exposure to a climate protest targeting artwork significantly reduces public support for environmental issues. The treatment – priming the respondents using exposure to real media coverage of a controversial climate protest which had months before targeted the Mona Lisa – did not lead to the hypothesized backlash or polarization effects on pro-environmental attitudes or behavior. Nonetheless, an important conditional effect emerged: individuals already sympathetic or neutral towards the protest tactics showed increased concern and willingness to participate in actions for the environment. Conversely, those opposed to the tactic, which where the vast majority of respondents, remained unaltered. The absence of polarization based on ideological predispositions further suggests that while ideology influences overall attitudes towards the environment, it does not alter reactions to the specific type of protest examined. Although the null results effectively rule out moderate or large effects, smaller effects could not be entirely dismissed due to power limitations. The findings significantly challenge widespread assumptions about the strongly negative public repercussions of provocative climate protests.

Collectively, these results significantly advance scholarly understanding of pro-environmental attitudes and behaviors, challenging oversimplified assumptions about the relationship between attitudes and actions, offering novel measurement approaches, and exploring causal pathways through experimental designs.

Taken together, these findings have significant theoretical and practical implications. First, they highlight that the green attitude-behavior gap is not uniform across behaviors — and neither are its drivers, although some seem to be consistently significant across behaviors with similar features. As the gap and its drivers vary across behaviors, this research suggests the need for a more nuanced approach to studying environmental action and devising policy interventions aimed at promoting sustainability. Second, the refined conceptualization of

pro-environmental voting challenges prevailing assumptions in political science about the role of party labels in environmental politics. As climate issues become mainstream across party platforms, treating voters of green parties as the sole supporters of pro-environmental agendas, while assuming all other voters prioritize different issues at the expense of environmental protection, is overly simplistic. The introduced conceptualization of pro-environmental voting as outcome-oriented rather than motivation-based allows for an assessment of vote choice as more or less supportive of the environment, regardless of voter motivations or party labels.

Beyond the scholarly debates, this dissertation offers insights that may be of interest to political parties, policymakers, and environmental advocacy groups seeking to understand current patterns of environmental engagement. The dissertation's findings on generational differences indicate that younger voters act more consistently with their environmental concern. This sugges that their engagement with climate issues follows distinct patterns compared to older cohorts. Additionally, the strong evidence on the green gender gap – where women tend to engage more consistently in pro-environmental behaviors than men – suggests that gender remains a key factor in shaping environmental engagement. This persistent difference raises questions about the underlying socio-cultural and structural factors that contribute to it, as well as its implications for political mobilization and policy design. Finally, while disruptive protests generate significant media attention – most often in the form of negative coverage – public attitudes toward climate issues appear more stable than expected. Despite widespread disapproval of their tactics, these protests do not seem to provoke major shifts in opinion, suggesting that public attitudes on climate issues are more stable than often portrayed.

This dissertation does not come without limitations. As repeatedly acknowledged throughout the thesis, reliance on survey data, while providing broad generalizability, is inherently subject to social desirability bias and self-reporting inaccuracies. While robustness checks, including high-threshold behavioral classifications, were implemented to mitigate this issue, future research less bounded by budgetary constrains should consider complementing survey methods with direct behavioral observations or panel data to track changes over time. Furthermore, the experimental study, while providing strong causal evidence, was conducted

in a single national context. Future studies could explore whether similar patterns hold in different cultural and political environments and whether this extends to other types of acts of civil disobedience for the climate (e.g., road blockades).

This dissertation contributes to a deeper understanding of the relationship between environmental concern, behavior, and political engagement. It moves beyond static models that treat attitudes as stable predictors of action and pro-environmental behavior as a monolith, and instead offers a more detailed perspective on how individuals translate their attitudes into different types of behaviors. As climate change remains an urgent global challenge, and as societies undergo transformations driven by the green transition, future research should continue investigating the relationship between environmental attitudes and behaviors, expanding on the role of institutions, economic constraints, and socialization processes that alter pro-environmental stances.

A Appendix to Chapter 1

Table A.1: Distribution of public environmental concern by country.

Country	1	2	3	4	5
	Not at all concerned				*Very concerned*
Australia	2.9	7.0	18.5	26.5	**41.4**
Austria	2.3	7.2	25.3	46.2	**18.9**
China	3.7	10.6	22.9	49.7	**12.4**
Croatia	2.4	7.1	33.1	31.2	**25.7**
Denmark	2.1	8.2	28.1	32.0	**26.7**
Finland	3.8	9.9	23.6	37.8	**23.0**
France	1.0	5.2	22.1	37.9	**32.6**
Germany	2.1	5.1	21.2	35.1	**35.9**
Hungary	1.8	5.8	35.6	38.0	**18.0**
Iceland	3.7	7.8	23.8	33.5	**30.4**
India	6.0	8.5	15.6	23.3	**43.2**
Italy	1.9	6.6	20.4	23.5	**47.2**
Japan	1.5	3.6	17.6	40.6	**35.4**
Lithuania	1.8	8.5	26.0	35.3	**27.3**
New Zealand	2.8	4.0	16.5	29.0	**43.5**
Norway	3.3	7.0	29.2	34.3	**24.6**
Philippines	4.8	4.4	15.8	26.4	**47.8**
Russia	6.5	3.7	19.7	21.7	**47.7**
Slovakia	9.4	16.1	29.5	24.2	**17.9**
Slovenia	1.8	3.0	15.0	28.4	**51.2**
South Africa	8.2	11.7	34.1	20.2	**24.2**
South Korea	0.8	6.8	27.3	48.6	**16.4**
Spain	2.0	3.6	13.2	26.2	**53.0**
Sweden	4.3	9.0	26.2	31.7	**25.4**
Switzerland	1.7	5.6	20.6	33.8	**37.6**
Taiwan	1.7	3.4	29.9	35.6	**29.0**
Thailand	11.0	13.6	26.5	26.8	**18.8**
United States	5.1	7.2	23.2	24.6	**36.9**
Total	3.6	7.2	23.4	32.3	**32.0**

Note: All values indicate percentages. The column in bold on the right indicates the portion of the most concerned individuals and, as such, corresponds to the sample section used for the analysis conducted in this paper. Missing values are not reported.

Table A.2: Pro-environmental behavior by country.

Country	fly	car	meat	housing	recycle	boycott	group	petition	donate	protest
Australia	71.3	2.0	7.2	21.0	72.1	47.1	7.5	34.3	23.3	6.9
Austria	93.8	15.8	18.2	36.9	71.8	44.3	7.2	37.0	31.2	6.3
China	88.4	35.1	45.5	46.0	21.4	25.9	5.4	2.9	8.9	0.5
Croatia	92.6	12.9	15.3	70.1	36.8	30.0	3.8	15.0	5.7	3.6
Denmark	50.5	10.5	NA	31.8	66.5	40.9	3.2	17.5	17.7	6.4
Finland	64.3	17.5	13.9	35.6	70.4	38.0	10.2	20.7	18.3	3.5
France	87.1	10.0	11.5	18.6	86.0	61.5	6.5	35.9	13.5	11.7
Germany	89.9	8.2	21.3	23.8	81.0	58.5	6.2	28.6	21.4	6.7
Hungary	87.3	9.9	67.7	48.9	44.1	31.1	8.7	6.1	5.2	2.2
Iceland	58.2	32.1	7.8	39.6	74.9	37.4	1.9	31.3	23.7	6.4
India	77.4	3.2	13.7	90.1	16.9	43.5	12.2	13.2	16.8	20.0
Italy	69.9	24.5	6.2	38.0	82.5	32.8	15.8	14.0	8.2	5.7
Japan	81.8	9.8	11.7	22.0	66.9	48.0	5.3	7.3	5.7	0.2
Lithuania	69.6	15.8	52.9	56.2	47.5	20.0	1.3	12.1	3.2	2.1
New Zealand	63.6	19.8	10.5	28.7	76.3	48.8	1.1	38.0	25.9	7.9
Norway	43.4	23.9	8.0	16.9	74.6	35.9	2.0	20.2	26.1	5.8
Philippines	97.2	2.4	29.8	95.6	31.2	28.5	12.6	3.7	4.9	1.3
Russia	90.0	11.5	36.5	70.6	20.6	24.7	9.8	9.7	7.0	2.1
Slovakia	82.9	45.4	46.7	66.5	54.4	38.3	10.1	20.2	7.6	1.3
Slovenia	83.8	48.1	16.4	54.4	80.0	39.1	2.7	21.7	11.6	5.1
South Africa	82.4	14.3	10.8	70.3	6.9	19.6	1.8	6.1	5.5	5.6
South Korea	81.3	18.6	13.3	61.2	44.3	32.4	5.5	9.6	4.5	1.5
Spain	60.0	42.5	18.3	48.6	62.6	42.9	11.9	26.1	9.7	11.8
Sweden	69.0	17.6	14.2	24.9	76.7	43.2	3.6	20.9	25.7	4.8
Switzerland	42.5	14.4	13.1	25.1	83.2	59.6	8.4	35.1	32.8	9.8
Taiwan	77.3	15.0	57.0	29.6	66.3	37.6	13.4	9.1	9.3	1.3
Thailand	96.7	16.0	37.2	83.5	13.6	29.7	2.6	6.1	7.4	3.1
United States	71.1	7.2	10.7	31.0	56.1	35.0	9.3	23.2	21.1	5.5
Total sample	74.3	19.3	22.3	45.3	56.3	39.1	7.3	18.8	15.1	5.6
Average	75.8	18.0	22.8	45.9	56.6	38.4	6.8	18.8	14.3	5.3

Note: All values indicate percentages. Pro-environmental behavior values refer to the overall sample for each country, regardless of individual levels of environmental concern. For each behavior, dark gray indicates public opinion in the country behaves more pro-environmentally than the average among countries; light gray indicates below-average scores.
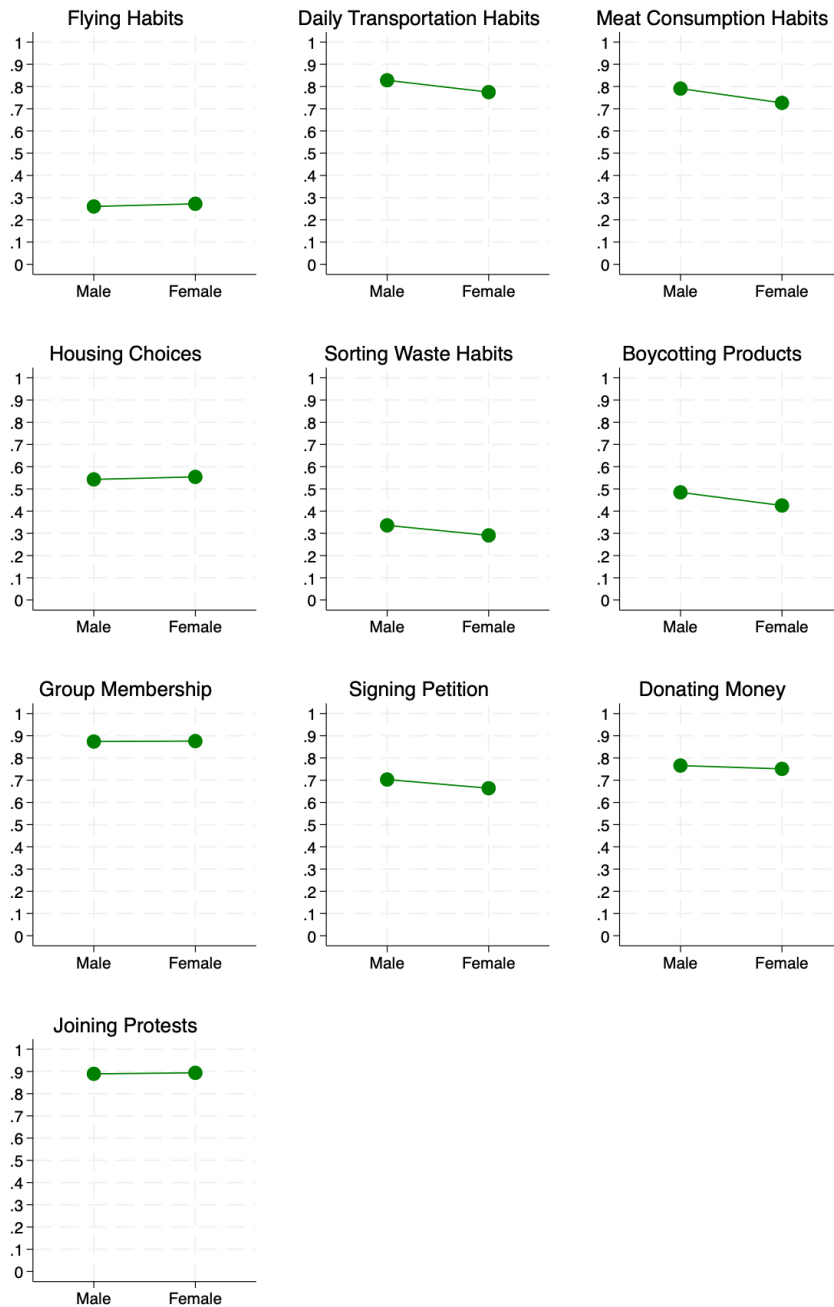
Figure A.1: Predicted probabilities by gender of exhibiting an attitude-behavior gap across pro-environmental behaviors (PEBs) for all countries.

Note: The graphs display the predicted likelihood of exhibiting a gap between environmental concern and pro-environmental behavior, calculated from logistic regression models controlling for socio-demographic characteristics, environmental intention, and country fixed effects. Confidence intervals are shown for each probability estimate. Results for single countries can be found in Figures A.3 to A.12.
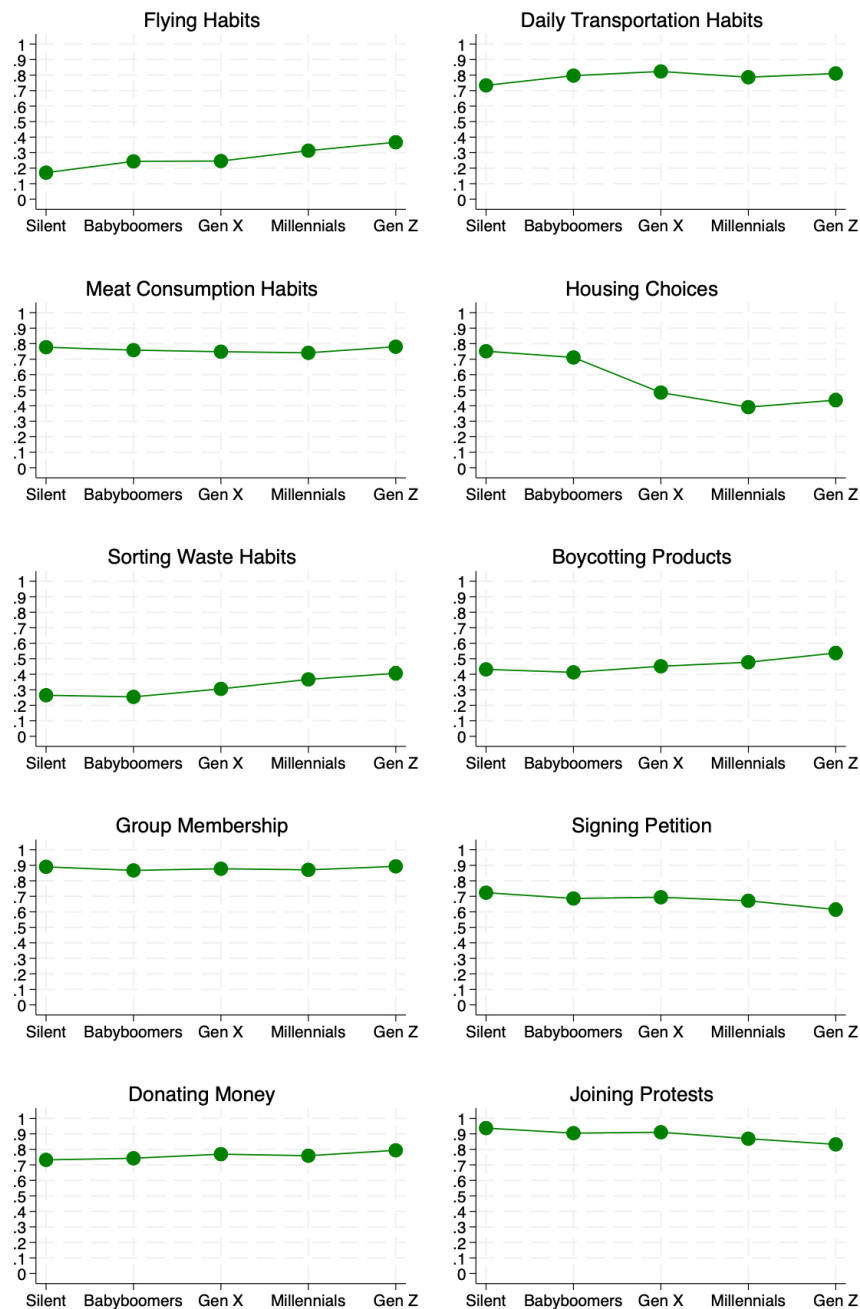
Figure A.2: Predicted probabilities by generation of exhibiting an attitude-behavior gap across pro-environmental behaviors (PEBs) for all countries.

Note: The graphs display the predicted likelihood of exhibiting a gap between environmental concern and pro-environmental behavior, calculated from logistic regression models controlling for socio-demographic characteristics, environmental intention, and country fixed effects. Confidence intervals are shown for each probability estimate. Results for single countries can be found in Figures A.13 to A.22.
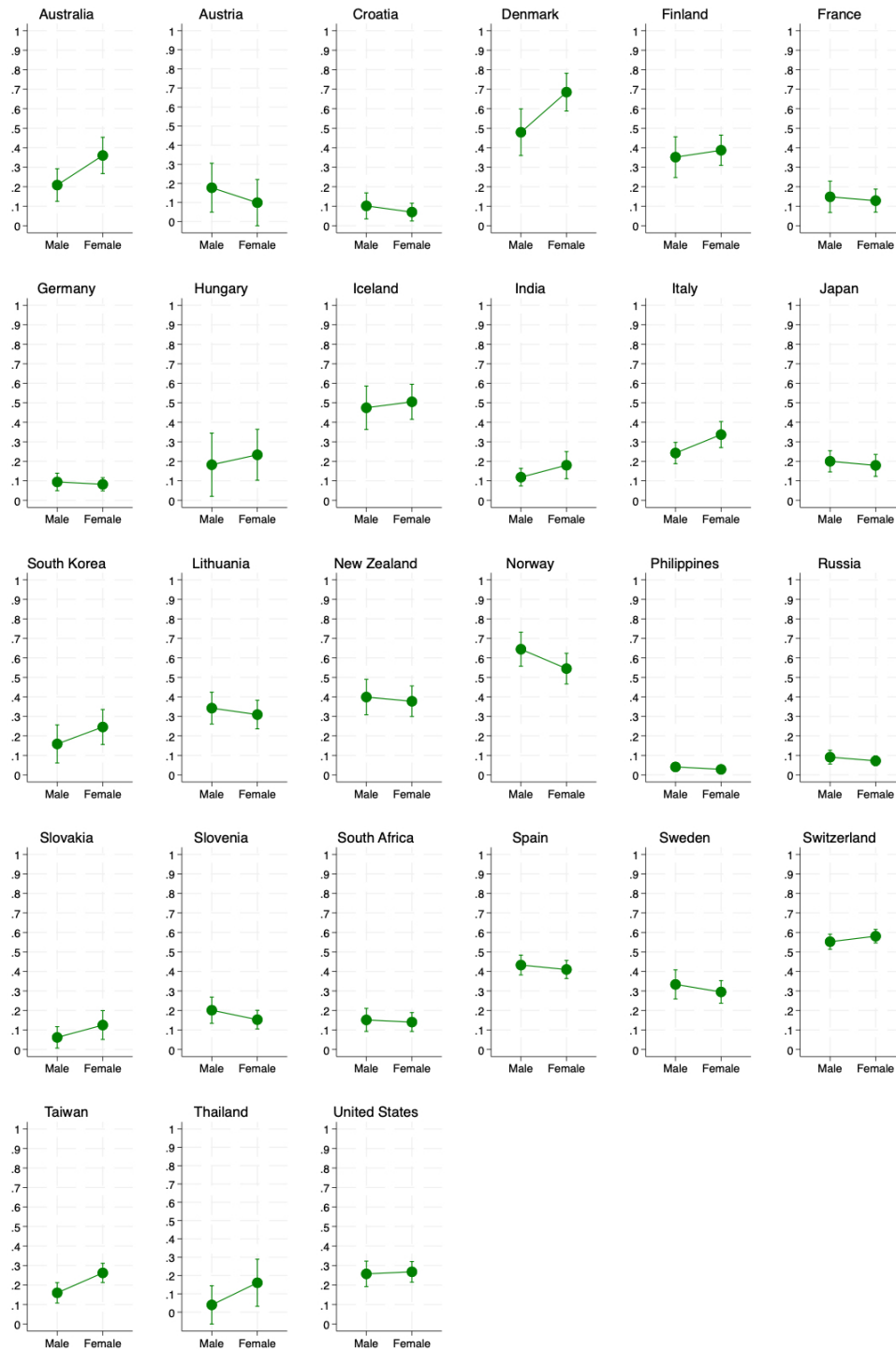
Figure A.3: Predicted probabilities of exhibiting a gap in flying habits by gender across countries.

