Effect of Climate Club Membership on Domestic Policy Ambition

A dissertation presented

by

Kevin R. Wagner

to

The School of Social and Political Sciences

in partial fulfillment of the requirements

for the degree of

Master of International Relations

The University of Sydney

Sydney, New South Wales

August 2023

This is to certify that to the best of my knowledge, the content of this thesis is my own work. This thesis has not been submitted for any degree or other purposes. I certify that the intellectual content of this thesis is the product of my own work and that all the assistance received in preparing this thesis and sources have been acknowledged.

Dissertation Advisor: Christopher Pepin-Neff   Kevin R. Wagner

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Abstract

This study critically examines the role of climate clubs in global governance, bridging a notable gap between theoretical assertions and empirical findings. While theoretical discourses extol the potential merits of climate clubs, empirical investigations remain limited, predominantly qualitative, and tailored to the assessment of individual clubs rather than the overarching concept. The research delineates two core hypotheses: firstly, that association with climate clubs enhances domestic policy enthusiasm; and secondly, normative club affiliations exert a more pronounced influence than their bargaining counterparts. Utilizing a fixed-effects linear regression for quantitative analysis, the findings substantiate both suppositions, revealing that memberships in both overarching and normative climate clubs notably augment policy ambition ($p < 0.05$). Conversely, the impact of association with bargaining clubs is relatively marginal and lacks definitive significance. This provides important insights for global climate governance moving forward.

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Acknowledgments

Thank you firstly to my supervisor, Chris Pepin-Neff, who provided valuable feedback and support throughout the writing process. To Teddy Cosco, I am deeply indebted. Graduate school abroad was always a dream, but without the blueprint you provided, I would never have actualized it. Thank you for being a mentor and a friend. To Eric Werker and Joe Aldy who initially introduced me to this subject area and then gave me a chance to produce meaningful research in it, I am also indebted.

A deepest thank you to my friends. The ones in Vancouver who I miss dearly—Zander, Rylan, Armin; and the ones in Sydney whose support I rely on daily—Ben, Jackson, Caitlin, and Alexander. I appreciate you more than you know. Most of all, this dissertation is dedicated to my family—Mom and Dad, Tim and Talya, Irene and Bob, Robert and June. I love you all, and my work is the product of your support.

Chapter 1

Introduction

At the 26th Conference of the Parties (COP) in 2021, a new cooperative approach to addressing climate change came to the fore. Alongside the multilateral attempts to achieve consensus between 197 states, smaller coalitions formed to increase mitigation ambition in sectors that are major carbon dioxide (CO_2) emitters, including aviation, forestry, transportation, steel, and shipping (Ghosh *et al.*, 2022). These minilateral groups are referred to in the academic literature as "climate clubs" and have long been suggested as a panacea for the perceived failings of multilateralism (Naím, 2009; Victor, 2006; Walt, 2009).

While global governance continues to trend toward the use of climate clubs, there is a lack of empirical evidence of their effectiveness. Additionally, there is a disconnect between the small amount of empirical research and the vast theoretical underpinnings. The theoretical research suggests a number of benefits to the climate club approach, including increased negotiation efficiency (Eckersley, 2012), diffusion of environmental norms (Karlsson-Vinkhuyzen and McGee, 2013), and improved problem-solving effectiveness (Gampfer, 2016). The empirical literature, conversely, is divided on the issue of climate clubs. Macro-level reviews question the effectiveness of these arrangements (Andresen, 2014). Specifically, they identify a lack of legitimacy and a failure to outperform the United Nations Framework Convention on Climate Change (UNFCCC) (Hovi *et al.*, 2019). Conversely, meso-level reviews like those undertaken by Unger *et al.* (2020) reinforce the findings of the theorists—that climate clubs can positively

affect policy ambition.

This disconnect between the theoretical and empirical literature presents a research gap and raises the question: Are climate clubs an effective governance tool within the global climate governance landscape? In this dissertation, I contribute what is, to my knowledge, the first statistical analysis of the effects of membership in climate clubs. Drawing from theories of polycentrism, minilateralism, and policy diffusion, I analyze a novel dataset and suggest that the primary role of climate clubs is as a boon to domestic policy ambition. Overall, my findings indicate that in contrast to previous assessments of climate clubs, they do successfully increase domestic policy ambition. Furthermore, I find that membership in normative clubs (looser more inclusive clubs often focused on knowledge exchange and ambition) exhibits a greater effect than membership in bargaining clubs (more exclusive clubs that use their small size to improve negotiating efficiency). Since increasing domestic climate ambition is the primary mandate of the Paris Agreement, this is a significant finding.

A word on terminology: Despite myriad academic literature, the definitions of both climate clubs and policy ambition are contested. Following Weischer *et al.* (2012), this paper understands climate clubs as a group of more than two but less than the total group of UNFCCC parties. As additional requirements, these groups must be state-led and funded. Furthermore, they must discuss and promote climate change mitigation or a sub-issue related to mitigation, like green energy technology. These characteristics, expanded upon in Chapters 3 and 4, are the requirements for a club's inclusion as a component of the key explanatory variable of climate club membership. Additionally, while there is a corpus on a more stringent form of climate club, epitomized in the work of Nordhaus (2015), these clubs are as of yet purely hypothetical (Hovi *et al.*, 2016) and are outside of the scope of this paper. Though a core component of the Paris Agreement, policy ambition is even more nebulous. Ambition in policy studies is often equated with stringency (Knill *et al.*, 2012). Within climate policy, stringency equates to the speed at which policy measures would be expected to reduce greenhouse gas (GHG) emissions (Schaffrin *et al.*, 2015; Tobin, 2017). However, data on stringency is hard to gather and standardize across countries and time (Schaub *et al.*, 2022). For this reason, much

of the literature on climate policy ambition has adopted the "policy density" approach (See e.g., Schaffrin *et al.*, 2015; Le Quéré *et al.*, 2020; Schulze, 2021). This paper does the same, equating ambition with density—the total number of policies adopted—rather than stringency. As domestic climate policy ambition and climate club membership are the dependent and key explanatory variable respectively, they will be formally operationalized in the methodology section.

The remainder of this paper is structured as follows: The next chapter (Chapter 2) reviews the literature, first focusing on multilateralism and global climate governance. The literature review continues by examining two distinct waves of activity in the growth of climate clubs, then analyzes the specific characteristics of climate clubs that inform the hypotheses. The review finishes with an overview of the determinants of climate policy and a discussion of climate clubs as a potential policy learning tool. Chapter 3 presents the methodology, establishing how each variable used in the regression is operationalized and stating the regression equation. Chapter 4 empirically tests the hypotheses and describes the results. Chapter 5 discusses the results, with an examination of their policy implications and possible research limitations. Lastly, the dissertation concludes, providing suggestions for future research.

Chapter 2

Literature Review

I first review the literature to develop an understanding of the possible effects of climate clubs. This review first examines the recent history of global climate governance, identifying themes that led to the emergence of clubs. It then moves into an analysis of the literature on innovative governance that followed the breakdown of multilateral negotiations. Then, it looks at climate clubs specifically, noting their key characteristics, leading to the paper's two hypotheses. Finally, it looks at the nature of climate policy adoption and argues that climate clubs can be effectively raise domestic ambition.