Note: The probabilities are based on logistic regression models, controlling for key socio-demographic variables. Error bars represent 95% confidence intervals. Countries are arranged in alphabetical order.
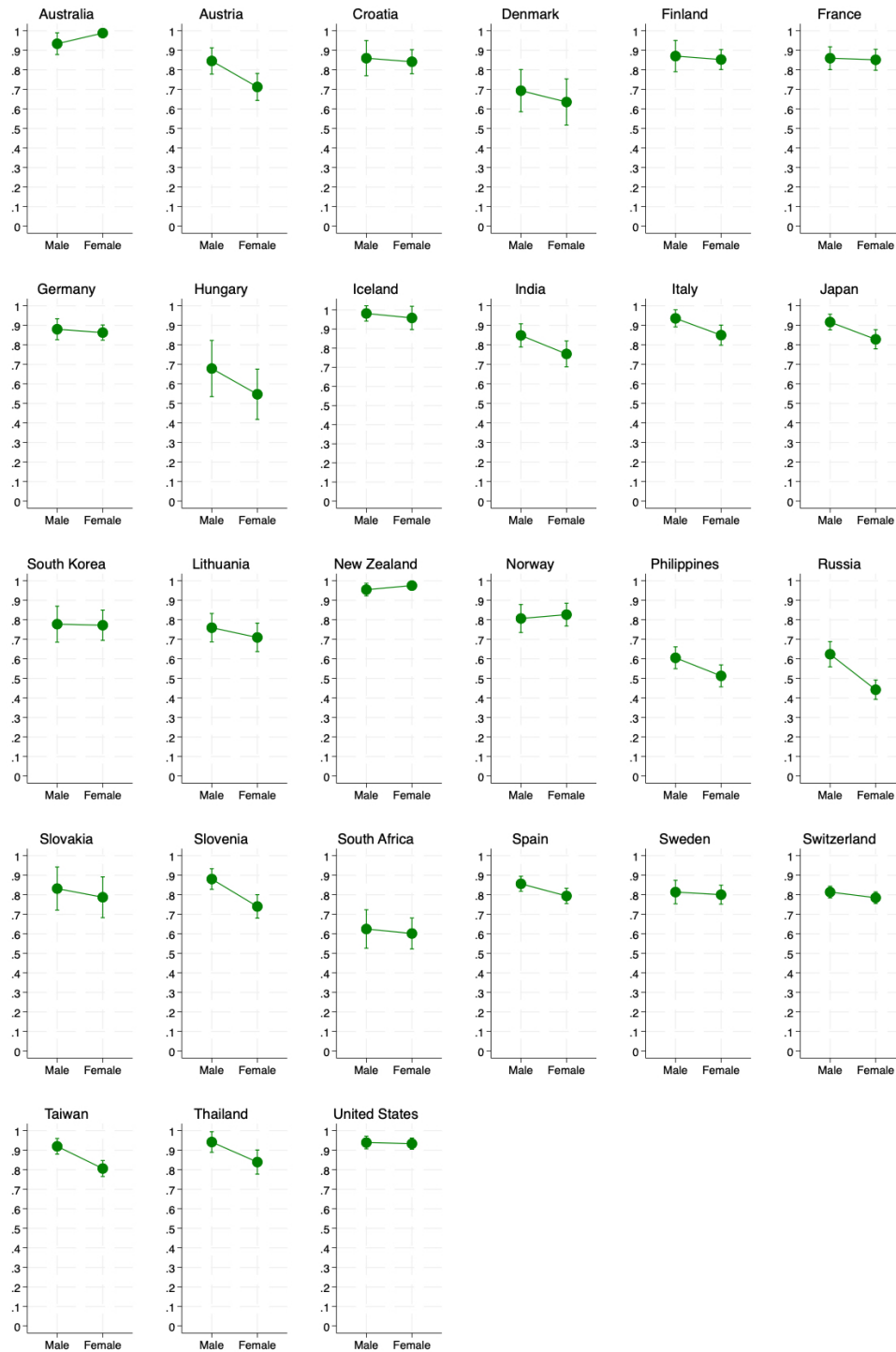
Figure A.4: Predicted probabilities of exhibiting a gap in daily transportation habits by gender across countries.

Note: The probabilities are based on logistic regression models, controlling for key socio-demographic variables. Error bars represent 95% confidence intervals. Countries are arranged in alphabetical order.

Predicted Probabilities by Gender for: Meat consumption habits
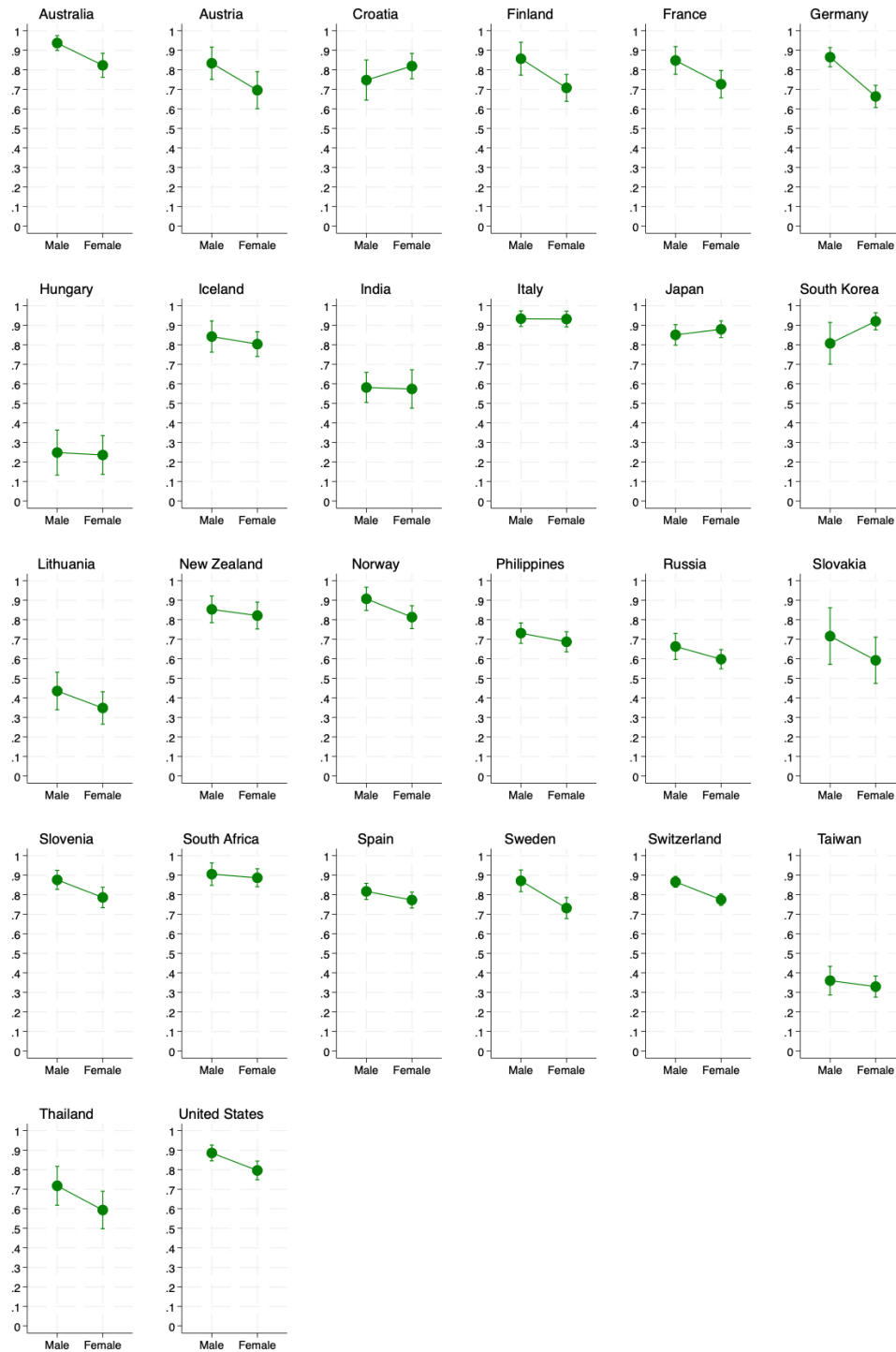
Figure A.5: Predicted probabilities of exhibiting a gap in meat consumption habits by gender across countries.

Note: The probabilities are based on logistic regression models, controlling for key socio-demographic variables. Error bars represent 95% confidence intervals. Countries are arranged in alphabetical order. In Denmark the question was not asked.
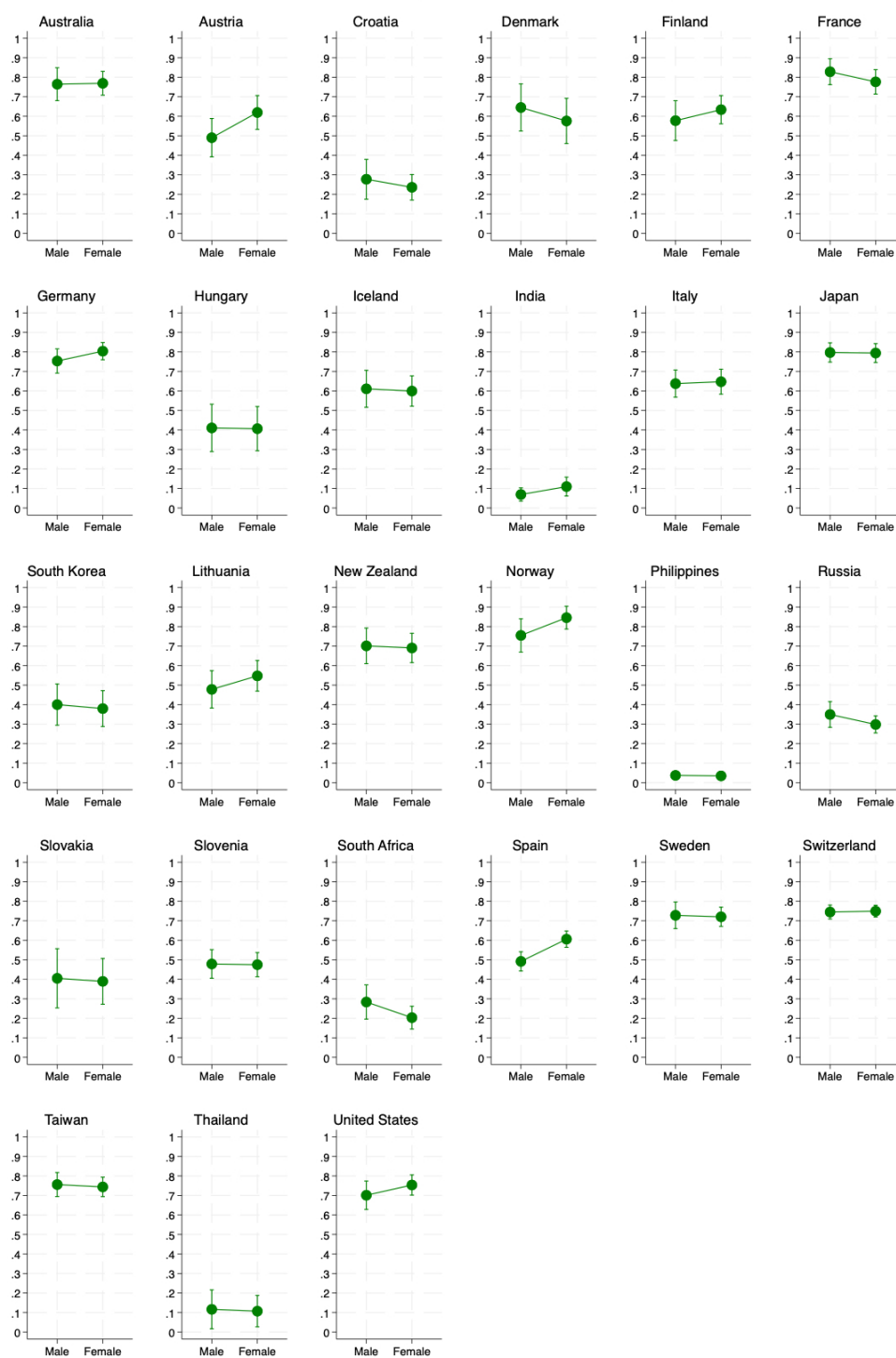
Figure A.6: Predicted probabilities of exhibiting a gap in housing choices by gender across countries.

Note: The probabilities are based on logistic regression models, controlling for key socio-demographic variables. Error bars represent 95% confidence intervals. Countries are arranged in alphabetical order.

Predicted Probabilities by Gender for: Sorting waste habits
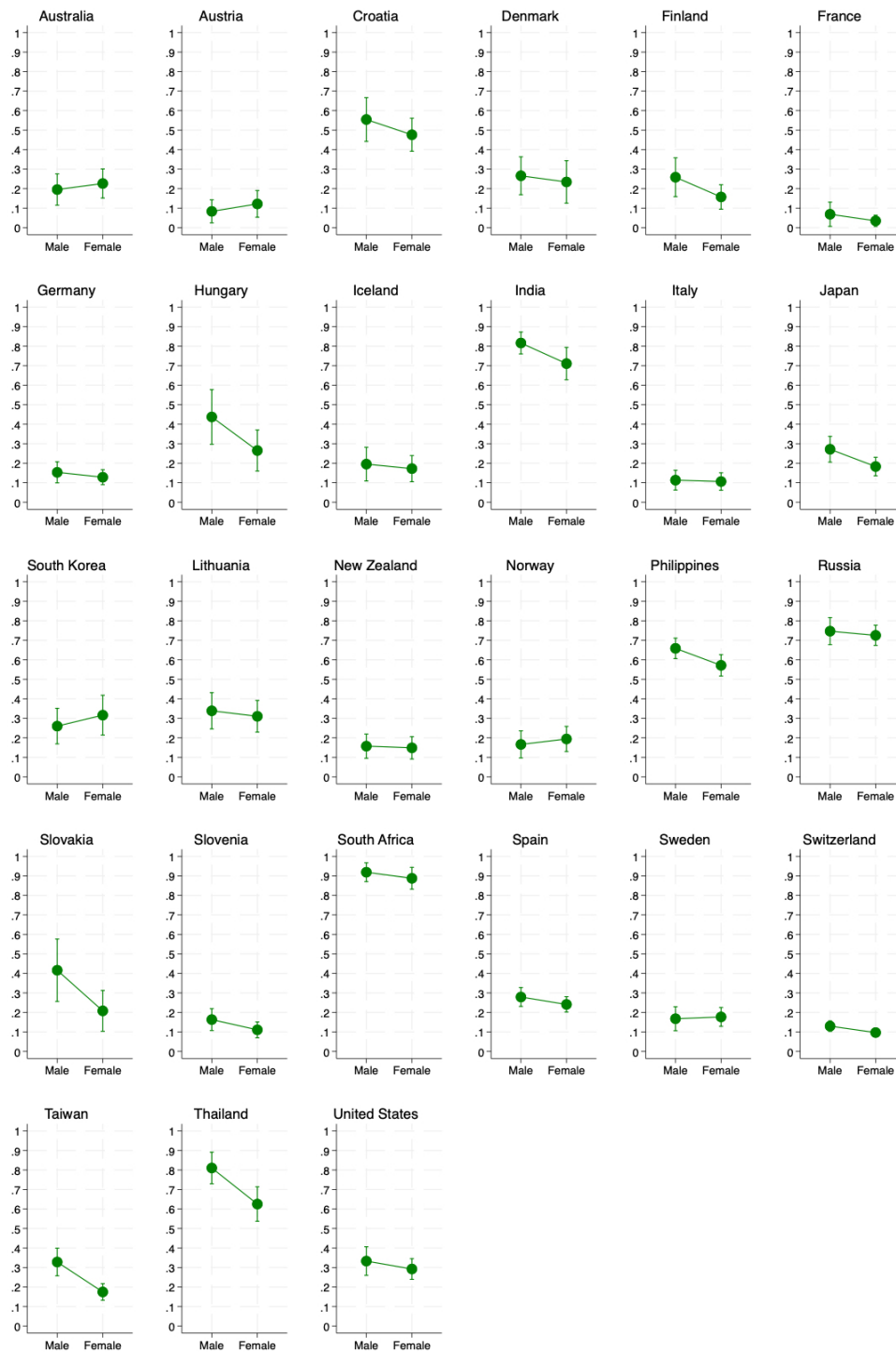
Figure A.7: Predicted probabilities of exhibiting a gap in sorting waste habits by gender across countries.

Note: The probabilities are based on logistic regression models, controlling for key socio-demographic variables. Error bars represent 95% confidence intervals. Countries are arranged in alphabetical order.
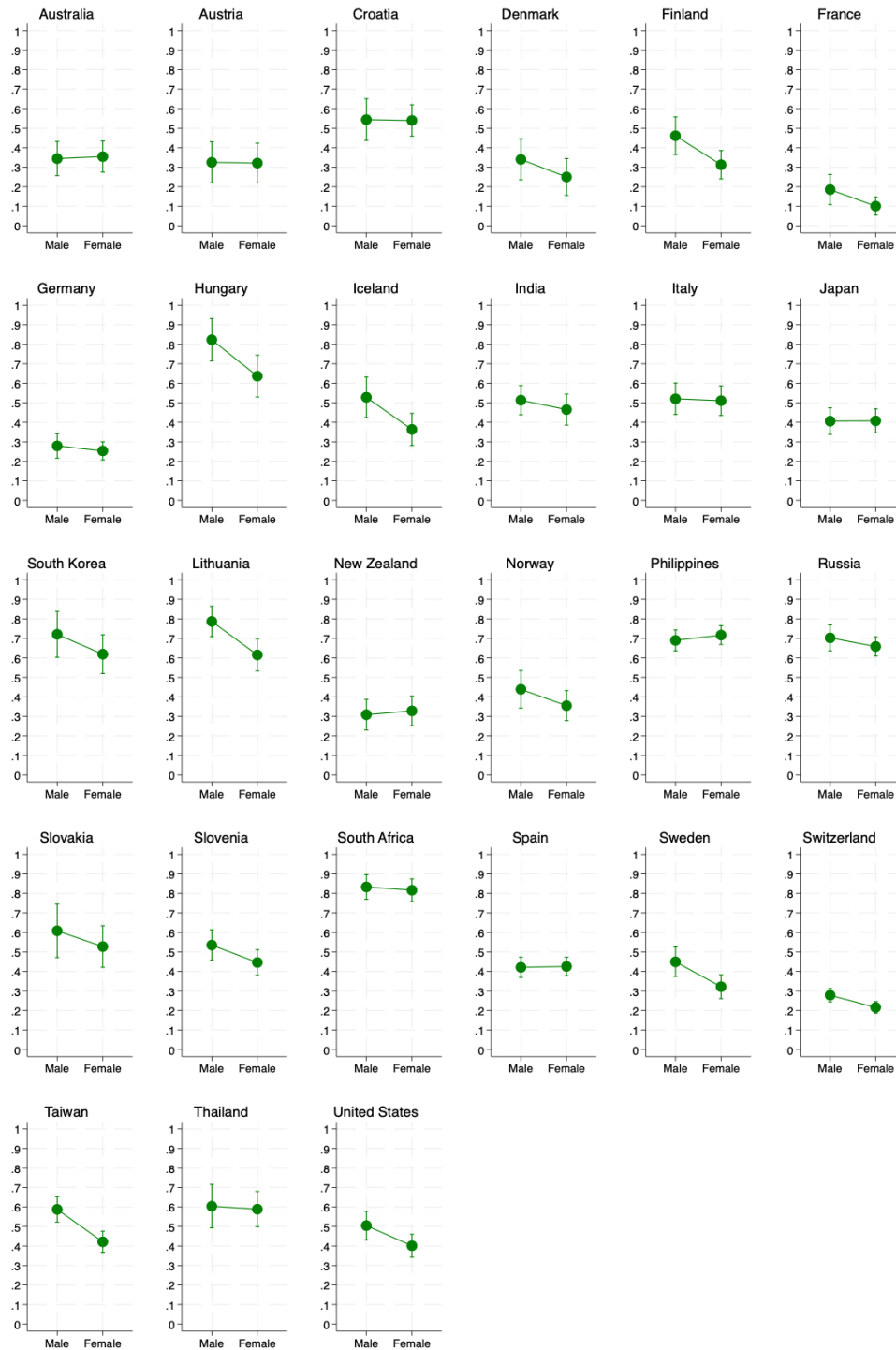
Figure A.8: Predicted probabilities of exhibiting a gap in daily boycotting products by gender across countries.

Note: The probabilities are based on logistic regression models, controlling for key socio-demographic variables. Error bars represent 95% confidence intervals. Countries are arranged in alphabetical order.
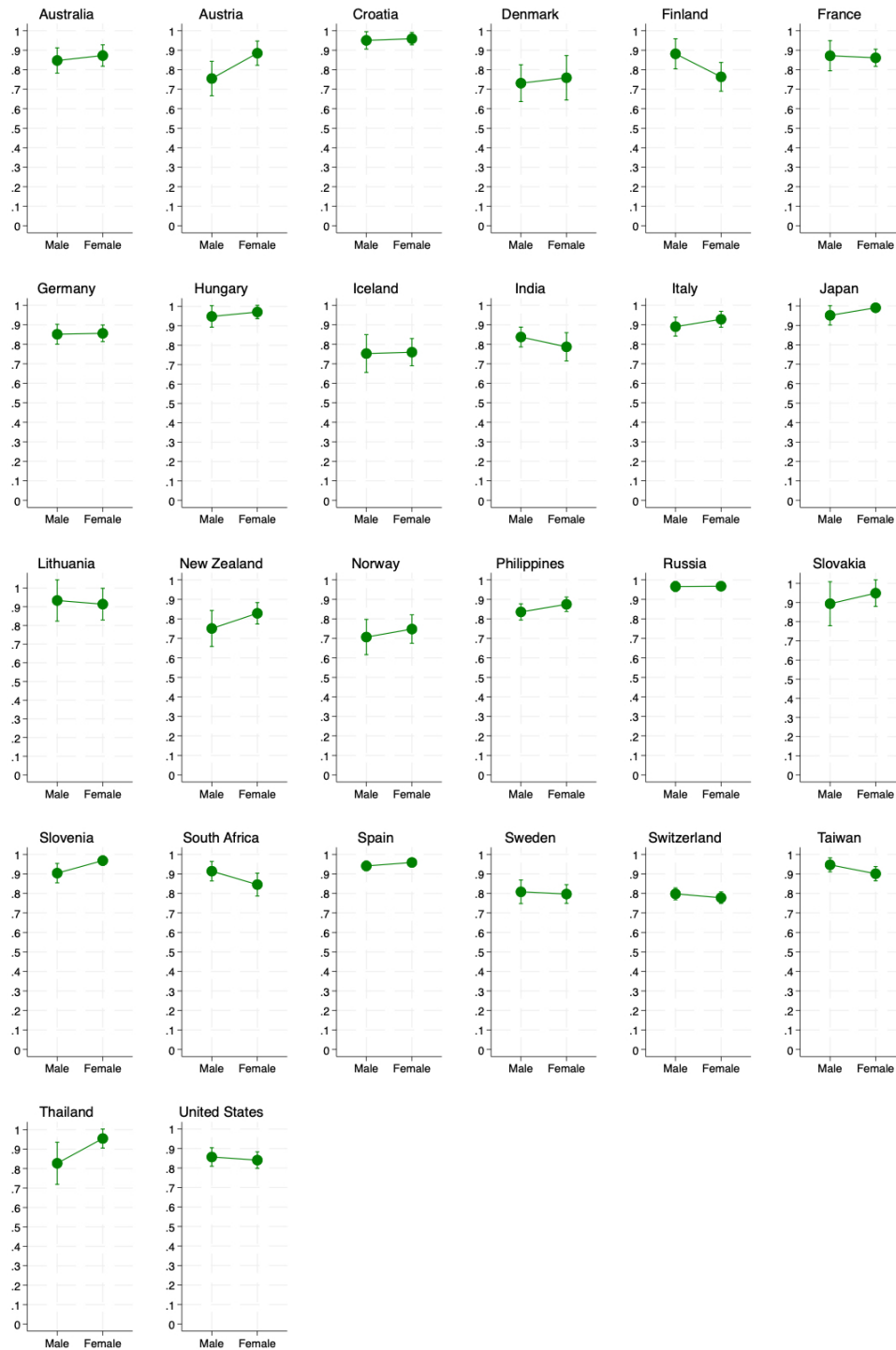
Figure A.9: Predicted probabilities of exhibiting a gap in group membership by gender across countries.

Note: The probabilities are based on logistic regression models, controlling for key socio-demographic variables. Error bars represent 95% confidence intervals. Countries are arranged in alphabetical order. South Korea was omitted due to convergence issues caused by too few observations in some categories, which made it impossible for the model to estimate coefficients or probabilities accurately.
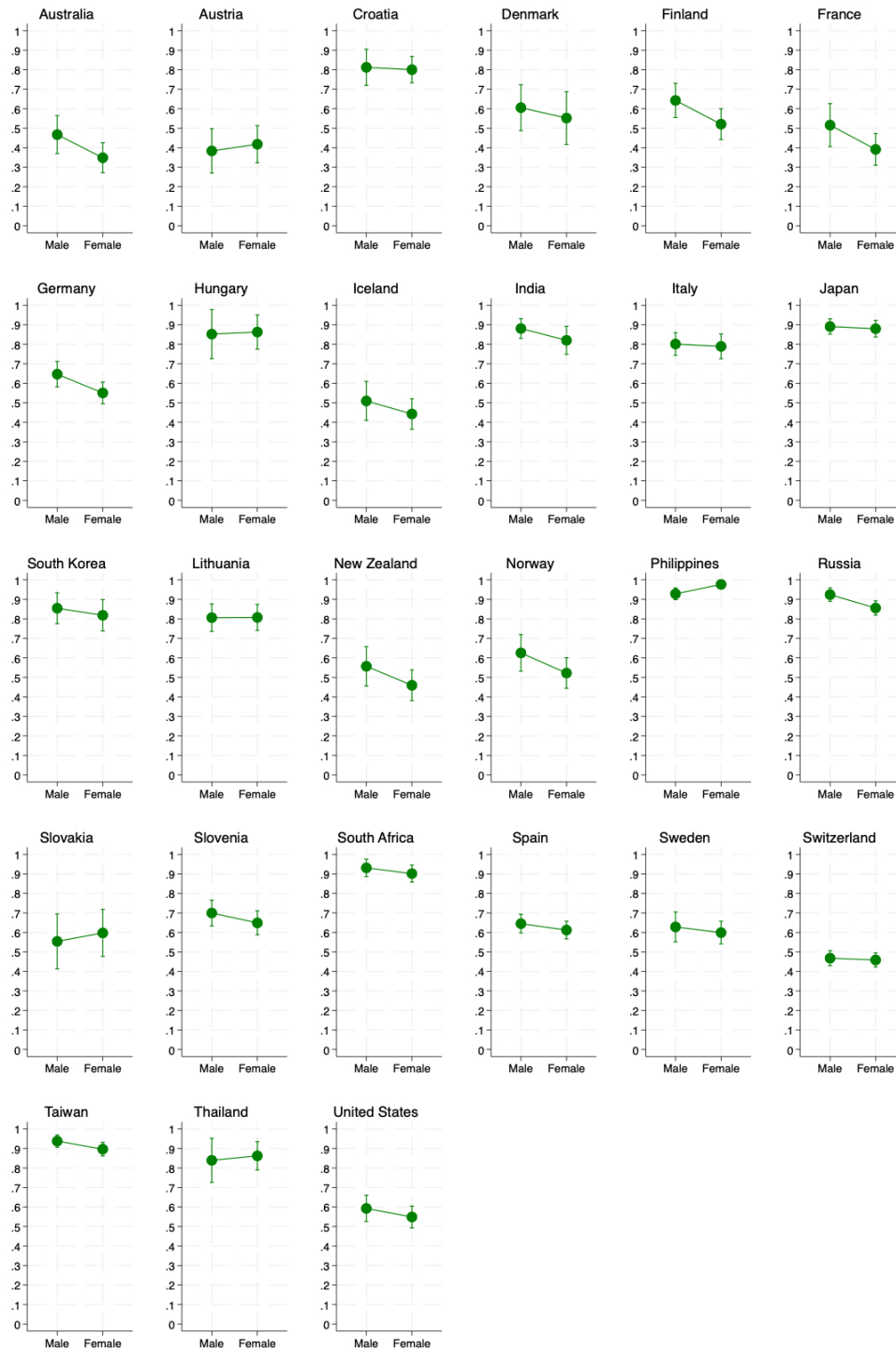
Figure A.10: Predicted probabilities of exhibiting a gap in signing petition by gender across countries.

Note: The probabilities are based on logistic regression models, controlling for key socio-demographic variables. Error bars represent 95% confidence intervals. Countries are arranged in alphabetical order.
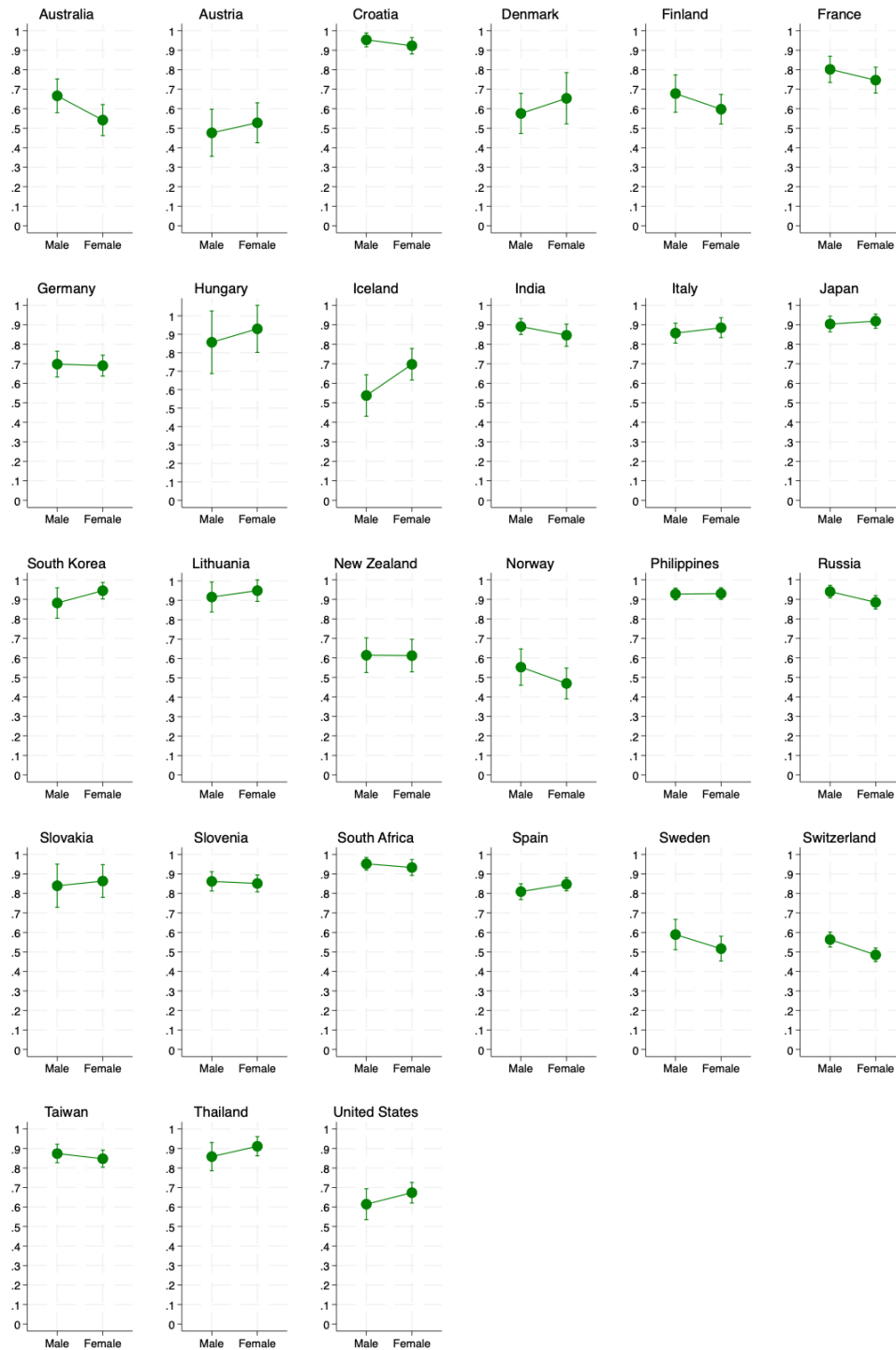
Figure A.11: Predicted probabilities of exhibiting a gap in donating money by gender across countries.

Note: The probabilities are based on logistic regression models, controlling for key socio-demographic variables. Error bars represent 95% confidence intervals. Countries are arranged in alphabetical order.
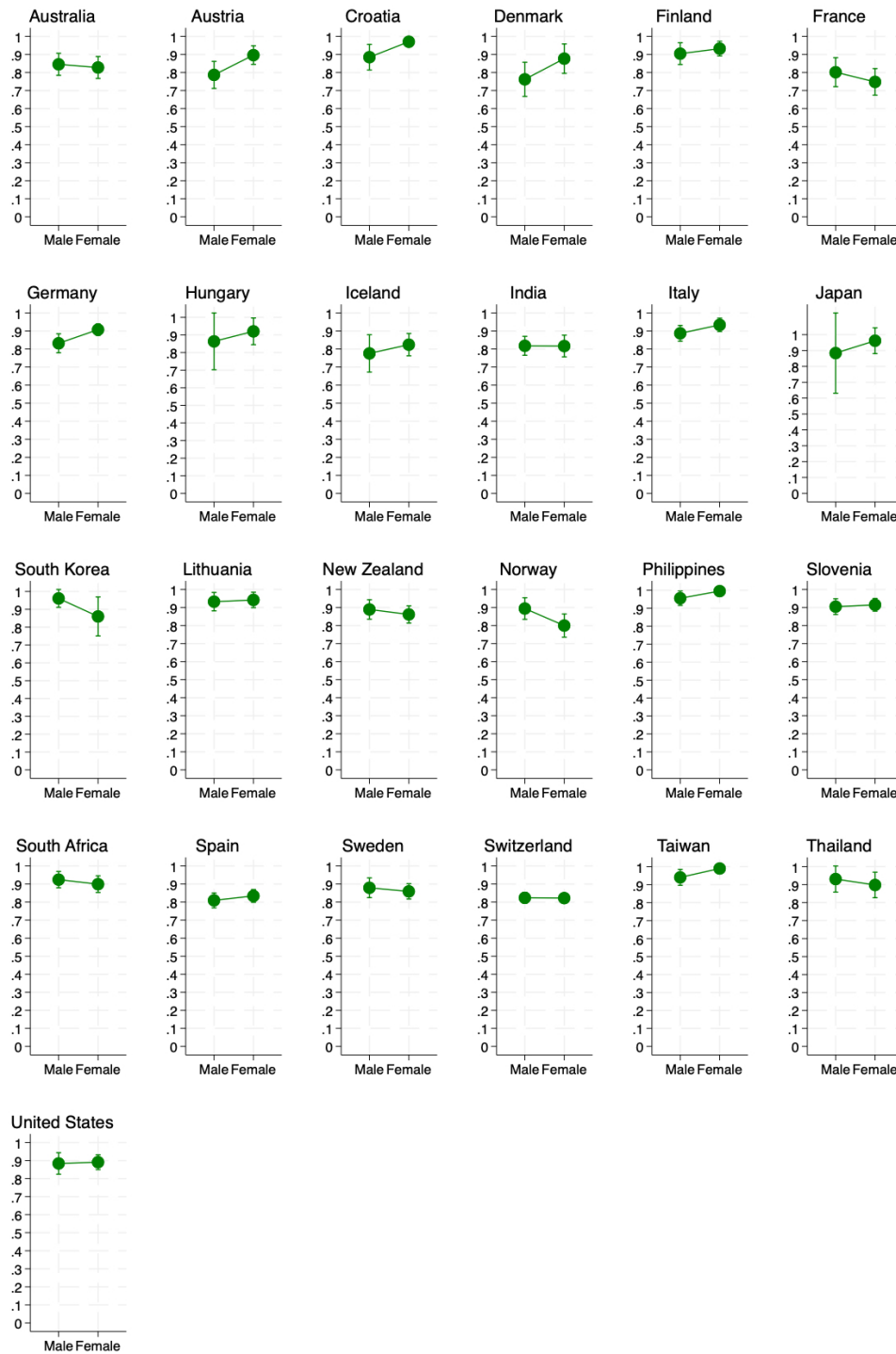
Figure A.12: Predicted probabilities of exhibiting a gap in joining protest by gender across countries.

Note: The probabilities are based on logistic regression models, controlling for key socio-demographic variables. Error bars represent 95% confidence intervals. Countries are arranged in alphabetical order. Russia and Slovakia were omitted due to convergence issues caused by too few observations in some categories, which made it impossible for the model to estimate coefficients or probabilities accurately.
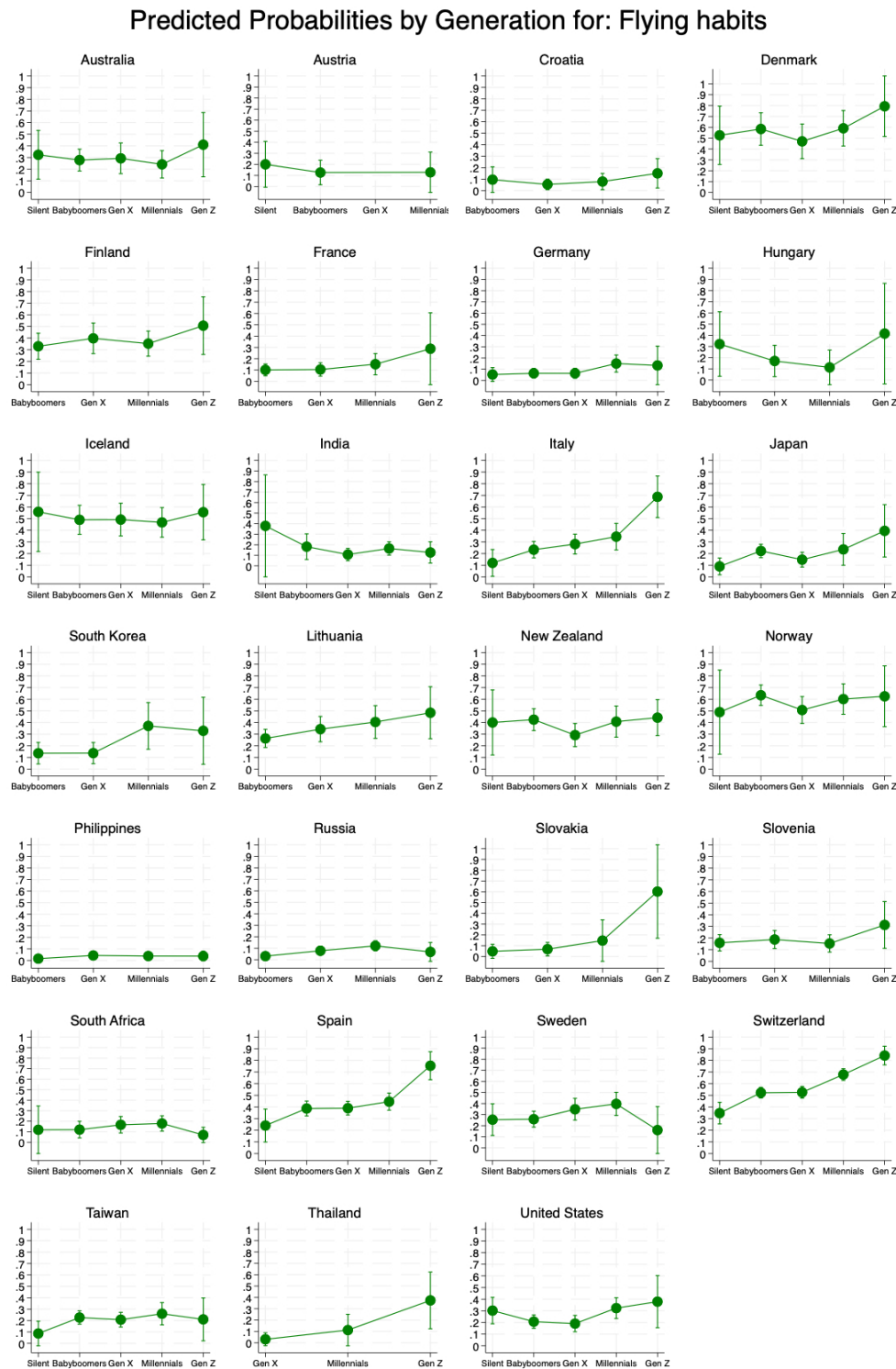
Figure A.13: Predicted probabilities of exhibiting a gap in flying habits by generation across countries.