2.1   Early Multilateral Climate Governance

Climate clubs are minilateral governance organizations (Falkner, 2015, 2016). Their origin, design, and importance can only be comprehensively understood in relation to the broader multilateral system from which they emerged. Multilateralism, in its most basic form, is a governance institution involving three or more states (Ruggie, 1992). This defining feature distinguishes it from the unilateralism and bilateralism that epitomized the pre-World War II order. Those two earlier forms of governance, Kahler (1992) argues, produce unequal dynamics that favour great powers, eventually leading to conflict. While some posit that this numerical criterion exists alone in classifying multilateralism, most scholars agree that there is additional definitional complexity. For this latter group, multilateralism is both an

ideological construct and an architectural framework (Keohane, 1990). For Keohane (1990), for example, multilateral institutions adhere to "a persistent and connected set of rules, formal and informal, that prescribe behavioral roles, constrain activity, and shape expectations" (p. 731). Similarly, Ruggie (1992) elaborates on the relational aspect of multilateralism, focusing less on the quantity of participating parties and more on the quality of relations instituted among them. He conceptualizes three primary features: generalized principles of conduct, diffuse reciprocity, and indivisibility (pg. 9).

A core assumption underpinning the principles of multilateralism is the formal equality of all states. This equality exerts significant demands on great powers, making multilateralism an institution with profound constraints and expectations (Eckersley, 2012). Yet, great powers such as the United States have often knowingly accepted these restraints under the presumption of long-term benefits (Ikenberry, 2000). While the ideal form of multilateralism, as Ruggie (1992) envisioned, remains largely aspirational, the principles it encompasses continue to guide international regimes. However, the application of these principles, is not uniform across the various domains of global governance. Different issue areas emphasize specific principles and practices (Bukovansky *et al.*, 2012). Depending on what is emphasized multilateral institutions may range from hierarchical structures favoring powerful states to formally equal arrangements to even reversely discriminative frameworks favoring weaker states (Eckersley, 2012).

From its foundation to the present, the style of multilateralism of the global climate change regime has emphasized the principle of substantive equality. Its genesis can be traced to the Stockholm Conference on the Human Environment in 1972, where developed countries agreed to support developing countries. This agreement was further solidified with the London Amendment to the Montreal Protocol and the eventual codification of the common but differentiated responsibility principle (Hoffmann, 2005). Subsequent negotiations and conventions, including the UNFCCC (1992), have continued to endorse this principle, reflecting a recognition of developed countries' historical responsibility for emissions and their greater capacity for mitigation and assistance. In adopting this approach, the UNFCCC manifested affirmative multilateralism, which Eckersley (2012) describes as a shift toward a reversely

discriminatory system. If traditional multilateralism is already demanding on great powers, affirmative multilateralism is even more so. While designed to redress historical asymmetries (Cullet, 1999), the pressure this system exerted on developed countries created division.

In 1997, affirmative multilateralism came to a head with the signing of the Kyoto Protocol, which codified the substantive equality of the earlier agreements in a more binding manner (Hale *et al.*, 2013). As its primary mitigation mechanism, the Protocol committed developed states to emission reductions. Developing states, in contrast, were completely exempt from reduction targets. The United States, dissatisfied with this arrangement, declared they would not ratify. At the time of signing, the United States accounted for approximately 30% of all emissions. With other countries initially refusing to ratify Kyoto alongside the United States (Australia) and yet others exiting the agreement altogether (Canada), the Protocol's emission coverage became paltry (Gupta, 2010). Meanwhile, developing countries were experiencing rapid economic growth, leading to massive increases in CO_2 emissions.

2.2   Post-Kyoto Bargaining Clubs

Growing dissatisfaction with affirmative multilateralism catalyzed the initial wave of climate club propositions (Mourier, 2020). Despite the UNFCCC's (2011) estimation that the Kyoto Protocol prevented 1,500 megatons of CO_2 from entering the atmosphere from its inception until 2011, the refusal of the United States to ratify the Protocol and the escalating emissions from developing countries resulted in limited progress (Hale, 2011). Compounding this, China's yearly emissions growth surpassed the the Protocol's CO_2 reductions by itself. Despite some major powers' unwillingness to take on emission reductions as part of the Protocol, most continued to outwardly claim that they wanted to take action, identifying non-UNFCCC outlets to do so. Specifically, they sought recourse in existing minilateral forums and began formulating new ones.

At the urging of European powers, climate change became a central issue on the Group of Eight (G8) agenda in 2005. Concurrently, the United States pioneered its new climate club, the Asia-Pacific Partnership on Clean Development and Climate. However, international

perspectives toward these initiatives were primarily negative. The leading powers perceived them as strategic maneuvers to deviate from affirmative multilateralism towards a hierarchical system with themselves at the helm. (Fujiwara, 2007; Falkner, 2016).

These early climate clubs, whose objectives focused on negotiation efficiency and consensus-building among major powers, often incorporated restrictive membership policies (see Table 2.1 for a complete list of clubs). Criteria for invitation encompassed international status, power, economic capabilities, and, notably, CO_2 emissions—large polluters were frequently invited regardless of the fulfillment of other criteria (Naím, 2009). These clubs aimed to assemble power brokers rather than the most ambitious countries, thus capitalizing on the efficiency of minilateralism, a marked departure from multilateralism that required consensus among 197 nations, each with distinct interests (Victor, 2011). For Falkner *et al.* (2021), these early clubs represent one of the two ideal forms of climate clubs—the bargaining club.

Table 2.1: *Membership in Climate Clubs 1974–2018*

Club Name	Country Membership	Founding Year	Ending Year	Club Type
IEA Multilateral Technology Initiatives	43	1974		Normative
Group of 7	8	1998		Bargaining
Group of 20	20	1999		Bargaining
Renewable Energy and Energy Efficiency Partnership	45	2002		Normative
Carbon Sequestration Leadership Forum	25	2003		Normative
Asia-Pacific Partnership on Clean Development and Climate	7	2005	2011	Bargaining
Renewable Energy Policy Network for the 21st Century	13	2005		Normative
Global Bioenergy Partnership	23	2006		Normative
International Carbon Action Partnership	17	2007		Normative
Major Economies Forum on Energy and Climate	17	2007		Bargaining
Clean Energy Ministerial	24	2009		Normative
REDD+ Partnership	73	2010		Normative
Global Methane Initiative	45	2010		Normative
Global Green Growth Institute	34	2010		Normative
International Partnership on Mitigation and MRV	90	2010		Normative
Friends of Fossil Fuel Subsidy Reform	10	2010		Normative
LEDS Global Partnership	79	2011		Normative
International Energy and Climate Initiative: Energy+	10	2011	2015	Normative
Climate and Clean Air Coalition	66	2012		Normative
Renewables Club	10	2013		Normative
Mission Innovation	24	2015		Normative
Carbon Neutrality Coalition	29	2017		Normative
Powering Past Coal Alliance	33	2017		Normative

Notes: Table created using data from Weischer *et al.* (2012); Pevehouse *et al.* (2020); Overland and Huda (2022); Roger and Rowan (2023). Membership and club names are as of 2018. Founding year refers specifically to the year of founding, not the year climate change was introduced as a key issue.

The value of bargaining clubs is encapsulated in the Major Economies Forum on Energy

and Climate (MEF), established in 2007. This forum intended to bridge the divide between large emitters across developed and developing countries—an issue the Kyoto Protocol failed to address. It brought together 12 of the world's largest emitters, accounting for over 80% of its CO_2 emissions. When reconvened under Obama, the MEF was designed to "help generate the political leadership necessary to achieve a successful outcome at the annual UN climate negotiations" (U.S. Department of State, 2009). However, these bargaining clubs appeared to have little effect on the UNFCCC's subsequent efforts to finalize a new binding agreement. COP 15 in Copenhagen was marked by the failure to agree on a successor to the Kyoto Protocol, and attempts to enforce a weak, last-minute agreement were thwarted. This stalemate led to gridlock within the global regime (Hale *et al.*, 2013; Keohane and Victor, 2011).