Note: The probabilities are based on logistic regression models, controlling for key socio-demographic variables. Error bars represent 95% confidence intervals. Countries are arranged in alphabetical order.
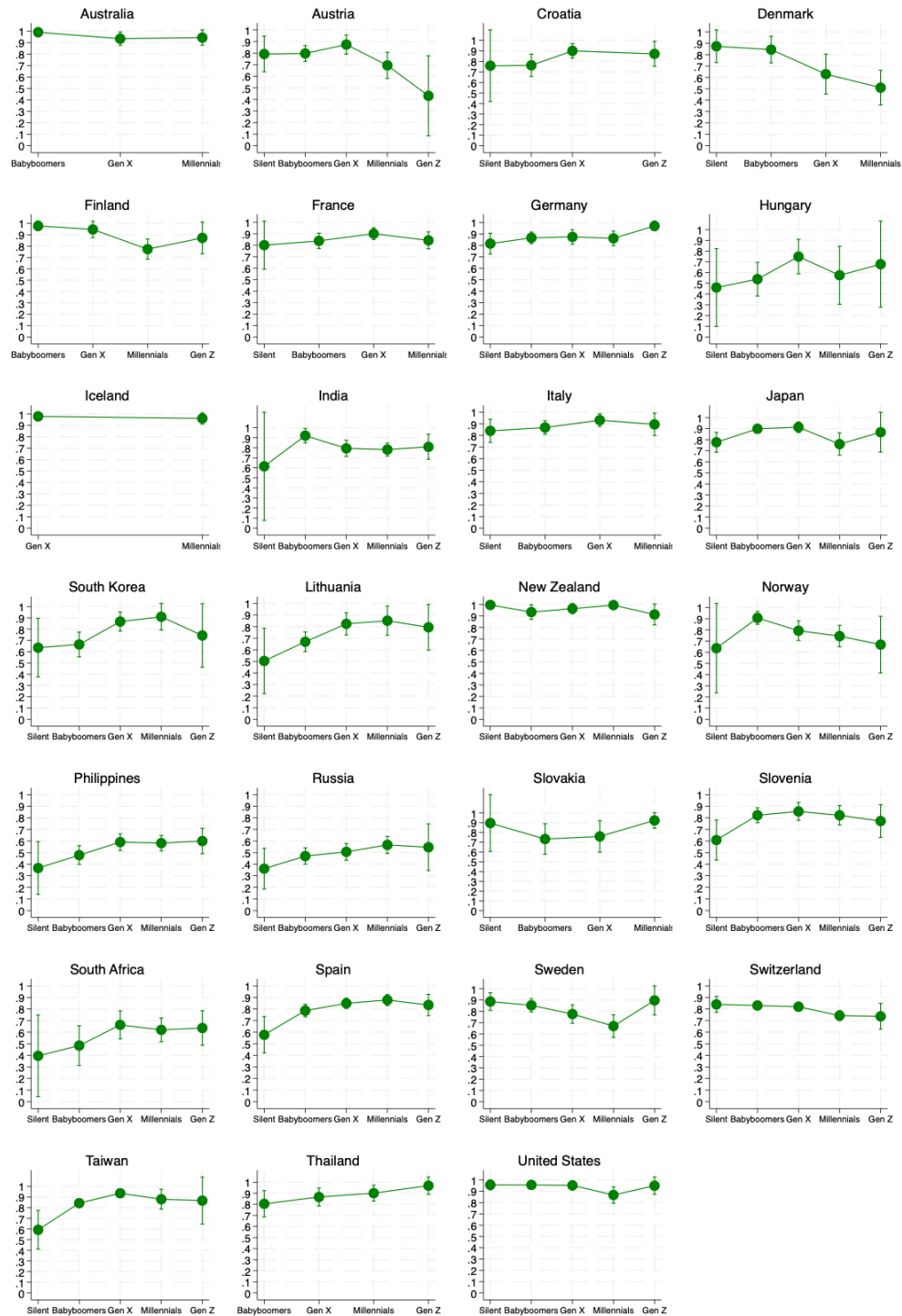
Figure A.14: Predicted probabilities of exhibiting a gap in daily transportation habits by generation across countries.

Note: The probabilities are based on logistic regression models, controlling for key socio-demographic variables. Error bars represent 95% confidence intervals. Countries are arranged in alphabetical order.

Predicted Probabilities by Generation for: Meat consumption habits
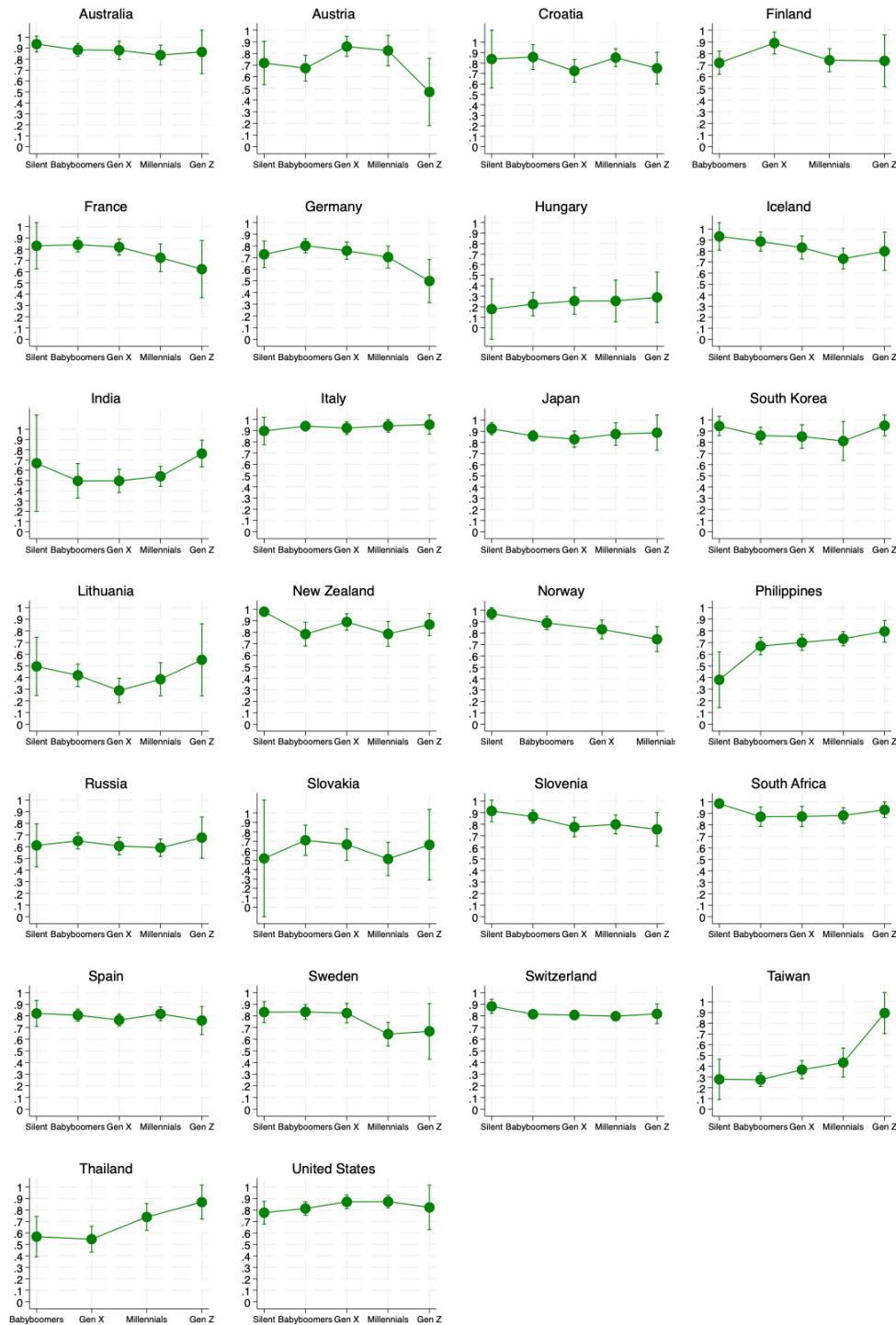
Figure A.15: Predicted probabilities of exhibiting a gap in meat consumption habits by generation across countries.

Note: The probabilities are based on logistic regression models, controlling for key socio-demographic variables. Error bars represent 95% confidence intervals. Countries are arranged in alphabetical order. In Denmark the question was not asked.
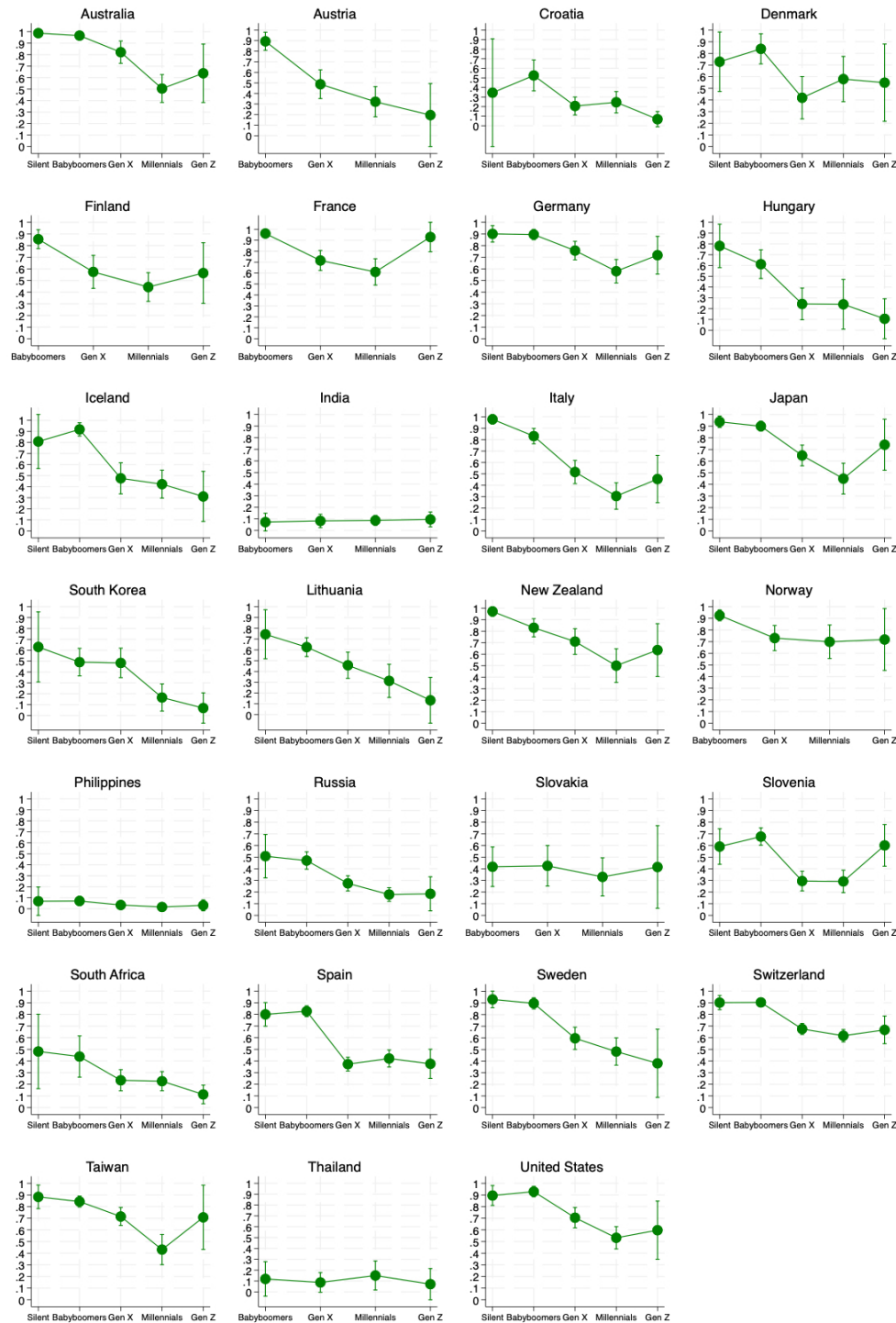
Figure A.16: Predicted probabilities of exhibiting a gap in housing choices by generation across countries.

Note: The probabilities are based on logistic regression models, controlling for key socio-demographic variables. Error bars represent 95% confidence intervals. Countries are arranged in alphabetical order.

Predicted Probabilities by Generation for: Sorting waste habits
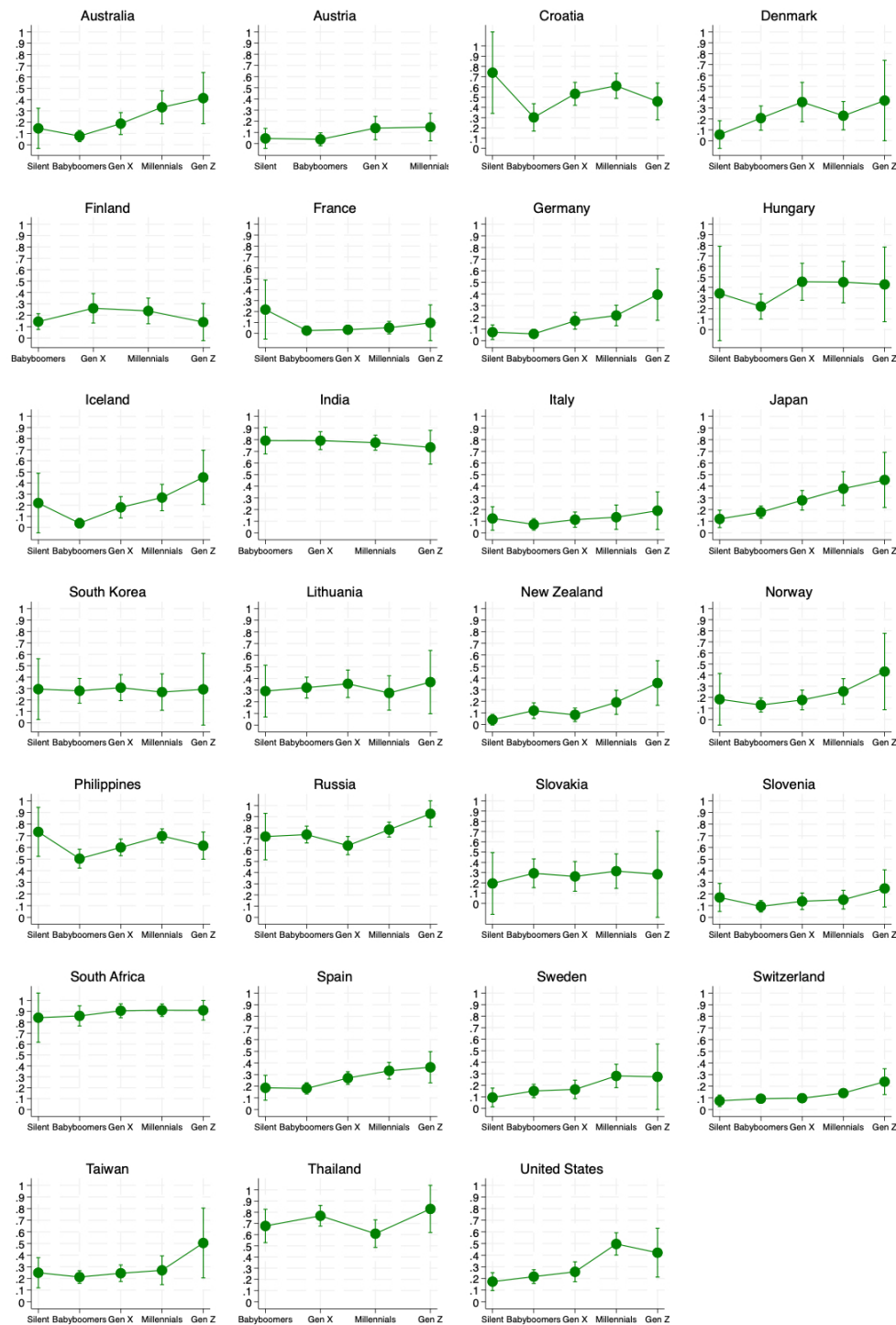
Figure A.17: Predicted probabilities of exhibiting a gap in sorting waste habits by generation across countries.

Note: The probabilities are based on logistic regression models, controlling for key socio-demographic variables. Error bars represent 95% confidence intervals. Countries are arranged in alphabetical order.
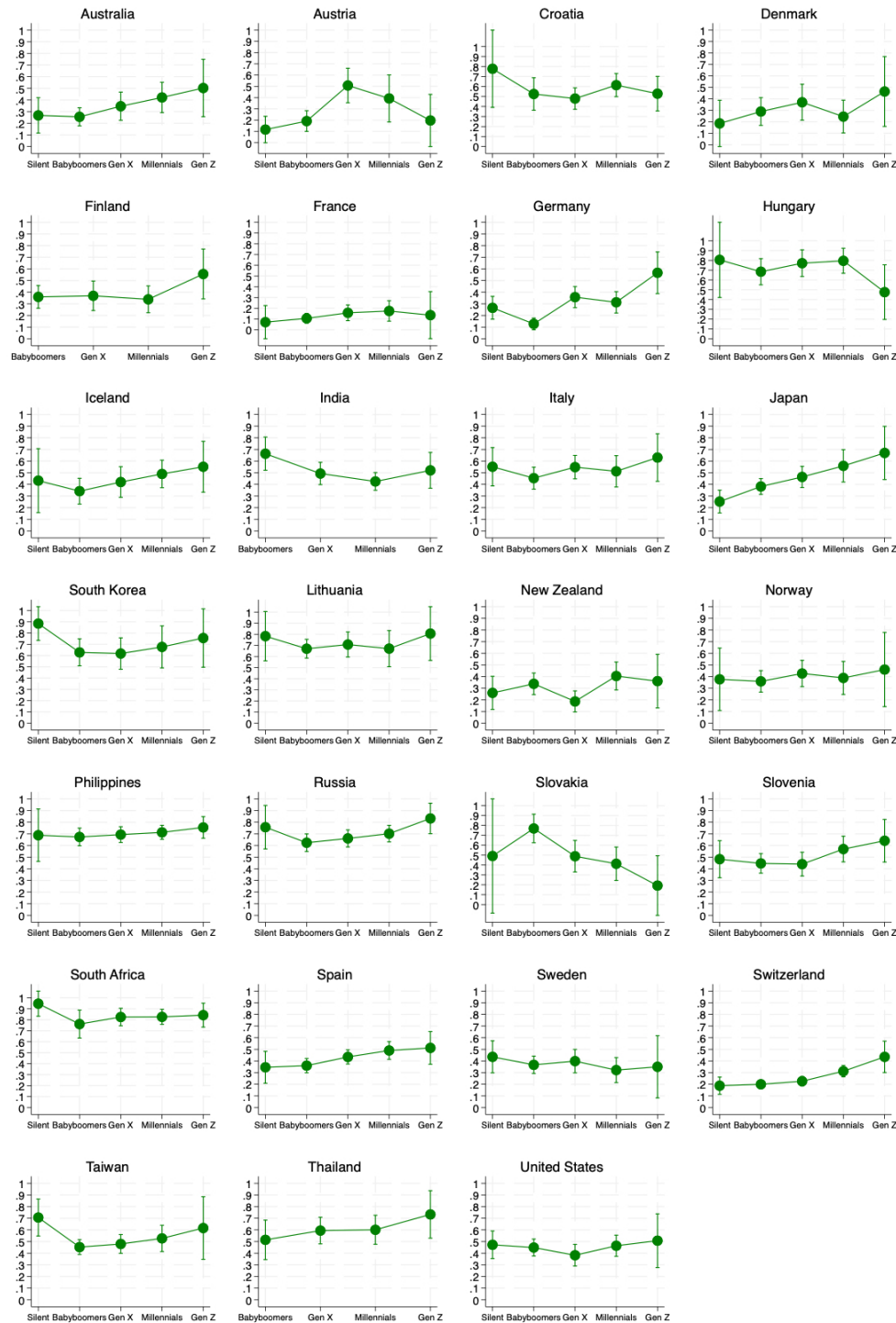
Figure A.18: Predicted probabilities of exhibiting a gap in daily boycotting products by generation across countries.

Note: The probabilities are based on logistic regression models, controlling for key socio-demographic variables. Error bars represent 95% confidence intervals. Countries are arranged in alphabetical order.
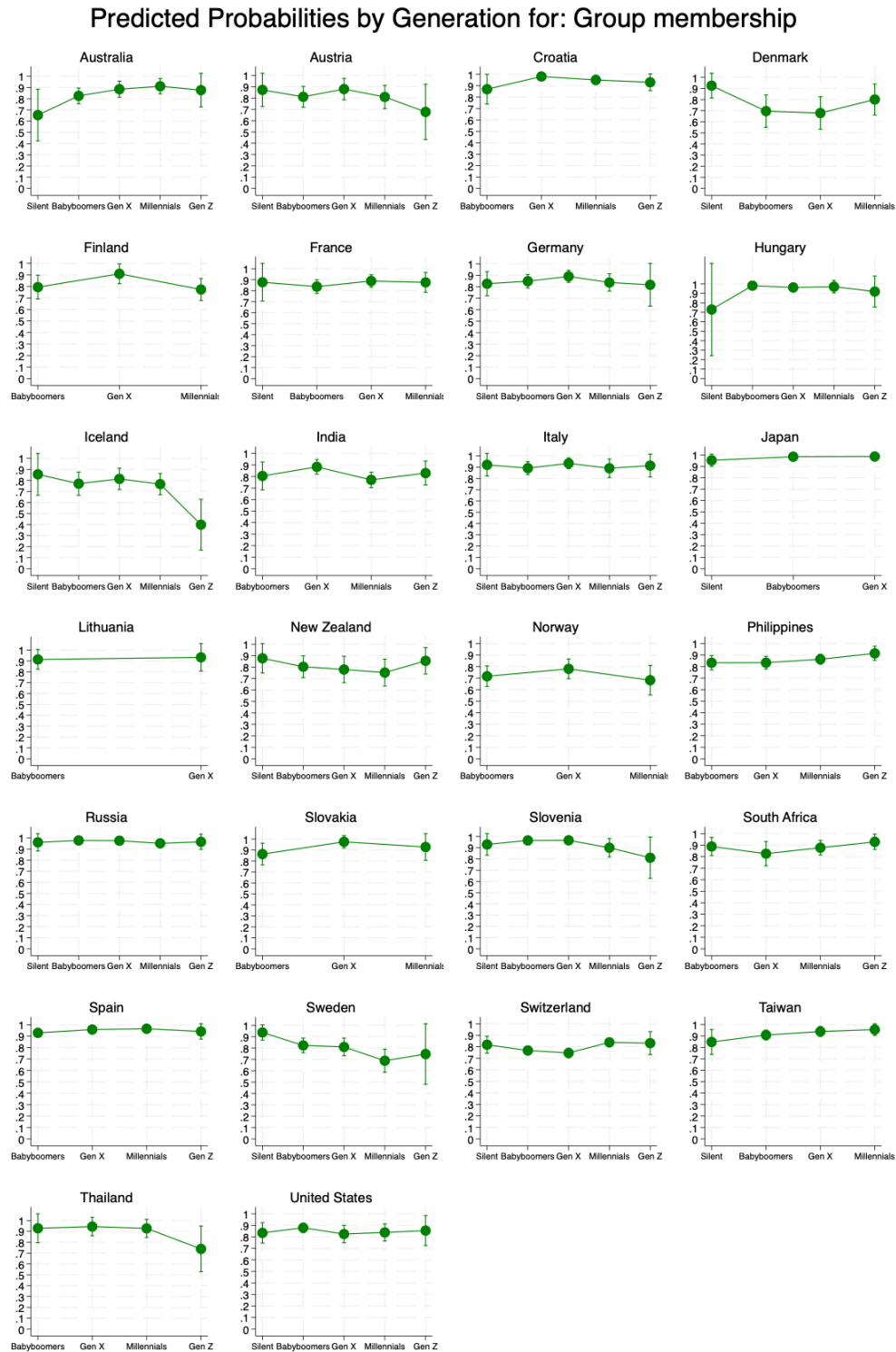
Figure A.19: Predicted probabilities of exhibiting a gap in group membership by generation across countries.

Note: The probabilities are based on logistic regression models, controlling for key socio-demographic variables. Error bars represent 95% confidence intervals. Countries are arranged in alphabetical order. South Korea was omitted due to convergence issues caused by too few observations in some categories, which made it impossible for the model to estimate coefficients or probabilities accurately.
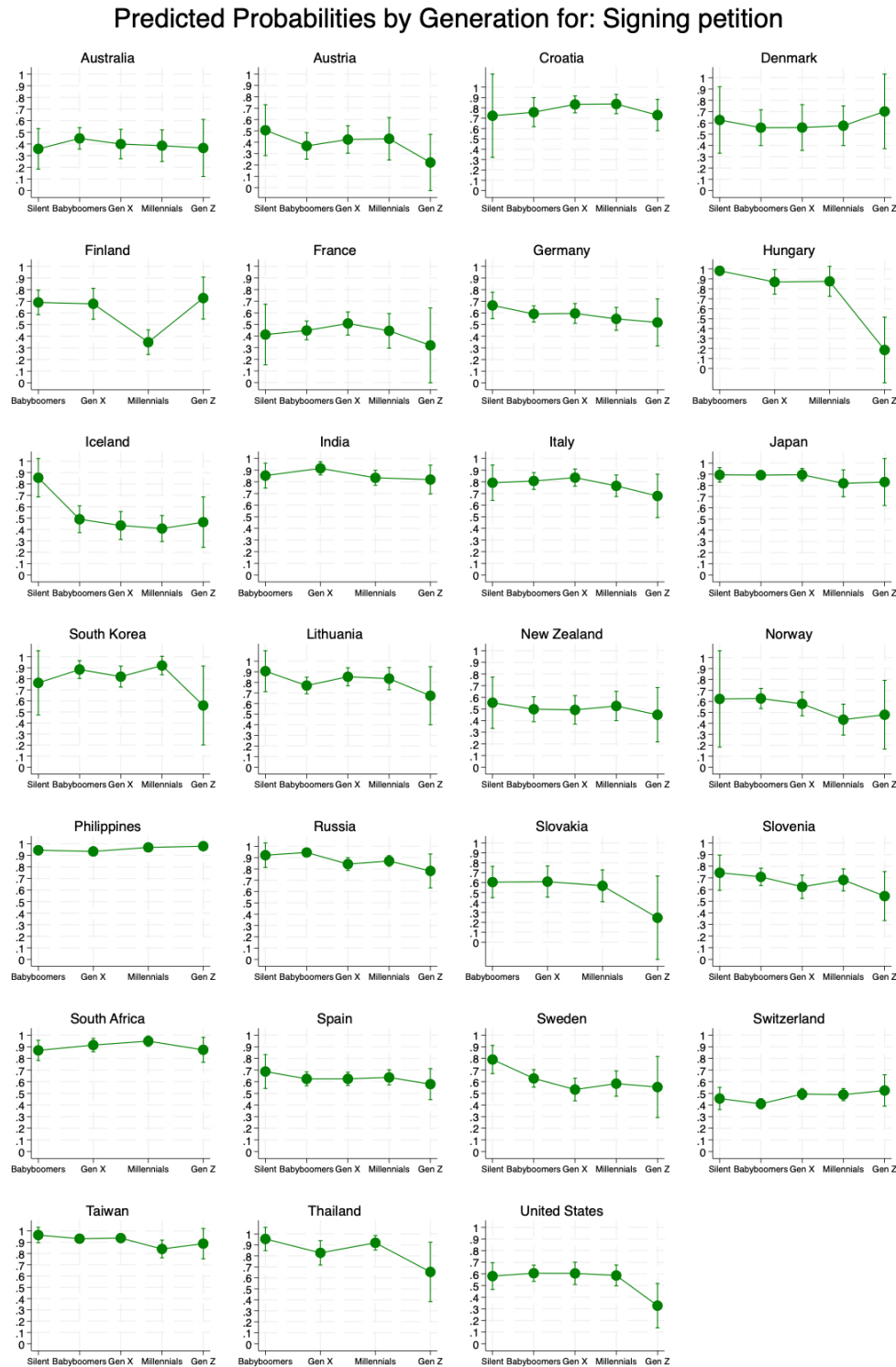
Figure A.20: Predicted probabilities of exhibiting a gap in signing petition by generation across countries.

Note: The probabilities are based on logistic regression models, controlling for key socio-demographic variables. Error bars represent 95% confidence intervals. Countries are arranged in alphabetical order.
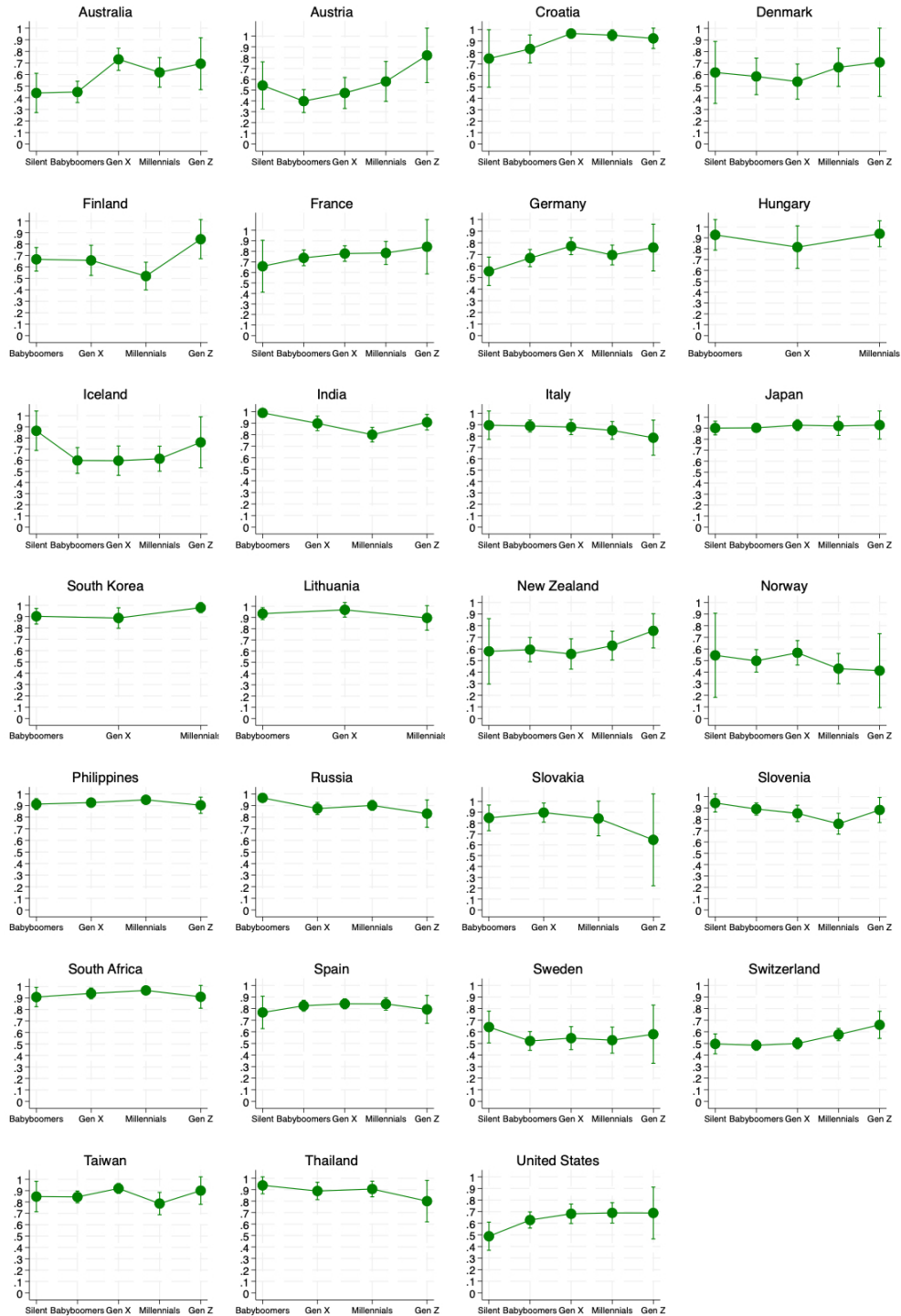
Figure A.21: Predicted probabilities of exhibiting a gap in donating money by generation across countries.

Note: The probabilities are based on logistic regression models, controlling for key socio-demographic variables. Error bars represent 95% confidence intervals. Countries are arranged in alphabetical order.
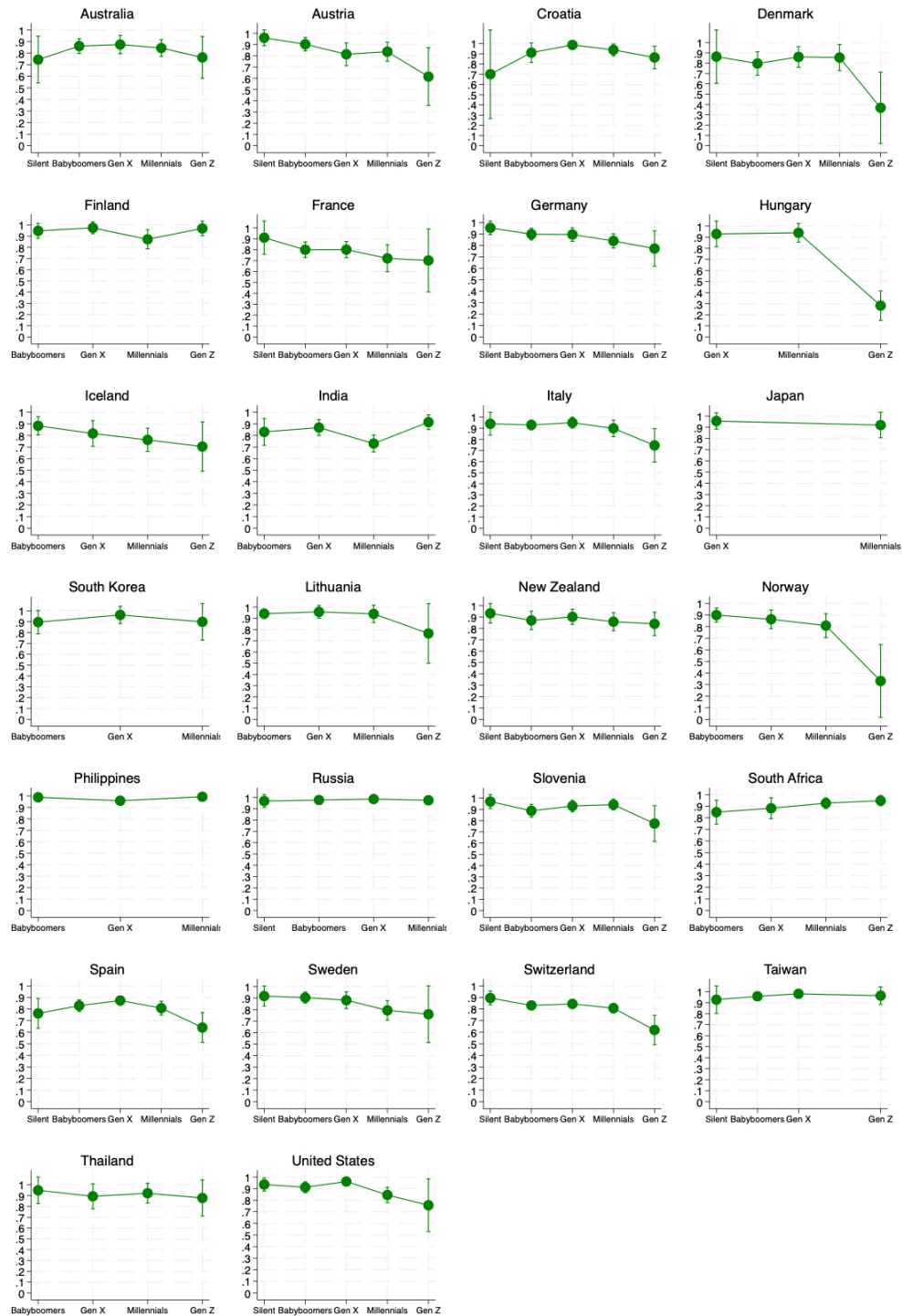
Figure A.22: Predicted probabilities of exhibiting a gap in joining protest by generation across countries.

Note: The probabilities are based on logistic regression models, controlling for key socio-demographic variables. Error bars represent 95% confidence intervals. Countries are arranged in alphabetical order.

Table A.3: Logistic regression results on the green attitude-behavior gap for each pro-environmental behavior.

|	Fly	Car	Meat	Housing	Recycle	Boycott	Group	Petition	Donate	Protest
Gender										
Female	0.0785	-0.394***	-0.406***	0.0691	-0.297***	-0.280***	0.0196	-0.230***	-0.100	0.0519
	(0.0573)	(0.0633)	(0.0566)	(0.0564)	(0.0579)	(0.0477)	(0.0710)	(0.0546)	(0.0566)	(0.0766)
Generation										
Silent	-0.559***	-0.624***	0.184	1.647***	-0.275*	-0.0955	0.126	0.179	-0.242*	0.408*
	(0.131)	(0.117)	(0.110)	(0.124)	(0.117)	(0.0912)	(0.151)	(0.106)	(0.109)	(0.190)
Boomers	-0.0122	-0.203**	0.0628	1.346***	-0.351***	-0.187**	-0.106	-0.0474	-0.177**	-0.0746
	(0.0696)	(0.0771)	(0.0681)	(0.0692)	(0.0694)	(0.0591)	(0.0858)	(0.0651)	(0.0681)	(0.0987)
Millennials	0.424***	-0.279***	-0.0449	-0.497***	0.372***	0.122	-0.0713	-0.132	-0.0680	-0.468***
	(0.0765)	(0.0824)	(0.0737)	(0.0719)	(0.0734)	(0.0646)	(0.0942)	(0.0736)	(0.0767)	(0.101)
Gen Z	0.739***	-0.0999	0.206	-0.258*	0.596***	0.401***	0.161	-0.454***	0.176	-0.791***
	(0.126)	(0.141)	(0.135)	(0.123)	(0.132)	(0.109)	(0.161)	(0.129)	(0.144)	(0.157)
Controls										
Low education	-0.182*	-0.411***	-0.234**	-0.388***	-0.0572	0.294***	0.263*	0.624***	0.612***	0.180
	(0.0853)	(0.0837)	(0.0781)	(0.0853)	(0.0803)	(0.0686)	(0.112)	(0.0870)	(0.0926)	(0.110)
High education	0.419***	-0.0401	-0.186**	0.264***	-0.354***	-0.179**	-0.337***	-0.322***	-0.243***	-0.256**
	(0.0645)	(0.0720)	(0.0664)	(0.0647)	(0.0665)	(0.0554)	(0.0808)	(0.0596)	(0.0634)	(0.0871)
Low income	-0.0821	-0.281***	-0.316***	-0.190**	0.00262	-0.0691	0.0558	0.0636	0.0615	-0.0599
	(0.0707)	(0.0711)	(0.0638)	(0.0660)	(0.0690)	(0.0559)	(0.0861)	(0.0644)	(0.0687)	(0.0923)
High income	0.557***	0.376***	0.297***	0.177*	-0.0259	-0.131*	-0.0390	-0.0470	-0.194**	0.267**
	(0.0693)	(0.0846)	(0.0742)	(0.0715)	(0.0714)	(0.0614)	(0.0849)	(0.0680)	(0.0703)	(0.0973)
City	0.315***	-0.675***	0.000770	-0.393***	0.153*	0.0149	0.0306	-0.0482	-0.0257	-0.307**
	(0.0718)	(0.0748)	(0.0703)	(0.0685)	(0.0729)	(0.0598)	(0.0901)	(0.0672)	(0.0714)	(0.0947)
Countryside	-0.0976	0.423***	0.0428	0.284***	0.0976	-0.0823	-0.192*	0.0791	0.0232	0.129
	(0.0755)	(0.0809)	(0.0712)	(0.0739)	(0.0752)	(0.0623)	(0.0920)	(0.0701)	(0.0741)	(0.102)
Intention	0.0911**	0.00808	-0.177***	0.0973**	-0.256***	-0.357***	-0.416***	-0.461***	-0.491***	-0.533***
	(0.0316)	(0.0356)	(0.0301)	(0.0305)	(0.0310)	(0.0259)	(0.0427)	(0.0310)	(0.0338)	(0.0478)
Country	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
constant	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
N	10563	10488	10434	10746	10674	10924	10959	10918	10872	10874
pseudo R^2	0.190	0.147	0.114	0.284	0.241	0.116	0.097	0.186	0.174	0.132

Standard errors in parentheses; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Note: The table reports McFadden's pseudo R^2.

Table A.4: Logistic regression results on the green attitude-behavior gap for each pro-environmental behavior considered, including interaction between gender and generations.