2.3   The Second Wave of Climate Clubs

Since multilateralism first assumed its place as the pre-eminent form of global governance, there has always been some institutional fragmentation (Hale, 2011; Hale *et al.*, 2013). In the aftermath of the Copenhagen Summit, this trend within climate governance accelerated (Zelli, 2011). There was widespread dissatisfaction with the multilateral process (Eckersley, 2012; Hovi *et al.*, 2016) and frustration with the institutional inertia that seemed to stifle negotiations. Bargaining clubs had provided a space for negotiation, but they had not pushed through an agreement. Once again, different approaches were necessary if mitigation on a global scale was going to remain possible.

While there was no overarching agreement, institutions began to emerge at different scales and covering different sectors. This phenomenon of increasing institutional overlap in climate governance became variously defined as a "regime complex" (Raustiala and Victor, 2004; Keohane and Victor, 2011), or a "multiplicity" of governance arrangements (Ivanova and Roy, 2007). Some scholars began to view this new landscape as a potential way forward. While multilateralism remained stuck in gridlock, alternative institutions flourished. Two key areas of research that emerged during this period were a growing interest in the potential benefits of fragmentation, and an introduction of theories of polycentricity, typically associated with

economics, to the realm of climate governance.

The polycentric approach considers various scales at which governance occurs as complementary to the global regime, shifting focus from states as the sole unit of analysis to a broader perspective that can include sub-national and trans-national actors (Ostrom, 2010; Oberthür, 2016). Conversely, while acknowledging the expansive global governance architecture, fragmentation maintains the state as its primary unit of analysis. Fragmented global governance consists of numerous co-existing international institutions, each varying in character, constituencies, spatial scope, and subject matter (Biermann *et al.*, 2009, p. 16).

Research has increasingly investigated the impact of innovative governance structures within this fragmented and polycentric landscape. In contrast to the bargaining clubs of Kyoto, which were designed to push back against the UNFCCC, these new theorized forms largely pushed for emission reduction on their own. Instead of competing with the UNFCCC, they pursued the same goals through different means.

During this period, one of the forms that arose was that of the normative club (See Table 2.1 for a list of clubs). It retained the basic idea of the climate club structure—a small group of states operating outside of the UNFCCC—but changed its core principles. Instead of great powers, a normative club assembles a "coalition of the willing" (Hale, 2011). They are predominantly inclusive, with membership grounded on shared principles rather than great power status. These clubs shifted their focus from deal-making to nurturing normative ambition, concentrating primarily on individual climate change issues (Falkner *et al.*, 2021).

Fragmentation and polycentricity, it is theorized, can either add or subtract from overarching global regimes. The institutions that comprise the fragmentation lie on a continuum from order to disorder (Biermann *et al.*, 2009; Eilstrup-Sangiovanni, 2022). Ordered regimes consist of institutions employing complementary policy instruments to resolve collective issues and may cooperate directly or work in parallel without conflicts (Oberthur and Stokke, 2011; Oberthür and Pożarowska, 2013). In contrast, disordered regimes are characterized by unstable institutional relationships with a "zero-sum quality," where competing institutions succeed at the cost of others, undermining collective solutions (Eilstrup-Sangiovanni, 2022). The two

forms of climate clubs epitomize this divide. Bargaining clubs, representing disorder, are exclusive arrangements often at odds with the UNFCCC, while normative clubs align more closely with ordered fragmentation.

Despite its proponents, global governance's increasing fragmentation and polycentricity is not without critics. Benvenisti and Downs (2007) argue that fragmentation is not a natural byproduct of the international regime but a calculated maneuver by powerful states. Other scholars view it as a vehicle for forum shopping (Alter and Meunier, 2009; Murphy and Kellow, 2013). Despite these theoretical dissenters, though, most post-Copenhagen literature views fragmentation, particularly the normative clubs that resulted, as beneficial in realizing the goals of the UNFCCC (Widerberg and Stenson, 2013; Victor, 2015).

2.4 Climate Club Characteristics

The trends of polycentricity and fragmentation in global climate governance ushered in a new era of decentralized, diversified, and overlapping policy experimentation. This complex and adaptive approach, characterized by multiple governing authorities at different scales, fosters competition, and cooperation, creating opportunities for innovation and raising concerns about coherence and coordination.

Within this landscape, climate clubs have emerged as a crucial phenomenon, representing a specific manifestation of polycentric governance. While operating under the same logic of polycentricity, these clubs bring their unique characteristics and strategies, bridging gaps and offering new dimensions to climate governance. They provide platforms for collaboration among various stakeholders, transcending traditional state-centric frameworks and reflecting a dynamic response to the multifaceted challenges of climate change (Falkner *et al.*, 2021). But what exactly defines a climate club and what makes them different from other governance arrangements?

The two types of clubs—the earlier bargaining clubs and the later normative clubs—while different, operate under the same logic and can be identified by examining three criteria: (i) their members and membership size; (ii) the club benefits they provide; (iii) and the public

goods they produce (Unger *et al.*, 2020; Unger and Thielges, 2021).

The small size of climate clubs is their defining characteristic.While the analysis of members' qualities is outside this paper's scope, it is important to note its prevalence in the literature. Most scholars emphasize that "relevant members" are necessary for a club to further climate change mitigation efforts (Victor, 2015; Falkner, 2016; Hovi *et al.*, 2016). Relevance, though, is different between bargaining clubs and normative clubs. For bargaining clubs, membership is determined by importance in areas like GHG emissions (Naím, 2009; Hovi *et al.*, 2016), vulnerability to climate change, or capacity in economic, political, or knowledge terms. These criteria can be used for normative clubs, but it can also be as simple as a group of countries joined together by mutual ambition. Club size varies in scholarly discussions, ranging from small one-digit numbers to approximately 20 members (Stewart *et al.*, 2017). In the case of normative clubs, as seen in Table 2.1, membership can start small and grow over time as the value of membership becomes clear (Weischer *et al.*, 2012).

The second criterion involves the "club goods" that a climate club offers. From an economic perspective, these incentives must encourage participation in the club beyond the common goal of climate governance (Buchanan, 1965; Prakash and Potoski, 2007). These club goods must primarily benefit the members, yet not necessarily be entirely exclusive (Green, 2017). Such benefits might encompass the provision of technologies and mitigation strategies (Stewart *et al.*, 2013), side payments or financial transfers (Sælen, 2016), and non-material gains like trust-building and reputational advantages (Green, 2017; Potoski, 2017). Even non-climate benefits like energy cost reductions, emerging as positive side effects of mitigation activities, are considered (Stewart *et al.*, 2017). Notably, these benefits need not entirely exclude non-club members but should primarily advantage club members, thereby serving as a motivation for joining and remaining in the club (Hale, 2011; Nordhaus, 2015).

Finally, producing public goods is the primary way climate clubs are hypothesized to support climate change mitigation (Prakash and Potoski, 2007; Green, 2017). While climate change mitigation is the general public good produced by clubs, the ways it achieves this can be further categorized into four specific goods. First, clubs can participate in emissions reductions

through the execution of projects that directly mitigate CO_2 (Unger and Thielges, 2021). Second, they can catalyze and support domestic policymaking (Potoski, 2017). The importance of such policy support in the realm of governance and the inherent non-excludability of its benefits result in this being classified as a public good. Third, climate clubs can cultivate political dialogue, particularly on neglected issues (Falkner *et al.*, 2021). Fourth, they can provide a venue to boost cooperation and enable technical exchange (Tosun and Mišić, 2022).

With club size providing efficiency and negotiatory benefits and club goods providing incentives to join, the provision of public goods remains the main output of these clubs (if there is to be one). Each of the four public goods climate clubs are theorized to provide involve some form of support for members' domestic policies. This leads us to consider specific research hypotheses that guide this study's examination of the efficacy of different types of climate clubs in enhancing climate action.

H1: Membership in climate clubs increases domestic policy ambition.

While all clubs are suggested to produce at least one of these public goods, there are still distinct differences between the two forms. Bargaining clubs, because of their membership based on collaboration between the powerful rather than ambition, are more likely to have lowest-common denominator outcomes (Weischer *et al.*, 2012; Falkner *et al.*, 2021). In contrast, normative clubs base membership on shared climate ambition. This leads to the second hypothesis:

H2: Membership in normative clubs increases ambition more effectively than membership in bargaining clubs.

These hypotheses reflect the core inquiry of this paper, aiming to explore the ways in which membership in these specific types of clubs influences domestic policy in addressing climate change. With distinct attributes and functions, climate clubs embody polycentric governance

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principles, acting as dynamic elements within the broader climate governance framework.

2.5   Determinants of Climate Policy

The passing of the Paris Agreement in 2015 substantially changed the global approach to dealing with climate change. Kyoto had been seen as a primarily top-down approach, where states were obliged to meet internationally set targets. Paris, in contrast, shifted to a bottom-up approach. It put the onus on the states to grow increasingly more ambitious in their climate policies. As a result, identifying determinants of domestic climate policy has become widely explored in the recent literature (See e.g., Harris, 2007; Bernauer, 2013; Cao *et al.*, 2014; Tosun, 2018).

Comparative studies of policy adoption across countries find that policy adoption is generally becoming more ambitious over time. However, they have also noted substantial differences across countries, pointing to various potential variables that might be the cause (Bättig and Bernauer, 2009; Schoenefeld *et al.*, 2019). These variables are typically separated into internal characteristics and external characteristics. Internal characteristics include the presence and strength of democracy (Bayer and Urpelainen, 2016), differences in citizen preferences (Berry *et al.*, 2015), the strength of interest groups, and the level of political competition (Schulze, 2021). External characteristics include membership in international networks (Fankhauser *et al.*, 2016) and policy diffusion (Kammerer and Namhata, 2018). When examining the effects of climate clubs specifically, policy diffusion is vital.

Policy diffusion refers to how one policy innovation moves from one jurisdiction to another (Dobbin *et al.*, 2007). Within policy diffusion, there are four theorized mechanisms through which the policy innovation moves from country to country: (i) emulation; (ii) learning; (iii) coercion; (iv) and competitive pressure (Berry and Berry, 2018; Gilardi, 2013) Because the climate clubs currently operating do not use policy "sticks," coercion and competitive pressure are not relevant. This leaves emulation and learning. Emulation is considered the classic diffusion model, occurring when one country attempts to emulate another in the search for social acceptance. While this could theoretically occur in climate clubs, what is more likely is

for membership itself to demonstrate conformity.. Reputational benefits are one suggested club good (incentive) provided through climate club membership, which may make the actual emulation of policy for reputational purposes redundant (Prakash and Potoski, 2007; Green, 2017).

This leaves policy learning—a process wherein policy actors adjust their strategies or objectives in response to past experiences or the experiences of others (Hall, 1993). At the core of policy learning is the understanding that policies aren't formulated in isolation; they are influenced by the collective wisdom accumulated from prior initiatives and the experiences of other entities (Dunlop and Radaelli, 2013). Sabatier (1988) classifies policy learning into two primary types: instrumental learning, where policy adjustments are based on the lessons from past successes or failures, and social learning, where policy change results from shifts in the values, beliefs, or social norms of the policy actors involved.

A key proponent of policy learning, Rose (1991), emphasizes the role of "lesson drawing." He contends that policymakers often seek models in other jurisdictions, not to copy them directly, but to derive lessons that can be adapted to their specific context. This process, however, isn't devoid of challenges. As Dolowitz and Marsh (2000) point out, the transfer of policies across different political and cultural landscapes can often be fraught with complexities, and understanding these nuances is crucial for the effective adaptation of policies. Central to the discourse on policy learning is the role of epistemic communities— a "network of professionals with recognized expertise and competence in a particular domain" (Haas, 1992, p. 3). These communities, with their specialized knowledge, often influence the policy-learning process, guiding policymakers through the maze of information, and offering solutions grounded in evidence and expertise.

Climate clubs can be a fertile ground for policy learning. As Tosun and Rinscheid (2021) establish in their analysis of the Clean Energy Ministerial, the forum's regular meetings provide a space for the exchanging best-in-class policy ideas. Similarly, in Unger *et al.* (2020)'s examination of the Climate and Clean Air Coalition (CCAC), they suggest that it has successfully provided knowledge to participants and supported policy introduction. Interestingly, they also

note the club's success within the polycentric landscape. The CCAC, as an expert in its sector, provides policy support not only to its own members, but to the UNFCCC itself, which then diffuses the learnings to the broader community.

Climate clubs can act as a new kind of international entity, embodying the principles of polycentric climate governance (Ostrom, 2010). These clubs, offering more flexible and cooperative environments, can become an important mechanism for diffusion of climate policy, spurring efficient policy outcomes by sharing knowledge and successful initiatives among their members, sparing national governments the information gathering costs (Busch and Jörgens, 2005). This role is crucial, considering that Fleig *et al.* (2017) note that policy learning is the preferred diffusion mechanism of climate policy for most political actors.

As a form of polycentric governance, climate clubs can act as an essential mechanism for the diffusion of climate policy, complementing and enhancing the effects of other internal and external factors. They can provide a platform for learning, communication, cooperation, and sharing successful initiatives, offering an efficient and flexible approach to climate policy adoption and diffusion. Analyzing policy diffusion, specifically policy learning, provides a suggested path through which climate clubs can influence domestic climate ambition.

Chapter 3

Methodology

This chapter empirically assesses the two hypotheses presented in the literature review. First, that *membership in climate clubs increases a country's policy ambition.* Second, that *membership in inclusive clubs has a greater effect than membership in exclusive clubs.* It follows in the methodological footsteps of numerous recent studies that have studied the determinants of domestic climate policy. (See e.g., Fankhauser *et al.*, 2016; Kammerer and Namhata, 2018; Schulze, 2021)

3.1 Dependent variable

The dependent variable is climate policy ambition, operationalized as a count variable of the number of new climate policies introduced in country i at time t. As referenced in the introduction, focusing on the number of new policies rather than on stringency is referred to as a "policy density" approach (Schaub *et al.*, 2022; Knill *et al.*, 2012). While a measure of policy stringency may be closer conceptually to the "ambition" referred to in the Paris Agreement, little standardized data across countries and time fits those parameters. Instead, much of the literature adopts this density approach (Eskander and Fankhauser, 2020; Le Quéré *et al.*, 2020).

Most scholarship on climate policy adoption analyzes one of three datasets (Schaub *et al.*, 2022): (i) Climate Change Laws of the World produced by the Grantham Research Institute

on Climate Change and the Environment (Nachmany *et al.*, 2015); (ii) the Climate Policy Database (CPD) produced by the NewClimate Institute (2023); or (iii) the Policies and Measures Database (PMD), produced by the International Energy Agency (IEA) (2023). For this analysis, the PMD from the IEA is used for two reasons: First, it is the most comprehensive of the datasets (Schaub *et al.*, 2022), as the data are provided directly by the IEA's member countries. Second, in restricting the analysis to IEA member countries, as suggested by previous scholars who have used the dataset (Schulze, 2021), the likelihood of multicollinearity is decreased. Developed countries represent the majority of climate club members (Weischer *et al.*, 2012) and since all IEA members are highly developed countries, the likelihood that climate club membership is acting as a proxy for development is decreased.