	Fly	Car	Meat	Housing	Recycle	Boycott	Group	Petition	Donate	Protest
Female	-0.0779	-0.443***	-0.275**	-0.0507	-0.361***	-0.258**	0.118	-0.0971	-0.0826	-0.00133
	(0.103)	(0.121)	(0.102)	(0.0953)	(0.0999)	(0.0876)	(0.127)	(0.0998)	(0.104)	(0.151)
Silent	-0.348	-0.351	0.430*	1.625***	-0.484**	-0.107	0.141	0.282	-0.323*	0.543*
	(0.188)	(0.201)	(0.183)	(0.182)	(0.170)	(0.135)	(0.208)	(0.165)	(0.163)	(0.267)
Boomers	-0.0742	-0.116	0.0561	1.059***	-0.295**	-0.104	-0.0908	0.0129	-0.187	-0.152
	(0.101)	(0.133)	(0.106)	(0.103)	(0.102)	(0.0874)	(0.124)	(0.0981)	(0.103)	(0.146)
Millennials	0.205	-0.509***	0.0807	-0.395***	0.282**	0.0322	0.0521	0.00449	-0.0198	-0.446**
	(0.116)	(0.133)	(0.117)	(0.114)	(0.108)	(0.0976)	(0.144)	(0.118)	(0.119)	(0.155)
Gen Z	0.516**	-0.186	0.673**	-0.450*	0.455*	0.519**	0.332	-0.282	0.290	-0.946***
	(0.182)	(0.223)	(0.211)	(0.187)	(0.185)	(0.164)	(0.241)	(0.193)	(0.235)	(0.237)
Silent X Female	-0.434	-0.428	-0.391	0.0507	0.376	0.0181	-0.0246	-0.177	0.147	-0.231
	(0.258)	(0.240)	(0.224)	(0.240)	(0.227)	(0.177)	(0.297)	(0.211)	(0.215)	(0.373)
Boomers X Female	0.108	-0.145	0.0149	0.542***	-0.118	-0.157	-0.0230	-0.102	0.0219	0.149
	(0.137)	(0.160)	(0.136)	(0.133)	(0.138)	(0.116)	(0.168)	(0.129)	(0.135)	(0.197)
Millennials X Female	0.396**	0.397*	-0.202	-0.194	0.168	0.167	-0.224	-0.238	-0.0857	-0.0404
	(0.153)	(0.169)	(0.150)	(0.146)	(0.146)	(0.128)	(0.187)	(0.149)	(0.154)	(0.201)
Gen Z X Female	0.380	0.144	-0.730**	0.325	0.254	-0.207	-0.302	-0.292	-0.186	0.278
	(0.238)	(0.281)	(0.267)	(0.242)	(0.258)	(0.213)	(0.310)	(0.249)	(0.291)	(0.298)
Low education	-0.182*	-0.411***	-0.230**	-0.399***	-0.0581	0.296***	0.264*	0.627***	0.611***	0.176
	(0.0855)	(0.0839)	(0.0777)	(0.0849)	(0.0802)	(0.0687)	(0.112)	(0.0870)	(0.0927)	(0.111)
High education	0.416***	-0.0536	-0.191**	0.275***	-0.354***	-0.184***	-0.336***	-0.323***	-0.241***	-0.253**
	(0.0647)	(0.0722)	(0.0664)	(0.0648)	(0.0665)	(0.0553)	(0.0810)	(0.0597)	(0.0635)	(0.0869)
Low income	-0.0771	-0.276***	-0.313***	-0.191**	0.00228	-0.0685	0.0533	0.0627	0.0591	-0.0587
	(0.0708)	(0.0713)	(0.0638)	(0.0660)	(0.0690)	(0.0559)	(0.0860)	(0.0645)	(0.0689)	(0.0921)
High income	0.558***	0.389***	0.309***	0.162*	-0.0297	-0.125*	-0.0372	-0.0416	-0.195**	0.262**
	(0.0695)	(0.0849)	(0.0746)	(0.0712)	(0.0714)	(0.0615)	(0.0849)	(0.0680)	(0.0703)	(0.0972)
City	0.318***	-0.673***	0.00633	-0.398***	0.151*	0.0168	0.0312	-0.0480	-0.0259	-0.310**
	(0.0718)	(0.0746)	(0.0701)	(0.0687)	(0.0730)	(0.0598)	(0.0904)	(0.0672)	(0.0714)	(0.0946)
Countryside	-0.0951	0.426***	0.0460	0.286***	0.0955	-0.0820	-0.193*	0.0778	0.0226	0.130
	(0.0755)	(0.0809)	(0.0711)	(0.0740)	(0.0752)	(0.0624)	(0.0921)	(0.0700)	(0.0740)	(0.102)
Intention	0.0876**	0.00424	-0.176***	0.100**	-0.257***	-0.359***	-0.415***	-0.460***	-0.489***	-0.533***
	(0.0317)	(0.0354)	(0.0300)	(0.0305)	(0.0311)	(0.0260)	(0.0428)	(0.0310)	(0.0338)	(0.0479)
Country	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
constant	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
N	10563	10488	10434	10746	10674	10924	10959	10918	10872	10874
pseudo R^2	0.192	0.150	0.116	0.287	0.241	0.117	0.098	0.186	0.174	0.133

Standard errors in parentheses; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Note: The table reports McFadden's pseudo R^2.

Table A.5: Logistic regression results on the green attitude-behavior gap for each pro-environmental behavior considered, including respondents from China.

	Fly	Car	Meat	Housing	Recycle	Boycott	Group	Petition	Donate	Protest
Female	0.0856	-0.427***	-0.382***	0.0543	-0.278***	-0.268***	0.0322	-0.227***	-0.103	0.0470
	(0.0567)	(0.0607)	(0.0555)	(0.0549)	(0.0568)	(0.0469)	(0.0702)	(0.0543)	(0.0561)	(0.0765)
Silent	-0.563***	-0.669***	0.157	1.548***	-0.292*	-0.0549	0.114	0.186	-0.243*	0.408*
	(0.129)	(0.112)	(0.107)	(0.120)	(0.114)	(0.0892)	(0.148)	(0.105)	(0.108)	(0.186)
Boomers	-0.00752	-0.257***	0.0409	1.288***	-0.342***	-0.171**	-0.0718	-0.0358	-0.172*	-0.0500
	(0.0689)	(0.0734)	(0.0665)	(0.0666)	(0.0679)	(0.0582)	(0.0850)	(0.0649)	(0.0675)	(0.0982)
Millennials	0.437***	-0.325***	-0.0332	-0.525***	0.366***	0.152*	-0.0410	-0.129	-0.0623	-0.470***
	(0.0757)	(0.0810)	(0.0732)	(0.0707)	(0.0726)	(0.0638)	(0.0929)	(0.0732)	(0.0762)	(0.100)
Gen Z	0.775***	-0.169	0.243	-0.312*	0.571***	0.407***	0.173	-0.449***	0.167	-0.830***
	(0.125)	(0.133)	(0.136)	(0.121)	(0.130)	(0.108)	(0.159)	(0.127)	(0.143)	(0.156)
Low education	-0.219**	-0.388***	-0.247**	-0.325***	-0.0366	0.289***	0.252*	0.635***	0.589***	0.202
	(0.0845)	(0.0792)	(0.0760)	(0.0822)	(0.0781)	(0.0671)	(0.111)	(0.0862)	(0.0899)	(0.109)
High education	0.465***	-0.162*	-0.199**	0.194**	-0.332***	-0.174**	-0.320***	-0.332***	-0.265***	-0.299***
	(0.0638)	(0.0705)	(0.0658)	(0.0632)	(0.0656)	(0.0547)	(0.0794)	(0.0589)	(0.0628)	(0.0866)
Low income	-0.0800	-0.255***	-0.322***	-0.169**	0.0139	-0.0692	0.0692	0.0688	0.0401	-0.0679
	(0.0700)	(0.0678)	(0.0624)	(0.0644)	(0.0673)	(0.0549)	(0.0848)	(0.0640)	(0.0681)	(0.0916)
High income	0.586***	0.311***	0.317***	0.118	-0.0383	-0.125*	-0.0183	-0.0486	-0.193**	0.240*
	(0.0685)	(0.0807)	(0.0731)	(0.0695)	(0.0700)	(0.0604)	(0.0838)	(0.0675)	(0.0695)	(0.0966)
City	0.318***	-0.673***	0.00633	-0.398***	0.151*	0.0168	0.0312	-0.0480	-0.0259	-0.310**
	(0.0718)	(0.0746)	(0.0701)	(0.0687)	(0.0730)	(0.0598)	(0.0904)	(0.0672)	(0.0714)	(0.0946)
Country	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
constant	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
N	10874	10779	10737	11047	10968	11240	11274	11232	11187	11187
pseudo R^2	0.190	0.121	0.120	0.269	0.241	0.115	0.095	0.192	0.173	0.132

Standard errors in parentheses; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Note: The table reports McFadden's pseudo R^2.

B | Appendix to Chapter 2

Table B.1: Public environmental concern by country (source: own elaboration based on ESS Round 10).

Country	Not at all worried %	Not very worried %	Somewhat worried %	Very worried %	Extremely worried %	Total %
Austria	1.27	7.33	36.2	39.79	15.41	100
Belgium	2.07	10.75	42.88	32.64	11.66	100
Bulgaria	5.19	13.64	50.23	24.42	6.51	100
Croatia	5.21	8.73	40.28	28.64	17.15	100
Czechia	6.69	21.8	31.28	27.74	12.48	100
Estonia	5.08	15.67	52.43	22.3	4.53	100
Finland	2.23	12.89	48.14	31.45	5.29	100
France	1.36	13.19	47.84	26.39	11.22	100
Germany	1.5	6.59	30.27	45.43	16.2	100
Greece	2.34	19.08	42.13	27.44	9.01	100
Hungary	1.38	7.79	44.97	39.55	6.31	100
Iceland	6.59	16.47	45.47	27.84	3.62	100
Ireland	6.71	16.54	45.46	23.82	7.47	100
Italy	0.97	11.78	43.92	34.65	8.69	100
Latvia	2.39	9.88	51.11	33.56	3.07	100
Lithuania	4.44	10.3	44.37	32.49	8.4	100
Netherlands	2.23	10.22	42.57	35.32	9.67	100
Norway	3.52	12.46	48.62	31.68	3.71	100
Poland	2.79	11.67	46.92	33.63	4.99	100
Portugal	0.95	5.14	39.78	40.6	13.53	100
Slovakia	4.71	30.83	39.87	19.49	5.1	100
Slovenia	1.42	7.46	35.7	42.63	12.79	100
Spain	1.63	4.53	35.49	46.7	11.66	100
Sweden	3.26	20.17	44.03	26.52	6.02	100
Switzerland	1.66	10.82	38.77	36.11	12.65	100
United Kingdom	4.56	9.36	39.66	32.14	14.29	100
Total sample	2.88	11.97	40.57	34.33	10.25	100

Table B.2: OLS results on pro-environmental voting.

	(1) Single issue	(2) More issues
Generations		
Silent	0	0
	(.)	(.)
Babyboomers	0.359	0.193
	(0.390)	(0.685)
Gen X	1.433**	1.228*
	(0.003)	(0.021)
Gen Y and Z	2.339***	1.512**
	(0.000)	(0.008)
Female	0.868**	0.622*
	(0.004)	(0.038)
Education	0.181***	0.179***
	(0.000)	(0.000)
Income	-0.0741	-0.155*
	(0.258)	(0.015)
Rurality	-0.569***	-0.246
	(0.000)	(0.065)
Psychological variables		
Moral obligation	0.373***	0.297***
	(0.000)	(0.000)
Collective response efficacy	0.326	0.228
	(0.071)	(0.195)
Satisfaction with economy	-0.0322	-0.181*
	(0.640)	(0.022)
LR self-placement	-1.690***	-1.575***
	(0.000)	(0.000)
High environmental concern	3.057***	2.803***
	(0.000)	(0.000)
Issue preferences		
Pro-immigration	1.615***	
	(0.000)	
Pro-LGBTQ+		0.334
		(0.057)
Pro EU-integration		2.117***
		(0.000)
Country	✓	✓
constant	✓	✓
N	14570	11157
R^2	0.267	0.283

p-values in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B.3: Robustness check 1: OLS results on pro-environmental voting using the original five-category variable for environmental concern.

	(3) Single issue	(4) More issues
Generations		
Silent	0	0
	(.)	(.)
Babyboomers	0.364	0.219
	(0.380)	(0.643)
Gen X	1.443**	1.250*
	(0.002)	(0.019)
Gen Y and Z	2.298***	1.530**
	(0.000)	(0.007)
Female	0.765*	0.552
	(0.011)	(0.066)
Education	0.185***	0.183***
	(0.000)	(0.000)
Income	-0.0753	-0.158*
	(0.251)	(0.013)
Rurality	-0.562***	-0.239
	(0.000)	(0.073)
Psychological variables		
Moral obligation	0.304***	0.249***
	(0.000)	(0.001)
Collective response efficacy	0.290	0.177
	(0.117)	(0.325)
Satisfaction with economy	-0.0490	-0.189*
	(0.479)	(0.017)
LR self-placement	-1.676***	-1.573***
	(0.000)	(0.000)
Environmental concern	1.654***	1.531***
	(0.000)	(0.000)
Issue preferences		
Pro-immigration	1.627***	
	(0.000)	
Pro-LGBTQ+		0.327
		(0.065)
Pro EU-integration		2.012***
		(0.000)
Country	✓	✓
constant	✓	✓
N	14549	11144
R^2	0.265	0.282

p-values in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

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Table B.4: Robustness check 2: OLS results on pro-environmental voting using a recoded three-category variable for environmental concern.

	(5) Single issue	(6) More issues
Generations		
Silent	0	0
	(.)	(.)
Babyboomers	0.331	0.181
	(0.426)	(0.702)
Gen X	1.405**	1.231*
	(0.003)	(0.021)
Gen Y and Z	2.291***	1.531**
	(0.000)	(0.007)
Female	0.798**	0.564
	(0.009)	(0.060)
Education	0.187***	0.186***
	(0.000)	(0.000)
Income	-0.0768	-0.158*
	(0.242)	(0.013)
Rurality	-0.567***	-0.239
	(0.000)	(0.072)
Psychological variables		
Moral obligation	0.341***	0.265***
	(0.000)	(0.000)
Collective response efficacy	0.276	0.192
	(0.134)	(0.283)
Satisfaction with economy	-0.0514	-0.195*
	(0.458)	(0.014)
LR self-placement	-1.685***	-1.579***
	(0.000)	(0.000)
Environmental concern	2.066***	1.887***
	(0.000)	(0.000)
Issue preferences		
Pro-immigration	1.637***	
	(0.000)	
Pro-LGBTQ+		0.317
		(0.073)
Pro EU-integration		1.988***
		(0.000)
Country	✓	✓
constant	✓	✓
N	14570	11157
R^2	0.264	0.281

p-values in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B.5: PEV score by party and indication of exact source party used as labeled in CHES 2019.

Country	Election	Party voted (as labeled in ESS)	PEV	Source party (as labeled in CHES)
Austria	2019, September 29	GR"UNE	40	GRUNE
		SPÖ	3	SPO
		NEOS	0	NEOS
		ÖVP	-6	OVP
		FPÖ	-9	FPO
Belgium	2019, May 26	Groen!	39	AGALEV
		ECOLO	37	ECOLO
		SP.A (Vooruit)	3	SP/SPA
		PVDA	2	PVDA-PTB
		cdH (Les Engagés)	2	PS
		PTB	1	PSC/CDH
		CD&V	-2	CDV
		Open VLD	-5	VLD/PVV
		MR	-5	PRL/MR
		Vlaams Belang	-8	VB
		N-VA	-11	VU/NVA
Bulgaria	2021, April 4	Demokratichna Balgariya	12	Average of DB, Yes Bulgaria, and DSB
		Ima Takav Narod	2	SLAVI TRIFONOV
		Grazhdani Za Evropeisko Razvitie Na Bulgariya (GERB)	0	GERB
		Dvizhenie Za Prava I Svobodi (DPS)	0	DPS

Table B.5: (continued)

Country	Election	Party voted (as labeled in ESS)	PEV	Source party (as labeled in CHES)
		Balgarska Sotsialisticheska Partiya (BSP)	-1	BSP
		PP VMRO –Balgarsko Natsionalno Dvizhenie	-2	BMRO
		NFSB-VOLYA	-3	Average of NFSB e VOLYA
		PP ATAKA	-4	ATAKA
Croatia	2020, July 5	SDP, HSS, HSU	3	Average of SDP, HSS, HSU, and IDP
		SDSS	2	SDSS
		Most	1	MOST
		DP, HS, Blok za Hrvatsku, HKS, Hrast	-1	HKS
		HDZ, HSLS	-2	Average of HDZ, HSLS, and HDSSB
		HNS	-3	HNS
		Reformisti	-4	NS-R
Czech Republic	2021, October 9	Česká Pírátská Strana	24	PIRATES
		Starostové a Nezávislí	9	STAN
		TOP 09	4	TOP09
		KDU-ČSL	3	KDU-CSL
		ČSSD	1	CSSD
		ANO 2011	-3	ANO2011
		KSČM	-3	KSCM
		Svoboda a Přímá Demokracie	-6	SPD

Table B.5: (continued)

Country	Election	Party voted (as labeled in ESS)	PEV	Source party (as labeled in CHES)
		ODS	-7	ODS
Estonia	2019, March 3	Sotsiaaldemokraatlik Erakond	7	SDE
		Eesti 200	7	E200
		Eesti Keskerakond	0	EK
		Isamaa Erakond	-1	IRL
		Eesti Reformierakond	-3	ER
		Eesti Konservatiivne Rahvaerakond	-5	EKRE
Finland	2019, April 14	Green League	31	VIHR
		Left Alliance	15	VAS
		Social Democratic Party	6	SDP
		The Swedish Peopleś Party	4	SFP
		The National Coalition Party	-5	KOK
		Christian Democrats	-5	KD
		The Center Party	-9	KESK
		True Finns	-22	PS
France	2017, June 11	EELV (Europe Ecologie Les Verts)	32	EELV
		FI (La France Insoumise)	8	FI
		PS (Parti Socialiste)	6	PS
		PCF (Parti Communiste Français)	4	PCF
		LREM (La République en Marche)	-1	LREM
		Debout La France	-1	DLF
		MODEM (Mouvement Démocrate)	-4	MODEM
		FN (Front National)	-5	RN

Table B.5: (continued)

Country	Election	Party voted (as labeled in ESS)	PEV	Source party (as labeled in CHES)
		LR (Les Républicains)	-6	LR
Germany	2021, September 26	Alliance 90/The Greens (B"undnis 90/Die Gr"unen)	32	GRUNEN
		The Left (Die Linke)	3	LINKE
		Social Democratic Party (SPD)	1	SPD
		Christian Democratic Union/Christian Social Union (CDU/CSU)	-7	Average of CDU and CSU
		Free Democratic Party (FDP)	-14	FDP
		Alternative for Germany (AFD)	-18	AFD
Greece	2019, July 7	MéRA25	20	MR25
		ŠYRIZA	10	SYRIZA
		KKE	0	KKE
		KIN.A.L.	0	Average of KIDISO and PASOK
		Xrys'e Ayg'e	-1	XA
		'Ellhnik'h L'ysh	-1	EL
		ND	-4	ND
Hungary	2018, April 8	LMP (Lehet Más a Politika)	20	LMP
		Momentum Mozgalom	11	MM
		Egy"utt2014 Mozgalom	10	E14
		DK (Demokratikus Koalíció)	2	DK
		MSZP (Magyar Szocialista Párt)	-1	MSZP

Table B.5: (continued)

Country	Election	Party voted (as labeled in ESS)	PEV	Source party (as labeled in CHES)
		JOBBIK (Jobbik Magyarországért Mozgalom)	-6	JOBBIK
		FIDESZ (FIDESZ Magyar Polgári Párt)	-11	FIDESZ-KDNP
Iceland	2017, October 28	Vinstri hreyfingin - gráent framboð	37	GRAEN
		Samfylkingin	16	SAM
		Viðreisn	10	V
		Písata	4	PI
		Sjálfstáedisflokkurinn	-6	SJ
		Framsóknarflokkurinn	-6	F
		Flokkur fólksins	-9	FIF
		Miðflokkurinn	-17	M
Ireland	2020, February 8	Green Party	35	GP
		Social Democrats	4	DS
		Solidarity People Before Profit (Solidarity/PBP)	4	S-PBP
		Labour	1	LAB
		Independents4Change	0	I4C
		Sinn Féin	-2	SF
		Renua Ireland	-4	RI
		Fianna Fáil	-5	FF
		Fine Gael	-5	FG
Italy	2018, March 4	Liberi e Uguali (LEU)	22	SI

<div align="center">Table B.5: (continued)</div>

Country	Election	Party voted (as labeled in ESS)	PEV	Source party (as labeled in CHES)
		Movimento 5 Stelle	20	M5S
		Partito Democratico (PD)	6	PD
		SVP-PATT	2	SVP
		+Europa	2	RI
		Lega	-5	LN
		Fratelli d'Italia con Giorgia Meloni	-5	FDI
		Forza Italia	-6	FI
Latvia	2018, October 6	Attīstībai/Par!	4	AP!
		Nacionālā Apvienība 'Visu Latvijai!' -	1	NA
		'Tēvzemei un Brīvībai/LNNK'		
		Lavijas Reģionu Apvienība	1	LRA
		Latvijas Krievu Savienība	1	LKS
		Jaunā Vienotība	-1	V
		Zalo Un Zemnieku Savienība	-1	ZZS
		Politiskā Partija KPV LV	-1	KPV LV
		Jaunā Konservatīvā Partija	-1	JKP
		Sociāldemokrātiskā Partija 'Saskaņa'	-1	SDPS
Lithuania	2020, October 11	Lithuanian Greens Party (LZP)	15	LZP
		Lithuanian Social Democratic Party (LSDP)	4	LSDP
		Centre Party - Nationalists (CPT)	0	LCP

<div align="center">Continued on next page</div>

Table B.5: (continued)

Country	Election	Party voted (as labeled in ESS)	PEV	Source party (as labeled in CHES)
		Electoral Action of Poles in Lithuania - Christian Families Alliance (LLRA-KKS)	-1	LLRA
		Labour Party (DP)	-1	DP
		Party 'Freedom and Justice' (LT)	-2	TT
		Lithuanian Peasant and Green Union (LVSZ)	-2	LVZS
		Liberals' Movement of the Republic of Lithuania (LRLS)	-2	LRLS
		Homeland Union - Lithuanian Christian Democrats (TS-LKD)	-2	TS-LKD
Netherlands	2021, March 15	Party for the Animals	42	PVDD
		Green Left	35	GL
		Democrats '66	9	D66
		Labour Party	6	PVDA
		Christian Union	5	CU
		Socialist Party	3	SP
		DENK	3	DENK
		50PLUS	-1	50PLUS
		Reformed Political Party	-5	SGP
		Christian Democratic Appeal	-5	CDA

Table B.5: (continued)