Since IEA members regularly review the information contained within this dataset, as opposed to non-members, this analysis is restricted to IEA member countries. Because the unit of analysis is the state, only policies labeled in the PMD as national and international are included. Taken together, these countries account for 32.63% of total CO_2 emissions (The World Bank, 2023).

The PMD is a composite dataset, unifying data from the International Renewable Energy Agency's Renewable Energy Policies and Measures Database, the IEA's Energy Efficiency Database, the Addressing Climate Change database, and the Building Energy Efficiency Policies database (IEA, 2023). At present, the PMD includes 7,661 total policies.

The time frame analyzed is restricted to the years 1990–2018. 1990 is chosen because there are near zero climate policies adopted prior. 2018 is chosen due to the data availability of control variables. Only full IEA members (See Figure 3.1 for a full list) as of 2018 are included in the analysis. This leaves us with 29 years and 29 countries, for a total of 841 country-years.

3.2   Key Explanatory Variable

While plenty of theoretical work has been done on the possible benefits of climate clubs, the same is not true of clubs currently operating. The dataset that is often referred to in the literature is from Weischer *et al.* (2012), but this does not include the rapid growth in the

Figure 3.1: *Policies Adopted by IEA Member States, 1990–2018*
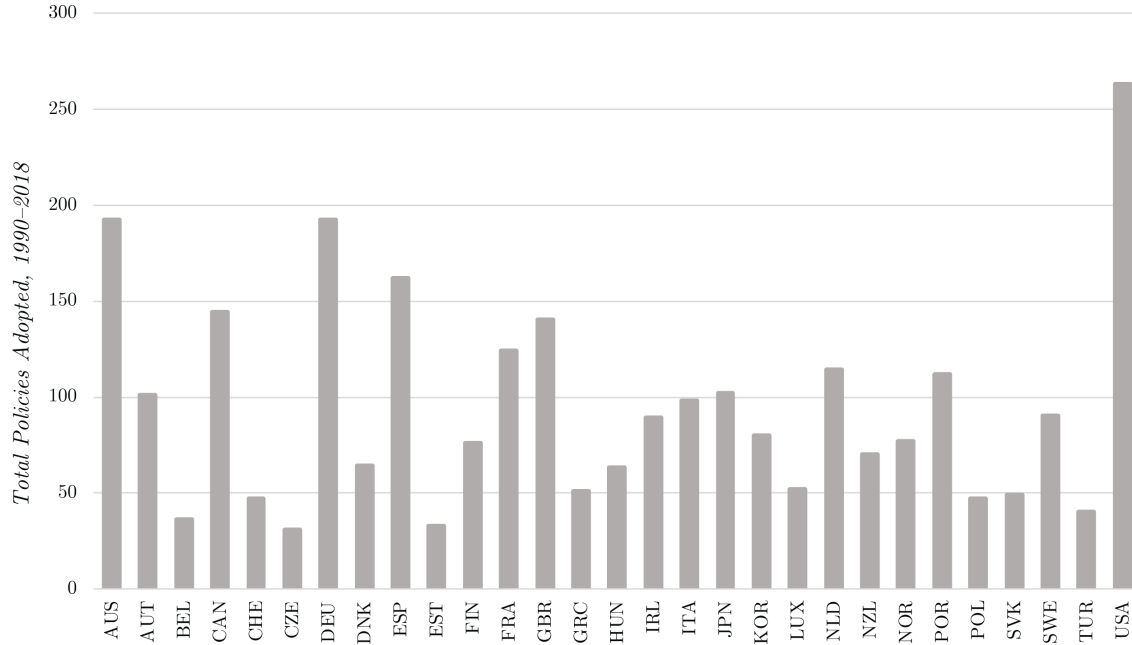
number of climate clubs post-Paris. Additionally, it does not account for country membership over time. To remedy this, a unique data set was created to operationalize the variable *Climate Club Membership*. Each country-year includes a count variable for the total number of climate club memberships held.

To identify climate clubs, I follow the framework developed by Weischer *et al.* (2012). Climate clubs include any group of more than two, but less than full UNFCCC membership. They must be focused on activities outside the UNFCCC framework, which eliminates groups like the Cartagena Dialogue that exist primarily to discuss ambition at UNFCCC negotiations. They must be primarily governed and funded by national governments, which further eliminates sub-national clubs and clubs built out of NGOs or transnational corporations. Each club is also labeled as a bargaining club or a normative club based on Falkner *et al.*'s (2021) typology. For a full list of clubs included, refer to Table 2.1. It is important to note that unlike in Table 2.1, membership is only included in the analysis from the year the club in question added climate change to its portfolio.

3.3 Control Variables

In line with the literature discussed previously, this paper adds several variables to control for the major alternative determinants of domestic climate policy. Each variable is categorized as an internal or external determinant as is standard in the climate policy literature.

3.3.1 Internal Controls

Vulnerability: It is expected that countries that are more vulnerable to climate change will either by design or by necessity take more measures to deter its effects (Massey *et al.*, 2014; Mozumder *et al.*, 2011). Data are from the Notre Dame Global Adaptation Index, a comprehensive time-series dataset calculated by subtracting a country's vulnerability score (out of 100 where lower is better) from its readiness score (out of 100 where higher is better). One is added to the difference, which is then multiplied by 50, providing a total vulnerability ranking out of 100 where higher is better.

CO_2 Emissions Per Capita (in tons and logged): Countries with higher CO_2 emissions *per capita* are expected to adopt greater numbers of climate policies (Kammerer and Namhata, 2018). Data are from the European Commission's Emissions Database for Global Atmospheric Research and are logged for interpretability.

Population (logged): Countries with higher populations are expected to adopt more total policies (Kammerer and Namhata, 2018). Data are from the World Bank's World Development Indicators (2023) and are logged for interpretability.

Left-Leaning Government: Countries with left-leaning governments are expected to adopt more policies than other governance types (Neumayer, 2003; Tobin, 2017). To account for this, I use the Seki-Williams index (2014), itself an updated version of Woldendorp et al.'s (2000) index. The Seki-Williams index provides country-year data for the ideological complexion of government, operationalized as a value from 1 to 5. Since I am solely interested in left-leaning

governments, I create a new dummy variable where scores 4 and 5 (left-leaning government) are coded as 1 and all other scores are coded as 0.

Political Constraints: The presence of veto players may affect climate policy adoption (Madden, 2014). To control for this, I include a variable for political constraints using the dataset from Henisz (2000). This variable runs from 0 to 1, where 1 represents the highest level of political constraints.

Past Policy Adoption: Countries that have already adopted climate policies may be more likely to adopt additional policies in the future (Kammerer and Namhata, 2018). To operationalize this variable, I find the sum of policies adopted up until year t-1 in country i.

GDP Per Capita PPP (in current US dollars and logged): There is a lively debate on the effect of GDP on climate policy adoption. The literature ranges from GDP having a positive effect (Jänicke, 2005), to a negative one (Bättig and Bernauer, 2009), to no significant effect (Madden, 2014). Data are from the World Bank's World Development Indicators (2023) dataset and are in current US dollars (2023). The data are log-transformed to improve interpretability.

3.3.2   External Controls

Hosting COP: Hosting COP is associated with an increase in domestic climate policy adoption (Fankhauser *et al.*, 2016). Following Fankhauser et al. (2016), I operationalize this using a dummy variable coded as one for the year a country hosted COP and for the following two years.

EU Membership: Membership in the EU is considered potentially impactful on the adoption of climate policy (Schreurs and Tiberghien, 2007; Avrami and Sprinz, 2018). It is operationalized using a dummy variable to distinguish between members (1) and nonmembers (0).

Policy Diffusion: Policy diffusion via geographical proximity has been shown to be significant

in the literature, with countries likely to adopt more policies if other countries proximal to them have done the same Linsenmeier *et al.* (2023). To operationalize this variable, I take the mean new policies adopted in neighboring countries (that are included in the dataset) in the year t-1.

3.4 Regression Estimation

This paper tests the correlates of domestic climate change policy adoption through a multiple regression analysis. Since the dependent variable is a count variable, the standard recommendation is to perform either a Poisson regression or a negative binomial regression. However, the variance of the dependent variable is far greater than the mean, indicating that the data do not adhere to a Poisson distribution, leaving a negative binomial regression as the preferred option. While fixed-effects negative binomial regressions have been used to analyze similar datasets (See e.g., Fankhauser *et al.*, 2016), they are not recommended as they do not control all stable covariates (Allison and Waterman, 2002). Because of this, I follow the regression methodology suggested by other recent examples in political science (Bove and Böhmelt, 2016; Polo and Gleditsch, 2016; Schulze, 2021) and log-transform the dependent variable after adding 1 to it. This normalizes the distribution, allowing for the use of a simple linear regression. To create the fixed effects, I compute dummy variables for country and year.

In developing the regression equation, I follow the the style of Fankhauser *et al.* (2016), leaving the model with the following general form:

$$Log(Y_{it} + 1) = \alpha + \beta I_{it} + \gamma X_{it} + \theta_i + \nu_t + \varepsilon_{it}$$

In this model y_{it} is the dependent variable. It is a count variable of the number of mitigation policies adopted in country i at time t. As noted, 1 is added and then the variable is log-transformed. Vector βI_{it} refers to the internal factors of interest. Vector γX_{it} contains the external variables of interest. Also included are a full set of country- and year-fixed effects and a random error term.

Chapter 4

Results

Results of the regression analysis are presented in Table 4.3. For Models 1, 2, and 3, the R^2 values of 0.535, 0.531, and 0.534 suggest that approximately 53.5%, 53.1%, and 53.4% of the variability in the dependent variable is accounted for by the predictors, respectively. These values indicate moderately strong explanatory power for each model, with slight variations among them.

Model 1 examines total club memberships as the main independent variable. Membership in climate clubs, as hypothesized, is positively correlated with more climate policy activity. The coefficient of the climate club membership variable is significantly positive ($\beta = 0.281$, $p < 0.05$). This outcome supports the study's first hypothesis, which predicted that being a member of climate clubs enhances domestic policy ambition.

Models 2 and 3 differentiate club memberships into bargaining and normative types, respectively. The results for the control variables in Models 2 and 3 are largely consistent with those in Model 1. However, the impact of club membership type varies. Bargaining club memberships have a positive, but non-significant, correlation with climate policy adoption ($\beta = 0.17$, $p > 0.05$). In contrast, normative club memberships exhibit a positive and statistically significant association ($\beta = 0.275$, $p < 0.05$). This implies that normative climate clubs, which tend to have broader participation and lower entry barriers, exert a stronger influence on member countries' policy adoption compared to exclusive ones. This supports hypothesis 2.

Table 4.3: *Climate Policy Adoption in IEA Member States, 1990–2018*

Independent Variables	Climate Policy Adoption		
	Model 1	Model 2	Model 3
Internal Determinants			
Vulnerability	-3.695	-3.161	-3.589
	(2.341)	(2.337)	(2.343)
Past Policy Adoption	-0.002*	-0.001	-0.002
	(0.001)	(0.001)	(0.001)
CO2 *Per Capita* (logged)	1.139**	0.971**	1.163
	(0.394)	(0.396)	(0.396)
Population (logged)	2.896***	2.622***	2.812***
	(1.030)	(1.029)	(1.029)
Left-Leaning Government	0.031	0.030	0.029
	(0.026)	(0.026)	(0.026)
Democracy	0.074**	0.079**	0.076**
	(0.032)	(0.032)	(0.032)
Political Constraints	0.242	0.308	0.237
	(0.228)	(0.227)	(0.229)
GDP *Per Capita* (Logged)	0.289	0.274	0.361
	(0.408)	(0.422)	(0.405)
External Determinants			
Hosted COP	0.007	0.006	0.003
	(0.061)	(0.061)	(0.061)
EU Membership	0.067	0.019	0.064
	(0.082)	(0.080)	(0.083)
Policy Diffusion	0.008*	0.008**	0.008*
	(0.004)	(0.004)	(0.004)
Total Club Memberships	0.281**	—	—
	(0.111)		
Bargaining Club Memberships	—	0.17	—
		(0.116)	
Normative Club Memberships	—	—	0.275**
			(0.2128)
R-squared	0.535	0.531	0.534
N	841	841	841

Note: All models include country and year fixed effects. Standard errors are in parentheses.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

While there are slight variations across the models—excluding past policy adoption in Model 1 and CO_2 *per capita* in Model 3—significance holds across all three models. In the

plain language reporting that follows, the βs reported will be from Model 1. Refer to Table 4.3 for βs from Models 2 and 3.

Within the internal determinant variables, the most significant finding ($\beta = 2.896$, $p < 0.01$) was the effect of population size on policy adoption. This is not entirely surprising as Figure 3.1 shows the country with the highest population, the United States, has also adopted the highest total number of policies. CO_2 *per capita* also exhibits a statistically significant positive correlation with climate policy adoption ($\beta = 1.139$, $p < 0.05$). This indicates that countries with higher CO_2 emissions *per capita* are more likely to implement new climate policies, possibly to mitigate their substantial contribution to global warming. Interestingly, the GDP *per capita*, a proxy for economic development level, does not have a significant effect on climate policy adoption in Model 1 ($\beta = -0.289$, $p > 0.05$). This challenges the commonly held view that wealthier countries are more likely to adopt climate policies. Once other factors, such as democratic governance and CO_2 emissions, are taken into account, the wealth of a country does not seem to be a major determinant in climate policy adoption. The democracy variable, as captured by the PolityV index, demonstrates a statistically significant effect on climate policy adoption ($\beta = 0.074$, $p < 0.05$). This finding is consistent with existing literature that posits democratic systems facilitate the adoption of climate policies due to their transparency, accountability, and capacity to accommodate diverse interests. Past policy adoption was found to be slightly significant ($\beta = -0.002$, $p > 0.1$), but only in Model 1. Interestingly, it takes a negative form, suggesting that countries that have already adopted high numbers of climate policies are slightly less likely to adopt them in the future. The variables political constraints, vulnerability, and left-leaning government, were all found to not be significant ($p > 0.1$).

Among external control variables outside of climate club membership, the only significant finding was a small effect of geographical policy diffusion ($\beta = 0.008$, $p < 0.1$). The other two variables, membership in the EU and the hosting of COP were found to be insignificant.

To summarize, the findings suggest that membership in climate clubs, and especially normative ones, has a significant impact on domestic policy ambition, supporting both

hypotheses. Additionally, the control variables suggest that having larger populations, more democratic institutions, higher CO_2 emissions *per capita*, and proximity to other ambitious countries are important climate policy adoption factors.