Country	Election	Party voted (as labeled in ESS)	PEV	Source party (as labeled in CHES)
		People's Party for Freedom and Democracy	-9	VVD
		Party for Freedom	-15	PVV
		Forum for Democracy	-23	FVD
Norway	2017, September 11	MiljDe Gr	26	MDG
		Sosialistisk Venstreparti	14	SV
		Rødt	7	RV
		Venstre	7	V
		Fremskrittspartiet	2	KRF
		Arbeiderpartiet	-3	AP
		Senterpartiet	-3	SP
		Høyre	-7	H
		Fremskrittspartiet	-15	FRP
Poland	2019, October 13	Sojusz Lewicy Demokratycznej	5	SLD
		Koalicja Obywatelska	2	Average of PO and NOWO
		Polskie Stronnictwo Ludowe	-3	PSL
		Konfederacja Wolność i Niepodlegiość	-12	KONFEDERACIA
		Prawo i Sprawiedliwość	-12	PIS
Portugal	2019, October 6	PAN - Pessoas-Animais-Natureza	15	PAN
		B.E. - Bloco de Esquerda	8	BE
		PCP- PEV - CDU-Coligação Democrática Unitária	6	Average of CDU, PCP, and PEV

Table B.5: (continued)

Country	Election	Party voted (as labeled in ESS)	PEV	Source party (as labeled in CHES)
		PS - Partido Socialist	-4	PS
		PPD/PSD - Partido Social Democrata	-12	PSD
		CDS-PP - CDS-Partido Popular	-13	CDS/PP
Slovakia	2020, February 29	Pogresívne Slovensko - Spolu	23	SPOLU
		Za Łudí	9	ZA LUDI
		Obyčajní Łudia a nezávislé osobnosti	1	OLANO
		ŁS Naše Slovensko	-3	LSNS
		SME Rodina	-3	SME RODINA
		Smer - SD	-4	SMER-SD
		Sloboda a Solidarita (SaS)	-6	SAS
Slovenia	2018, June 3	L - Levica	27	LEVICA
		SD - Socialni demokrati	10	SD
		SAB - Stranka Alenke Bratušek	3	ALENKA BRATUSEK
		LMŠ - Lista Marjana Šarca	2	LMS
		SMC - Stranka modernega centra	1	SMC
		DESUS - Demokraticna stranka upoko-jencev Slovenije	0	DESUS
		SNS - Slovenska nacionalna stranka	-6	SNS
		SDS - Slovenska demokratska stranka	-8	SDS
		NSI - Nova Slovenija - Krščanski demokrati	-8	NSI
Spain	2019, November 10	Más País	22	PAIS

Continued on next page

Country	Election	Party voted (as labeled in ESS)	PEV	Source party (as labeled in CHES)
		Unidas Podemos	14	Average of PODEMOS and IU
		EH-Bildu	14	EHB
		PSOE	6	PSOE
		BNG	5	BNG
		ERC	4	ERC
		EAJ-PNV	-1	PNV
		CC-PNC-NC	-4	CC
		Junts X Cat	-5	PDECAT
		Ciudadanos	-8	CS
		PP	-10	PPP
		Vox	-13	VOX
Sweden	2018, September 9	Miljöpartiet de Gröna	38	MP
		Vänsterpertiet	23	V
		Centern	5	C
		Socialdemokraterna	-1	S/SAP
		Liberalerna	-4	L
		Kristdemokraterna	-6	KD
		Sverigedemokraterna	-7	SD
		Moderata Samlingspartiet	-8	M
Switzerland	2019, October 20	Green Party	34	GPS/PES
		Social Democratic Party/Socialist Party	15	SP/PS
		Green Liberal Party	12	GPL/PVL
		Evangelical People's Party	2	EVP/PEV

Table B.5: (continued)

Country	Election	Party voted (as labeled in ESS)	PEV	Source party (as labeled in CHES)
		Conservative Democratic Party	-4	BDP/PBD
		Swiss People's Party	-8	SVP/UDC
		FDP. The Liberals	-11	FDP/PLR
United	2019, December 12	Green Party	32	GREEN
Kingdom				
		Scottish National Party	10	SNP
		Labour	8	LAB
		Liberal Democratic	7	LIBDEM
		Plaid Cymru	7	PLAID
		UK Independence Party	-4	UKIP
		Conservative	-6	CONS
		Brexit Party	-8	BREXIT

C Appendix to Chapter 3

On January 28th, two climate activists poured soup on the painting of the Mona Lisa, the world's most famous painting, which, at the Louvre in Paris, is protected by bulletproof glass. The renowned work by Leonardo da Vinci, visited by thousands of tourists every year, has been under a glass case since 2005 but has already been the target of several acts of vandalism; in May 2022, for example, it was 'targeted' with a cream pie. "What is more important? Art or the right to healthy and sustainable food? Our agricultural system is sick," shouted one of the activists. "There are people who are destroying the Earth. All artists, think about the Earth. That's why I did it. Think about the planet." The soup throwing is presented as "the beginning of a civil resistance campaign, which brings with it a clear, beneficial request for all: social security for sustainable food." After the incident, the museum quickly evacuated the room where the painting is located and started the cleaning operation.

Source: AGI

What do you think of this strategy to raise awareness about climate change and environmental issues?
1. I agree with it
2. I disagree with it
99. I don't know

Figure C.1: Details on the treatment, translated to English from original in Italian.

Table A1: Outcome variable 1: Climate change worry

	(1) Treatment only	(2) Socio-demo	(3) Ideology
Treatment	0.142	0.180	0.292
	(0.179)	(0.186)	(0.217)
Gender		0.354*	0.288
		(0.188)	(0.214)
Silent and Baby Boomers		0	0
		(.)	(.)
Generation X		0.0245	0.300
		(0.227)	(0.261)
Millennials		0.00847	0.206
		(0.252)	(0.297)
Generation Z		0.588	0.0867
		(0.408)	(0.411)
Financial Hardship		0.129	0.353
		(0.191)	(0.218)
Education		0.352**	0.161
		(0.153)	(0.174)
Left-Right Scale			-0.318***
			(0.0486)
Constant	✓	✓	✓
N	1004	957	818

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A2: Outcome variable 2: Response Efficacy

	(1) Treatment only	(2) Socio-demo	(3) Ideology
Treatment	0.0433	0.00979	-0.00782
	(0.163)	(0.170)	(0.189)
Gender		0.282*	0.430**
		(0.170)	(0.189)
Silent and Baby Boomers		0	0
		(.)	(.)
Generation X		-0.309	-0.0685
		(0.216)	(0.234)
Millennials		-0.0830	0.217
		(0.245)	(0.270)
Generation Z		-0.0538	0.129
		(0.336)	(0.381)
Financial Hardship		-0.190	-0.125
		(0.171)	(0.188)
Education		0.463***	0.281*
		(0.139)	(0.156)
Left-Right Scale			-0.161***
			(0.0354)
Constant	✓	✓	✓
N	1004	957	818

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A3: Outcome variable 3: Moral obligation

	(1) Treatment only	(2) Socio-demo	(3) Ideology
Treatment	-0.0439	-0.0977	-0.0964
	(0.142)	(0.149)	(0.169)
Gender		0.385***	0.466***
		(0.148)	(0.168)
Silent and Baby Boomers		0	0
		(.)	(.)
Generation X		-0.264	-0.0446
		(0.193)	(0.217)
Millennials		-0.337	-0.209
		(0.210)	(0.234)
Generation Z		0.126	-0.0239
		(0.302)	(0.331)
Financial Hardship		0.105	0.145
		(0.152)	(0.169)
Education		0.408***	0.325**
		(0.123)	(0.143)
Left-Right Scale			-0.221***
			(0.0331)
Constant	✓	✓	✓
N	1004	957	818

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A4: Outcome variable 4: Belief in anthropogenic climate change, item 1

	(1) Treatment only	(2) Socio-demo	(3) Ideology
Treatment	0.320	0.380	0.415
	(0.229)	(0.236)	(0.269)
Gender		0.893***	0.859***
		(0.252)	(0.278)
Silent and Baby Boomers		0	0
		(.)	(.)
Generation X		0.251	0.622*
		(0.287)	(0.320)
Millennials		0.0874	0.172
		(0.318)	(0.362)
Generation Z		0.869	0.466
		(0.563)	(0.579)
Financial Hardship		0.00772	0.0708
		(0.247)	(0.269)
Education		0.349*	0.203
		(0.200)	(0.225)
Left-Right Scale			-0.269***
			(0.0528)
Constant	✓	✓	✓
N	1004	957	818

Standard errors in parentheses

$^{*}\ p < 0.10$, $^{**}\ p < 0.05$, $^{***}\ p < 0.01$

Table A5: Outcome variable 5: Belief in anthropogenic climate change, item 2

	(1) Treatment only	(2) Socio-demo	(3) Ideology
Treatment	0.142	0.171	0.396*
	(0.185)	(0.190)	(0.217)
Gender		0.890***	0.976***
		(0.201)	(0.231)
Silent and Baby Boomers		0	0
		(.)	(.)
Generation X		-0.199	0.0138
		(0.233)	(0.259)
Millennials		0.288	0.541
		(0.282)	(0.332)
Generation Z		0.313	-0.134
		(0.393)	(0.419)
Financial Hardship		-0.197	-0.164
		(0.198)	(0.218)
Education		0.149	-0.0764
		(0.159)	(0.186)
Left-Right Scale			-0.312***
			(0.0459)
Constant	✓	✓	✓
N	1004	957	818

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A6: Outcome variable 6: Policy preference

	(1)	(2)	(3)
	Treatment only	Socio-demo	Ideology
Treatment	0.0277	0.0255	0.0221
	(0.137)	(0.143)	(0.156)
Gender		-0.134	-0.125
		(0.142)	(0.155)
Silent and Baby Boomers		0	0
		(.)	(.)
Generation X		-0.382**	-0.124
		(0.179)	(0.197)
Millennials		-0.425**	-0.144
		(0.196)	(0.217)
Generation Z		-0.159	-0.155
		(0.266)	(0.288)
Financial Hardship		-0.482***	-0.448***
		(0.144)	(0.157)
Education		0.267**	0.0103
		(0.118)	(0.130)
Left-Right Scale			-0.229***
			(0.0319)
Constant	✓	✓	✓
N	1004	957	818

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A7: Outcome variable 7: Joining protest

	(1) Treatment only	(2) Socio-demo	(3) Ideology
Treatment	0.00469	0.0137	-0.00680
	(0.130)	(0.135)	(0.154)
Gender		0.222*	0.174
		(0.135)	(0.154)
Silent and Baby Boomers		0	0
		(.)	(.)
Generation X		-0.181	-0.0270
		(0.170)	(0.196)
Millennials		-0.0898	0.120
		(0.187)	(0.218)
Generation Z		0.392	0.0997
		(0.266)	(0.285)
Financial Hardship		0.323**	0.453***
		(0.138)	(0.157)
Education		0.240**	0.0786
		(0.111)	(0.133)
Left-Right Scale			-0.258***
			(0.0306)
Constant	✓	✓	✓
N	1004	957	818

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A8: Outcome variable 8: Signing petition

	(1) Treatment only	(2) Socio-demo	(3) Ideology
Treatment	0.135	0.143	0.0825
	(0.167)	(0.172)	(0.202)
Gender		0.308*	0.331
		(0.172)	(0.202)
Silent and Baby Boomers		0	0
		(.)	(.)
Generation X		-0.300	-0.0701
		(0.216)	(0.253)
Millennials		-0.270	-0.182
		(0.237)	(0.280)
Generation Z		0.651	0.305
		(0.408)	(0.445)
Financial Hardship		0.230	0.392*
		(0.178)	(0.205)
Education		0.213	0.0432
		(0.146)	(0.169)
Left-Right Scale			-0.309***
			(0.0404)
Constant	✓	✓	✓
N	1004	957	818

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A9: Outcome variable 9: Online activism

	(1) Treatment only	(2) Socio-demo	(3) Ideology
Treatment	0.279**	0.271*	0.265
	(0.140)	(0.145)	(0.165)
Gender		0.278*	0.257
		(0.145)	(0.164)
Silent and Baby Boomers		0	0
		(.)	(.)
Generation X		-0.223	-0.0555
		(0.185)	(0.210)
Millennials		-0.154	-0.0378
		(0.204)	(0.233)
Generation Z		0.183	-0.0940
		(0.288)	(0.325)
Financial Hardship		0.233	0.383**
		(0.148)	(0.166)
Education		0.113	-0.0927
		(0.122)	(0.140)
Left-Right Scale			-0.240***
			(0.0325)
Constant	✓	✓	✓
N	1004	957	818

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A10: Outcome variable 10: Pro-environmental voting (intention)

	(1) Treatment only	(2) Socio-demo	(3) Ideology
Treatment	0.0980	0.0724	0.0776
	(0.118)	(0.117)	(0.0892)
Gender		0.137	0.0765
		(0.117)	(0.0893)
Silent and Baby Boomers		0	0
		(.)	(.)
Generation X		-0.161	0.124
		(0.143)	(0.105)
Millennials		0.277*	0.529***
		(0.164)	(0.131)
Generation Z		0.946***	0.819***
		(0.214)	(0.173)
Financial Hardship		0.207*	0.118
		(0.119)	(0.0913)
Education		0.191*	-0.120
		(0.0974)	(0.0841)
Left-Right Scale			-0.394***
			(0.0146)
Constant	✓	✓	✓
N	740	712	657

Standard errors in parentheses

$^{*}\ p < 0.10,\ ^{**}\ p < 0.05,\ ^{***}\ p < 0.01$

Table A11: Outcome variable 11: Donating money

	(1) Treatment only	(2) Socio-demo	(3) Ideology
Treatment	-0.0576	-0.118	-0.123
	(0.149)	(0.155)	(0.166)
Gender		-0.0417	-0.0159
		(0.155)	(0.166)
Silent and Baby Boomers		0	0
		(.)	(.)
Generation X		-0.312	-0.104
		(0.201)	(0.216)
Millennials		0.0622	0.162
		(0.212)	(0.231)
Generation Z		0.408	0.349
		(0.269)	(0.292)
Financial Hardship		-0.444***	-0.457***
		(0.157)	(0.169)
Education		-0.00877	-0.0619
		(0.128)	(0.142)
Left-Right Scale			-0.114***
			(0.0317)
Constant	✓	✓	✓
N	1004	957	818

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

References

ACLED. (2023). *Armed conflict location event data (acled) codebook.* Retrieved from https://acleddata.com/knowledge-base/codebook/

Adams, C. J. (1990). *The sexual politics of meat: A feminist-vegetarian critical theory.* New York, NY: Continuum.

Agnone, J. (2007). Amplifying public opinion: The policy impact of the us environmental movement. *Social forces*, *85*(4), 1593–1620.

Aguilar-Luzón, M. C., Carmona, B., Calvo-Salguero, A., & Castillo Valdivieso, P. A. (2020). Values, environmental beliefs, and connection with nature as predictive factors of the pro-environmental vote in spain. *Frontiers in Psychology*, *11*, 1043.

Armingeon, K., & Bürgisser, R. (2021). Trade-offs between redistribution and environmental protection: the role of information, ideology, and self-interest. *Journal of European Public Policy*, *28*(4), 489–509.

Babutsidze, Z., & Chai, A. (2018). Look at me saving the planet! the imitation of visible green behavior and its impact on the climate value-action gap. *Ecological Economics*, *146*, 290–303.

Baccini, L., & Leemann, L. (2021). Do natural disasters help the environment? how voters respond and what that means. *Political Science Research and Methods*, *9*(3), 468–484.

Bamberg, S. (2003). How does environmental concern influence specific environmentally related behaviors? a new answer to an old question. *Journal of environmental psychology*, *23*(1), 21–32.

Baranauskas, A. J. (2022). News media and public attitudes toward the protests of 2020: An examination of the mediating role of perceived protester violence. *Criminology & Public Policy*, *21*(1), 107–123.

Barker, D., Nalder, K., & Newham, J. (2021). Clarifying the ideological asymmetry in public attitudes toward political protest. *American Politics Research*, *49*(2), 157–170.

Barr, S. (2006). Environmental action in the home: investigating the 'value-action'gap. *Geography*, *91*(1), 43–54.

Bazerman, M. H. (2006). Climate change as a predictable surprise. *Climatic Change*, *77*(1), 179–193.

Beach, D., & Littvay, L. (2020). A more conscious experimental design: How more explicit use of process tracing can improve experiments.

Becker, J. C. (2020). Ideology and the promotion of social change. *Current Opinion in Behavioral Sciences*, *34*, 6–11.

Berker, L. E., & Pollex, J. (2023). Explaining differences in party reactions to the fridays for future-movement–a qualitative comparative analysis (qca) of parties in three european countries. *Environmental Politics*, *32*(5), 755–792.

Bianchini, N. (2024, January 28). *Zuppa sul vetro della gioconda, blitz degli ambientalisti a parigi*. AGI. Retrieved from `https://www.agi.it/estero/news/2024-01-28/zuppa-sul-vetro-della-gioconda-blitz-degli-ambientalisti-a-parigi-25040884/` (Accessed: 2024-07-01)

Biswas, T. (2021). Letting teach: Gen z as socio-political educators in an overheated world. *Frontiers in Political Science*, *3*, 641609.

Blake, J. (1999). Overcoming the 'value-action gap'in environmental policy: Tensions between national policy and local experience. *Local environment*, *4*(3), 257–278.

Blocker, T. J., & Eckberg, D. L. (1997). Gender and environmentalism: Results from the 1993 general social survey. *Social Science Quarterly*, 841–858.

Boulstridge, E., & Carrigan, M. (2000). Do consumers really care about corporate responsibility? highlighting the attitude—behaviour gap. *Journal of communication management*.

Bradley, G. L., Babutsidze, Z., Chai, A., & Reser, J. P. (2020). The role of climate change risk perception, response efficacy, and psychological adaptation in pro-environmental behavior: A two nation study. *Journal of Environmental Psychology*, *68*, 101410.

Brough, A. R., Wilkie, J. E., Ma, J., Isaac, M. S., & Gal, D. (2016). Is eco-friendly unmanly? the green-feminine stereotype and its effect on sustainable consumption. *Journal of Consumer Research*, *43*(4), 567–582.

Brown, D. K., & Mourão, R. R. (2021). Protest coverage matters: How media framing and visual communication affects support for black civil rights protests. *Mass Communication and Society*, *24*(4), 576–596.

Bugden, D. (2020). Does climate protest work? partisanship, protest, and sentiment pools. *Socius: Sociological Research for a Dynamic World*, *6*, 1-13.

Burn-Murdoch, J. (2024). A new global gender divide is emerging. *Financial Times*, *26*, 2024.

Caiani, M., & Lubarda, B. (2024). Conditional environmentalism of right-wing populism in power: ideology and/or opportunities? *Environmental Politics*, *33*(4), 591–611.

Carfora, V., Buscicchio, G., & Catellani, P. (2021). Integrating personal and pro-environmental motives to explain italian women's purchase of sustainable clothing. *Sustainability*, *13*(19), 10841.

Catellani, P., Carfora, V., & Piastra, M. (2022). Framing and tailoring prefactual messages to reduce red meat consumption: Predicting effects through a psychology-based graphical causal model. *Frontiers in Psychology*, *13*, 106.

Dąbrowski, L. S., Środa-Murawska, S., Smoliński, P., & Biegańska, J. (2022). Rural–urban divide: Generation z and pro-environmental behaviour. *Sustainability*, *14*(23), 16111.

Davidson, D. J., & Freudenburg, W. R. (1996). Gender and environmental risk concerns: A review and analysis of available research. *Environment and behavior*, *28*(3), 302–339.

De Moor, J., De Vydt, M., Uba, K., & Wahlström, M. (2021). New kids on the block: Taking stock of the recent cycle of climate activism. *Social movement studies*, *20*(5), 619–625.

Derksen, L., & Gartrell, J. (1993). The social context of recycling. *American sociological review*, 434–442.

De Young, R. (1996). Some psychological aspects of reduced consumption behavior: The role of intrinsic satisfaction and competence motivation. *Environment and behavior*, *28*(3), 358–409.

Diamanti, I. (2024, February 9). Con i trattori otto italiani su dieci. e meloni perde 5 punti di consenso. *La Repubblica*. Retrieved from https://rb.gy/p24zcz

Diamantopoulos, A., Schlegelmilch, B. B., Sinkovics, R. R., & Bohlen, G. M. (2003). Can socio-demographics still play a role in profiling green consumers? a review of the evidence and an empirical investigation. *Journal of Business research*, *56*(6), 465–480.

Dixon, G., Bullock, O., & Adams, D. (2019). Unintended effects of emphasizing the role of climate change in recent natural disasters. *Environmental Communication*, *13*(2), 135–143.

Dolezal, M. (2013). Exploring the stabilization of a political force: The social and attitudinal basis of green parties in the age of globalization. In *The structure of political competition in western europe* (pp. 120–138). Routledge.

Duffy, B., Smith, K., Terhanian, G., & Bremer, J. (2005). Comparing data from online and face-to-face surveys. *International journal of market research*, *47*(6), 615–639.

Dunlap, R. E., & Allen, M. P. (1976). Partisan differences on environmental issues: a congressional roll-call analysis. *Western Political Quarterly*, *29*(3), 384–397.

Dunlap, R. E., & Van Liere, K. D. (1978). The "new environmental paradigm". *The journal of environmental education*, *9*(4), 10–19.

ElHaffar, G., Durif, F., & Dubé, L. (2020). Towards closing the attitude-intention-behavior gap in green consumption: A narrative review of the literature and an overview of future research directions. *Journal of cleaner production*, *275*, 122556.