Chapter 5

Discussion

Grounded in a growing body of literature that emphasizes the role of international cooperation in climate governance, this research asked: Does membership in climate clubs increase domestic climate policy ambition?

Using a fixed-effects quantitative analysis, it was found that countries participating in climate clubs were more likely to adopt substantive climate policies than those that did not engage in such coalitions. This result was statistically significant, even after controlling for numerous potential confounding variables, including GDP *per capita*, political regime type, and CO_2 emissions, among others. The study provides robust empirical support for the theory that climate clubs can catalyze climate policy adoption. International collaboration through these clubs, and other similar structures, could be a critical factor in driving global climate action.

Notably, the present study not only supported the first hypothesis that club membership increases policy ambition but also examined the differential impacts of the categories of clubs. The second hypothesis posited that normative clubs would have a more profound effect on policy ambition than bargaining clubs. The data provides strong support for this hypothesis. It was observed that countries affiliated with normative clubs consistently demonstrated higher degrees of policy ambition than those associated with bargaining clubs. This could be attributed to the inherent nature of normative clubs, which might foster a culture of collective

responsibility and shared values towards climate mitigation, as opposed to the transactional and often compromising nature of bargaining clubs. Such insights underline the importance of understanding the nuances of club dynamics and their roles in shaping environmental policy landscapes.

Moving forward, the present research underscores the need for a multifaceted approach to climate policy adoption that incorporates international cooperation as a key strategy. It also emphasizes the need for additional research to better understand the nuances of how climate club participation influences climate policy, to inform more effective policymaking.

This study's findings build upon and extend previous research in the area of climate governance. Several studies have posited the importance of climate clubs in promoting the adoption of climate policies. In their meso-level analyses, Unger *et al.* (2020), Unger and Thielges (2021), and Tosun and Rinscheid (2021) have also highlighted the potential of individual minilateral climate initiatives in accelerating progress in climate policy. By demonstrating a macro-level, statistically significant correlation between climate club membership and climate policy adoption, the findings provide empirical evidence to support these case studies.

Moreover, this research presents a counterargument to the theses of Hovi *et al.* (2019) and Andresen (2014), who assert that climate clubs do not significantly impact the adoption of mitigation policies. Instead, they claim that these clubs existed largely as discussion or dialogue forums, not places of real political action.

This research both aligns with and challenges prior work in the field. It lends credence to theories positing a significant role for international cooperation in climate policy adoption and provides a robust empirical basis for arguing the substantial influence of climate clubs in this process. Yet it also highlights the need for further research to understand better the interplay between international and domestic factors in driving climate policy adoption and the mechanisms through which climate clubs may exert their influence.

This study's findings hold substantial practical implications for both international climate governance and national climate policymaking. The observed correlation between climate club membership and climate policy adoption emphasizes the instrumental role that these clubs

can play in promoting climate action.

From an international perspective, the present research underscores the effectiveness of climate clubs in advancing climate policy, reinforcing arguments made by Falkner (2016) and Victor (2015). Climate clubs offer a unique forum for focused cooperation and policy innovation, which can help fill the gaps left by large-scale international agreements often plagued compliance and enforcement issues (Falkner, 2016; Bodansky, 2016). By demonstrating a clear, empirical link between climate club participation and policy adoption, these findings support the argument that these smaller, more flexible coalitions can foster effective action against climate change.

For national governments, these results present a compelling case for climate club participation. Active engagement in these clubs can provide countries with access to technical expertise, opportunities for shared learning, and exposure to innovative policy solutions. These findings align with the observations of Abbott (2012) and Hale (2016) on the value of transnational initiatives in enhancing capacity building and policy diffusion. Therefore, governments seeking to ramp up their climate action can consider climate club membership a potentially fruitful pathway.

Moreover, the empirical evidence presented in this study could guide the efforts of climate activists and civil society groups. By highlighting climate clubs as influential actors in the climate policy landscape, this research provides a potential focus for these groups' advocacy work. They could, for instance, lobby their governments to join such clubs or demand that commitments made within these alliances are upheld.

These study's findings also carry significant theoretical implications for understanding climate policy adoption. The strong correlation between climate club membership and policy adoption aligns with and enriches the tenets of transnational relations theory, which contends that non-state actors and international alliances can substantially influence state behavior (Keck and Sikkink, 1999). By highlighting the pivotal role of climate clubs in shaping national climate policy, this study extends this theory to address the specifics of climate governance, underscoring the increasing importance of transnational cooperation in global environmental

politics.

In demonstrating a statistically significant relationship between climate club membership and climate policy adoption, this research also challenges traditional realist assumptions that state behavior, particularly in policy domains as critical as climate change, is driven purely by domestic interests or power dynamics (Mearsheimer, 2001). Instead, the findings emphasize the essential role of transnational alliances and collaboration in shaping policy decisions, thus supporting arguments by scholars such as Keohane and Nye Jr. (1977) on the complexity of interdependence in global politics.

Furthermore, the results introduce additional complexity to the principal-agent theory in international relations. Principal-agent theory traditionally describes how principals (states) delegate certain powers to agents (international organizations) to act on their behalf (Hawkins *et al.*, 2006). However, this research suggests that climate clubs, as agents, may exert a degree of influence on their member states that can catalyze policy change. This finding underscores the need for a broader understanding of agency within this theoretical framework, particularly in the environmental policymaking.

5.1   The Value of Dialogue

Two of the pieces of literature that dissented on the potential value of climate clubs both emphasized that they exist as mere dialogue forums (Hovi *et al.*, 2019; Andresen, 2014). While not explicitly stated, both pieces implied that dialogue had little practical value. However, in exploring this further through a constructivist lens, the discussion spaces that clubs can provide may be more important than these two suggest.

Constructivist theories in international relations have long emphasized the central role of ideas, norms, and identities in shaping state behavior. Given this premise, international dialogue forums present a significant space for propagating norms and shared knowledge, ultimately influencing policy outcomes. According to Wendt (1992), states operate within a framework of socially constructed realities, where their interactions and mutual perceptions form the basis of global order. In this constructivist framework, dialogue forums can be

perceived as arenas where shared meanings and understandings are negotiated (Wendt, 1992).

Finnemore and Sikkink (1998) argue that norm life cycles begin with "norm entrepreneurs" who utilize platforms, like climate clubs, to introduce and promote new norms. Once these norms gain traction, they undergo the process of a "norm cascade," wherein states adopt these norms, not necessarily because they intrinsically value them, but due to the influence of international standards and expectations (Finnemore and Sikkink, 1998). This perspective underscores the power of forums like climate clubs in disseminating and normalizing policy ideas.

Risse (2000) provides empirical support for this, showcasing how transnational networks, often culminating in specific institutions, have been instrumental in spreading human rights norms. Similarly, Keck and Sikkink (1999) work on transnational advocacy networks emphasizes the importance of dialogue in forums that bridge state and non-state actors, leading to substantial policy shifts in areas such as environmental conservation and women's rights.

Moreover, policy forums enable the diffusion of knowledge and best practices. Adler (2005) has discussed the concept of "epistemic communities," which are networks of experts with authoritative knowledge in a specific domain. These communities often intersect in international forums, facilitating the exchange of ideas and shaping state policy in line with emerging knowledge trends (Adler, 2005).

The value of dialogue forums like climate clubs for constructivists lies in the belief that interactions within these spaces play a crucial role in molding international policy. Whether through the introduction and propagation of norms (Finnemore and Sikkink, 1998), the influence of epistemic communities (Adler, 2005), or the dynamic interplay of states within socially constructed realities (Wendt, 1992).