El Khoury, C., Felix, A., Lorenzini, J., & Rosset, J. (2023). The gender gap in pro-environmental political participation among older adults. *Swiss political science review*, *29*(1), 58–74.

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Essiz, O., Yurteri, S., Mandrik, C., & Senyuz, A. (2023). Exploring the value-action gap in green consumption: Roles of risk aversion, subjective knowledge, and gender differences. *Journal of Global Marketing*, *36*(1), 67–92.

Feinberg, M., Willer, R., & Kovacheff, C. (2020). The activist's dilemma: Extreme protest actions reduce popular support for social movements. *Journal of personality and social psychology*, *119*(5), 1086.

Fisher, R. J., & Katz, J. E. (2000). Social-desirability bias and the validity of self-reported values. *Psychology & marketing*, *17*(2), 105–120.

Floyd, D. L., Prentice-Dunn, S., & Rogers, R. W. (2000). A meta-analysis of research on protection motivation theory. *Journal of applied social psychology*, *30*(2), 407–429.

Flynn, R., Bellaby, P., & Ricci, M. (2009). The 'value-action gap'in public attitudes towards sustainable energy: the case of hydrogen energy. *The Sociological Review*, *57*(2_suppl), 159–180.

Franzen, A., & Bahr, S. (2024). The development of global environmental concern during the last three decades. *Current Research in Environmental Sustainability*, *8*, 100260.

Gardiner, S. M. (2010). Saved by disaster? abrupt climate change, political inertia and the possibility of an intergenerational arms race. *Future ethics: Climate change and apocalyptic imagination*, 83–106.

Giugni, M. G. (1998). Was it worth the effort? the outcomes and consequences of social movements. *Annual review of sociology*, *24*(1), 371–393.

Grant, Z. P., & Tilley, J. (2019). Fertile soil: explaining variation in the success of green parties. *West European Politics*, *42*(3), 495–516.

Hadler, M., & Haller, M. (2011). Global activism and nationally driven recycling: The influence of world society and national contexts on public and private environmental behavior. *International Sociology*, *26*(3), 315–345.

Hart, P. S., & Nisbet, E. C. (2012). Boomerang effects in science communication: How motivated reasoning and identity cues amplify opinion polarization about climate mitigation policies. *Communication research*, *39*(6), 701–723.

Hazlett, C., & Mildenberger, M. (2020). Wildfire exposure increases pro-environment voting within democratic but not republican areas. *American Political Science Review*, *114*(4), 1359–1365.

Heerwegh, D., & Loosveldt, G. (2008). Face-to-face versus web surveying in a high-internet-coverage population: Differences in response quality. *Public opinion quarterly*, *72*(5), 836–846.

Herrnstadt, E., & Muehlegger, E. (2014). Weather, salience of climate change and congressional voting. *Journal of Environmental Economics and Management*, *68*(3), 435–448.

Hess, T. (2021). "gen z will save us:" applauded and dismissed as a gen z climate activist (perspective from the field). *Journal of Applied Research on Children: Informing Policy for Children at Risk*, *12*(1), 5.

Hobolt, S. B., & De Vries, C. E. (2015). Issue entrepreneurship and multiparty competition. *Comparative Political Studies*, *48*(9), 1159–1185.

Hu, L., & Yang, D. (2021). Female board directors and corporate environmental investment: A contingent view. *Sustainability*, *13*(4), Article 4. Retrieved from https://doi.org/10.3390/su13041975 doi: 10.3390/su13041975

Hunter, L. M., Hatch, A., & Johnson, A. (2004). Cross-national gender variation in environmental behaviors. *Social science quarterly*, *85*(3), 677–694.

Improta, M., & Mannoni, E. (2024). Government short-termism and the management of global challenges. *The British Journal of Politics and International Relations*, 13691481241280172.

Inglehart, R. (1981). Post-materialism in an environment of insecurity. *American political science review*, *75*(4), 880–900.

Inglehart, R., & Norris, P. (2000). The developmental theory of the gender gap: Women's and men's voting behavior in global perspective. *International Political Science Review*, *21*(4), 441–463.

IPCC. (2023). Summary for policymakers. In Core Writing Team, H. Lee, & J. Romero (Eds.), *Climate change 2023: Synthesis report. contribution of working groups i, ii and iii to the sixth assessment report of the intergovernmental panel on climate change* (pp. 1–34). Geneva, Switzerland: IPCC. doi: 10.59327/IPCC/AR6-9789291691647.001

IPSOS. (2023). *Gli italiani e l'attualità politica*. Presidenza del Consiglio dei Ministri, Dipartimento per l'Informazione e l'Editoria. Retrieved from https://www.sondaggipoliticoelettorali.it

ISSP Research Group. (2023). *International social survey programme (issp) 2023: Environment*. Retrieved 2024-03-10, from https://www.gesis.org/en/issp/modules/issp-modules-by-topic/environment

Iyengar, S. (1994). *Is anyone responsible?: How television frames political issues*. University of Chicago Press.

Jolly, S., Bakker, R., Hooghe, L., Marks, G., Polk, J., Rovny, J., . . . Vachudova, M. A. (2022). Chapel hill expert survey trend file, 1999–2019. *Electoral studies*, *75*, 102420.

Jost, J. T. (2009). "elective affinities": On the psychological bases of left–right differences. *Psychological Inquiry*, *20*(2-3), 129–141.

Jost, J. T., Becker, J., Osborne, D., & Badaan, V. (2017). Missing in (collective) action: Ideology, system justification, and the motivational antecedents of two types of protest behavior. *Current Directions in Psychological Science*, *26*(2), 99–108.

Jost, J. T., Glaser, J., Kruglanski, A. W., & Sulloway, F. J. (2003). Exceptions that prove the rule–using a theory of motivated social cognition to account for ideological incongruities and political anomalies: Reply to greenberg and jonas (2003).

Kahn, M. E. (2007). Environmental disasters as risk regulation catalysts? the role of bhopal, chernobyl, exxon valdez, love canal, and three mile island in shaping us environmental law. *Journal of Risk and Uncertainty*, *35*, 17–43.

Karp, L. (2005). Global warming and hyperbolic discounting. *Journal of public economics*, *89*(2-3), 261–282.

Kawgan-Kagan, I. (2020). Are women greener than men? a preference analysis of women and men from major german cities over sustainable urban mobility. *Transportation Research Interdisciplinary Perspectives*, *8*, 100236.

Kemmelmeier, M., Krol, G., & Kim, Y. H. (2002). Values, economics, and proenvironmental attitudes in 22 societies. *Cross-cultural research*, *36*(3), 256–285.

Kinyon, L., Dolšak, N., & Prakash, A. (2023). When, where, and which climate activists have vandalized museums. *NPJ Climate Action*, *2*(1), 27.

Kollmuss, A., & Agyeman, J. (2002). Mind the gap: why do people act environmentally and what are the barriers to pro-environmental behavior? *Environmental education research*, *8*(3), 239–260.

Kong, X., & Jia, F. (2023). Intergenerational transmission of environmental knowledge and pro-environmental behavior: A dyadic relationship. *Journal of Environmental Psychology*, *89*, 102058.

Kormos, C., & Gifford, R. (2014). The validity of self-report measures of proenvironmental behavior: A meta-analytic review. *Journal of Environmental Psychology*, *40*, 359–371.

Kreuter, F., Presser, S., & Tourangeau, R. (2008). Social desirability bias in cati, ivr, and web surveys: The effects of mode and question sensitivity. *Public opinion quarterly*, *72*(5), 847–865.

Kube, T., Wullenkord, M., Rozenkrantz, L., Kramer, P., Lieb, S., & Menzel, C. (2024). How people update their beliefs about climate change: An experimental investigation of the optimistic update bias and how to reduce it. *Political Psychology*, *45*(1), 175–192.

Kvaløy, B., Finseraas, H., & Listhaug, O. (2012). The publics' concern for global warming: A cross-national study of 47 countries. *Journal of Peace Research*, *49*(1), 11–22.

Ladner, A. (2020). Switzerland's successful green parties in the federal election of 20 october 2019: close to entering government? *Environmental Politics*, *29*(3), 552–557.

Lam, S.-P. (2006). Predicting intention to save water: Theory of planned behavior, response efficacy, vulnerability, and perceived efficiency of alternative solutions 1. *Journal of Applied Social Psychology*, *36*(11), 2803–2824.

Lange, F., & Dewitte, S. (2019). Measuring pro-environmental behavior: Review and recommendations. *Journal of Environmental Psychology*, *63*, 92–100.

Lawrence, C., & Richardson, J. (2005). Gender-based judgments of traffic violations: The moderating influence of car type 1. *Journal of Applied Social Psychology*, *35*(8), 1755–1773.

Lichtin, F., Van Der Brug, W., & Rekker, R. (2023). Generational replacement and green party support in western europe. *Electoral Studies*, *83*, 102602.

Lijphart, A., & Grofman, B. (1984). *Choosing an electoral system: issues and alternatives*. University of Chicago Press.

Lipsky, M. (1968). Protest as a political resource. *American political science review*, *62*(4), 1144–1158.

Liu, J., Chen, Q., & Dang, J. (2022). New intergenerational evidence on reverse socialization of environmental literacy. *Sustainability Science*, *17*(6), 2543–2555.

López, A. A., & Davis, C. J. (2024). On art and the limits of dissent: Climate activism at museums and galleries. *Protest*, *4*(2), 143–176.

Louis, W. R. (2009). Collective action—and then what? *Journal of Social Issues*, *65*(4), 727–748.

Maggini, N. (2016). *Young people's voting behaviour in europe: A comparative perspective.* Springer.

Mann, M. E. (2022, November 15). Throwing soup at art shifted people's views of climate protests—but maybe not in the right way. *Time*. Retrieved from https://time.com/6233983/van-gogh-art-climate-protest-survey/

Mannoni, E. (2025). Pro-environmental voting: What it is, how to measure it, and its determinants among contemporary european voters. *Parliamentary Affairs*, *78*(1), 77–96.

Matthes, J. (2007). Beyond accessibility? toward an on-line and memory-based model of framing effects. *Communications*, *32*, 51–78.

McAlexander, R. J., & Urpelainen, J. (2020). Elections and policy responsiveness: evidence from environmental voting in the us congress. *Review of Policy Research*, *37*(1), 39–63.

McCluskey, M., Stein, S. E., Boyle, M. P., & McLeod, D. M. (2009). Community structure and social protest: Influences on newspaper coverage. *Mass Communication and Society*, *12*(3), 353–371.

McCright, A. M. (2010). The effects of gender on climate change knowledge and concern in the american public. *Population and Environment*, *32*(1), 66–87.

McCright, A. M., & Dunlap, R. E. (2008). The nature and social bases of progressive social movement ideology: Examining public opinion toward social movements. *The Sociological Quarterly*, *49*(4), 825–848.

McCright, A. M., & Dunlap, R. E. (2011). The politicization of climate change and polarization in the american public's views of global warming, 2001–2010. *The sociological quarterly*, *52*(2), 155–194.

Meyer, A. (2015). Does education increase pro-environmental behavior? evidence from europe. *Ecological economics*, *116*, 108–121.

Mostafa, M. M. (2007). Gender differences in egyptian consumers' green purchase behaviour: the effects of environmental knowledge, concern and attitude. *International journal of consumer studies*, *31*(3), 220–229.

Mudrov, S. A. (2021). Doomed to fail? why success was almost not an option in the 2020 protests in belarus. *Journal of Contemporary Central and Eastern Europe*, *29*(1), 109–120.

Newman, K. P., & Trump, R. K. (2023). Addressing the eco-gender gap in men through power and sustainability self-efficacy. *Journal of Brand Management*, *30*(3), 261–274.

Newton, P., & Meyer, D. (2013). Exploring the attitudes-action gap in household resource consumption: does "environmental lifestyle" segmentation align with consumer behaviour? *Sustainability*, *5*(3), 1211–1233.

Olsen, M. E. (1968). Perceived legitimacy of social protest actions. *Social Problems*, *15*(3), 297–310.

Orazani, S. N., & Leidner, B. (2019). The power of nonviolence: Confirming and explaining the success of nonviolent (rather than violent) political movements. *European Journal of Social Psychology*, *49*(4), 688–704.

Pearson, M., & Rüdig, W. (2020). The greens in the 2019 european elections. *Environmental Politics*, *29*(2), 336–343.

Pettersson, K., Martikainen, J., Hakoköngäs, E., & Sakki, I. (2023). Female politicians as climate fools: Intertextual and multimodal constructions of misogyny disguised as humor in political communication. *Political Psychology*, *44*(1), 3–20.

Piere, L. (1934). Attitudes and actions. *Social Forces*, *13*, 230–237.

Prättälä, R., Paalanen, L., Grinberga, D., Helasoja, V., Kasmel, A., & Petkeviciene, J. (2007). Gender differences in the consumption of meat, fruit and vegetables are similar in finland and the baltic countries. *European Journal of Public Health*, *17*(5), 520–525.

Quoidbach, J., Gilbert, D. T., & Wilson, T. D. (2013). The end of history illusion. *science*, *339*(6115), 96–98.

Ramstetter, L., & Habersack, F. (2020). Do women make a difference? analysing environmental attitudes and actions of members of the european parliament. *Environmental Politics*.

Reuchamps, M., Baudewyns, P., Dandoy, R., Gallina, M., & Niessen, C. (2020). From a green high tide to government participation: the successes of ecolo and groen in the 2019 belgian elections. *Environmental Politics*, *29*(2), 344–348.

Rhodes, R. E., & de Bruijn, G.-J. (2013). How big is the physical activity intention–behaviour gap? a meta-analysis using the action control framework. *British journal of health psychology*, *18*(2), 296–309.

Rosenfeld, D. L., & Tomiyama, A. J. (2021). Gender differences in meat consumption and openness to vegetarianism. *Appetite*, *166*, 105475.

Rothgerber, H. (2013). Real men don't eat (vegetable) quiche: Masculinity and the justification of meat consumption. *Psychology of Men & Masculinity*, *14*(4), 363.

Salmen, A., Dhont, K., & Faber, N. S. (2022). Beef it up! how masculinity distorts perceptions of vegan men.

Sawyer, J., & Gampa, A. (2018). Implicit and explicit racial attitudes changed during black lives matter. *Personality and Social Psychology Bulletin*, *44*(7), 1039–1059.

Schahn, J., & Holzer, E. (1990). Studies of individual environmental concern: The role of knowledge, gender, and background variables. *Environment and behavior*, *22*(6), 767–786.

Scheufele, D. A. (1999). Framing as a theory of media effects. *Journal of communication*, *49*(1), 103–122.

Schwörer, J., & Fernández-García, B. (2024). Understanding and explaining populist radical right parties' commitment to animal welfare in western europe. *Environmental Politics*, *33*(5), 820–842.

Shu, L. L., & Bazerman, M. H. (2010). Cognitive barriers to environmental action: Problems and solutions. *Harvard Business School NOM Unit Working Paper*(11-046).

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.

Simmons, J. P., Nelson, L. D., & Simonsohn, U. (2011). False-positive psychology: Undisclosed flexibility in data collection and analysis allows presenting anything as significant. *Psychological science*, *22*(11), 1359–1366.

Sörqvist, P., & Langeborg, L. (2019). Why people harm the environment although they try to treat it well: An evolutionary-cognitive perspective on climate compensation. *Frontiers in psychology*, *10*, 348.

Sovacool, B. K., Kester, J., Noel, L., & de Rubens, G. Z. (2019). Are electric vehicles masculinized? gender, identity, and environmental values in nordic transport practices and vehicle-to-grid (v2g) preferences. *Transportation Research Part D: Transport and Environment*, *72*, 187–202.

Spoon, J.-J., Hobolt, S. B., & De Vries, C. E. (2014). Going green: Explaining issue competition on the environment. *European Journal of Political Research*, *53*(2), 363–380.

Stanley, S. K., Day, C., & Brown, P. M. (2023). Masculinity matters for meat consumption: An examination of self-rated gender typicality, meat consumption, and veg* nism in australian men and women. *Sex Roles*, *88*(3), 187–198.

Sumpter, K. C. (2015). Masculinity and meat consumption: An analysis through the theoretical lens of hegemonic masculinity and alternative masculinity theories. *Sociology Compass*, *9*(2), 104–114.

Sunstein, C. R., Reisch, L. A., & Rauber, J. (2017). Behavioral insights all over the world? public attitudes toward nudging in a multi-country study. *Public Attitudes Toward Nudging in a Multi-Country Study (February 21, 2017)*.

Sustainable Development Commission. (2006, May). *I will if you will: Towards sustainable consumption*. Report by the Sustainable Development Round Table. (Available at: http://www.sd-commission.org.uk/publications.php?id=367)

Taagepera, R. (1998). Effective magnitude and effective threshold. *Electoral studies*, *17*(4), 393–404.

Thomas, E. F., & Louis, W. R. (2014). When will collective action be effective? violent and non-violent protests differentially influence perceptions of legitimacy and efficacy among sympathizers. *Personality and Social Psychology Bulletin*, *40*(2), 263–276.

Tilley, J., & Evans, G. (2014). Ageing and generational effects on vote choice: Combining cross-sectional and panel data to estimate apc effects. *Electoral studies*, *33*, 19–27.

Timeo, S., & Suitner, C. (2018). Eating meat makes you sexy: Conformity to dietary gender norms and attractiveness. *Psychology of Men & Masculinity*, *19*(3), 418.

Tindall, D. B., Davies, S., & Mauboulès, C. (2003). Activism and conservation behavior in an environmental movement: The contradictory effects of gender. *Society & Natural Resources*, *16*(10), 909–932. doi: 10.1080/716100620

Tompkins, E. (2015). A quantitative reevaluation of radical flank effects within nonviolent campaigns. In *Research in social movements, conflicts and change* (Vol. 38, pp. 103–135). Emerald Group Publishing Limited.

Tyson, A., Kennedy, B., & Funk, C. (2021, May). *Gen z, millennials stand out for climate change activism, social media engagement with issue* (Tech. Rep.). Pew Research Center. Retrieved 2024-03-10, from https://library1.chc.edu/wp-content/uploads/2023/03/PS_2021.05.26_climate-and-generations_REPORT.pdf

Vachon, S., & Menz, F. C. (2006). The role of social, political, and economic interests in promoting state green electricity policies. *Environmental Science & Policy*, *9*(7-8), 652–662.

Valdés, I. (2024, March 8). *La generación z se parte en extremos: ellos son los más machistas y ellas, las más feministas.* Retrieved 2024-03-10, from https://elpais.com/sociedad/dia-de-la-mujer/2024-03-08/la-generacion-z-se-parte-en-extremos-ellos-son-los-mas-machistas-y-ellas-las-mas-feministas.html

Van Deth, J. W. (2014). A conceptual map of political participation. *Acta politica*, *49*, 349–367.

Van Liere, K. D., & Dunlap, R. E. (1981). Environmental concern: Does it make a difference how it's measured? *Environment and behavior*, *13*(6), 651–676.

van Stekelenburg, J., & Gaidyte, T. (2023). Social movements and the dynamics of collective action. In *The oxford handbook of political psychology (3rd edn)* (pp. 945–986). Oxford University Press.

Vázquez, P. Y. (2020). Environmental concern in the global south: Tackling the post-materialist thesis and the impact of ideology. In *Latin america in times of global environmental change* (pp. 75–91). Springer.

Vicente-Molina, M., Fernández-Sainz, A., & Izagirre-Olaizola, J. (2018). Does gender make a difference in pro-environmental behavior? the case of the basque country university students. *Journal of Cleaner Production*, *176*, 89–98.

Visconti, A. (2024). La riforma (della riforma) del danneggiamento di beni culturali, tra incoerenze criminologiche e dubbi di costituzionalità. *Diritto Penale Contemporaneo*, *2024*(1), 86–138.

Wallis, H., & Loy, L. S. (2021). What drives pro-environmental activism of young people? a survey study on the fridays for future movement. *Journal of Environmental Psychology*, *74*, 101581.

Wang, Z., & Li, W. (2024). The mechanism of adolescent environmental passion influencing parent pro-environmental behavior. *Journal of Environmental Psychology*.

Wasow, O. (2020). Agenda seeding: How 1960s black protests moved elites, public opinion and voting. *American Political Science Review*, *114*(3), 638–659.

Wouters, R. (2019). The persuasive power of protest. how protest wins public support. *Social Forces*, *98*(1), 403–426.

Wu, J., Font, X., & Liu, J. (2021). Tourists' pro-environmental behaviors: Moral obligation or disengagement? *Journal of Travel Research*, *60*(4), 735–748.

Zamponi, L., Ferro, A., & Cugnata, G. (2024). Strikes, assemblies and blockades: the dynamics of repertoire change in grassroots climate action in italy (2018-2023). *Italian Political Science*, *18*(3), 257–293.

Zelezny, L. C., Chua, P.-P., & Aldrich, C. (2000). New ways of thinking about environmentalism: Elaborating on gender differences in environmentalism. *Journal of Social Issues*, *56*(3), 443–457. doi: 10.1111/0022-4537.00177

Zhou, J. (2016). Boomerangs versus javelins: How polarization constrains communication on climate change. *Environmental politics*, *25*(5), 788–811.