By engaging in continuous dialogue within such clubs, member nations may experience an amplified sense of collective responsibility. Moreover, exposure to various mitigation strategies can potentially inspire countries to elevate their policy goals and commitments (Hoffmann, 2012). Hence, these findings emphasize the urgency to reassess the often-presumed distinction between "discussion" and "action." The underlying value of climate clubs might be intricately

intertwined in the interplay between the two, where discourse sets the stage for normative transformations, leading to substantive and actionable outcomes.

5.2   UNFCCC as Orchestrator

While this research supports the association between climate clubs and increased domestic policy ambition, viewing them as one node within a polycentric system remains important. Climate clubs, while important, are unlikely to replace the UNFCCC. Within this system, orchestration has increasingly been spoken about as a means to re-connect the disparate sectors of the polycentric landscape. Orchestration refers to how international organizations guide, support, or amplify the actions of intermediary actors without relying on hierarchical command or coercive power (Abbott, 2010; Drezner, 2015). Essentially, it is a lens to understand how a "central actor" (the orchestrator) enlists other, often non-state or sub-state actors (the intermediaries), to achieve a desired outcome by providing them with direction, resources, or legitimacy (Pattberg and Widerberg, 2017). This theory has particular relevance in environmental governance, where complex challenges often necessitate multi-level and polycentric approaches to be effectively addressed (Ostrom, 2010; Galaz *et al.*, 2012).

With the understanding that climate clubs can be effective, the UNFCCC, as a potential orchestrator, could do this, offering new possibilities for enhanced cooperation and action (Keohane and Victor, 2011). The UNFCCC has traditionally been perceived as a centralized platform for international climate negotiations (Bodansky, 1993). However, the emergence of climate clubs offers an opportunity to re-envision the role of the UNFCCC. The potential of the UNFCCC to act as an orchestrator of such clubs could revolutionize international cooperation on climate change mitigation and adaptation efforts (Falkner, 2016). Acting as an orchestrator, the UNFCCC could facilitate the formation of climate clubs, ensuring that they are complementary and not competing with the broader goals of global climate agreements, such as the Paris Agreement (Oberthür, 2016). By doing so, the Convention could harness clubs' advantages: flexibility, scalability, and the potential for deeper cooperation among like-minded nations (Hale and Held, 2017). These clubs could cater to regional needs or specific sectors,

enabling more targeted and nuanced climate action that may be challenging to achieve through all-encompassing global agreements (Keohane and Victor, 2011).

Further, the UNFCCC's involvement would lend credibility and visibility to the efforts of these climate clubs (Stewart *et al.*, 2013). This could encourage more nations to join or establish new clubs, promoting a competitive spirit in pursuit of environmental excellence. Moreover, by coordinating these efforts, the UNFCCC could ensure that knowledge, best practices, and innovations are shared between clubs, accelerating the global community's ability to respond to the multifaceted challenges of climate change (Chan *et al.*, 2018). In addition, the role of the UNFCCC as an orchestrator could mitigate potential challenges that climate clubs may face (Hovi *et al.*, 2019). For instance, there could be concerns about trade implications or worries that clubs might be used for geopolitical influence (Urpelainen, 2013). The UNFCCC's overarching presence could help ensure that climate clubs remain inclusive, transparent, and driven by the shared objective of global climate action (Bäckstrand *et al.*, 2017).

However, this potential new role for the UNFCCC does not come without challenges. As an orchestrator, the Convention would need to balance guiding climate clubs and ensuring they have the autonomy to pursue innovative approaches (Bernstein and Hoffmann, 2018). Furthermore, the practical aspects of such orchestration, including resource allocation, monitoring, and verification, would need careful consideration (Dubash, 2021).

While global climate governance architecture has traditionally been built around broad international agreements like the UNFCCC, the evolving landscape suggests that a hybrid model incorporating the advantages of centralized negotiations and decentralized climate clubs may be the way forward (Galaz *et al.*, 2012). By positioning the UNFCCC as an orchestrator of these clubs, the international community could leverage the strengths of both approaches, paving the way for more efficient, adaptable, and resilient climate action.

5.3   Research Limitations

While this study provides robust evidence for the significant role of climate clubs in promoting climate policy adoption, it is not without limitations. Firstly, the research design, based

on cross-national comparison, can obscure important nuances and contextual differences between countries. For instance, the specific dynamics within each climate club, the nature of policies adopted, or the relative influence of other international or domestic factors may vary substantially across different national contexts. Despite attempts to control for confounding variables, these elements may have an impact on policy adoption and are not fully captured in the broad-brush analysis.

Second, this study is observational, and therefore it establishes correlation but not causation. While the regression analysis has shown a strong correlation between climate club membership and climate policy adoption, more research is needed to establish a definitive causal mechanism.

Third, the measure of climate policy adoption used in this study, while comprehensive, may not capture all relevant aspects of a country's response to climate change. Important initiatives or efforts may fall outside of formal policy, such as changes in industrial practices or shifts in societal behavior, which are not included in the analysis.

While this study provides robust evidence of a relationship between climate club membership and climate policy adoption, it is still just one factor. Policy adoption is a complex process influenced by a multitude of factors, as highlighted by Jordan and Huitema (2014), including domestic politics, economic constraints, public opinion, and more. Therefore, while the findings indicate that climate club membership can catalyze climate policy adoption, it is crucial to consider this factor as part of a broader constellation of influences.

Chapter 6

Conclusion

Since the early years of the Kyoto Protocol, two significant changes have occurred in global climate governance. First, in moving to the more heavily bottom-up system of the Paris Agreement, global emissions reductions are now reliant on domestic policy adoption. Second, with the fragmentation of the climate change regime came varied attempts at innovative governance. Among these were climate clubs. This dissertation sought to deepen our understanding of domestic policy adoption within this context. In particular, it examined climate clubs' role in climate policymaking. Despite the recent prominent role that climate clubs have received across disciplines, few research results bridged the theoretical and the applied. Furthermore, comparing the literature across that divide suggested a puzzling disconnect regarding the clubs' potential effectiveness. Most theorists estimate that clubs, in addition to their other benefits, increase members' domestic ambition. Reviews of existing clubs often presented these clubs as mere discussion forums with little real-world impact. Simultaneously, case studies of individual clubs suggested that these clubs were positively affecting the policy outputs of their member countries.

Addressing this disconnect, I hypothesized that the theorists were correct and that clubs were drivers of climate policy adoption. Additionally, I expected that membership in normative clubs would have a more significant effect than membership in bargaining clubs. To analyze this, I compiled club membership data across 29 years and 29 countries. As the first large-n

statistical examination of climate clubs, this is a novel contribution to the literature on climate policy and governance.

In general, the results of this dissertation show that membership in climate clubs is associated with greater domestic policy ambition. It further shows that membership in normative clubs alone has a significant positive effect, while membership in bargaining clubs was not significant. This is a significant finding and adds to the literature on climate clubs. Additionally, the findings are generalizable, providing credence to larger theoretical frameworks including policy diffusion and international cooperation.

Despite the overarching significance of climate change in global dialogues, the realm of international relations offers scant scholarship on the topic (Overland and Huda, 2022). Furthermore, discussions on climate clubs have been predominantly steered by economists, overshadowing potential insights from a more interdisciplinary approach. This research endeavored to bridge this academic chasm.

More research is needed to substantiate these findings further. I suggest two potential methodologies. First, the present findings could be re-assessed using an alternative dataset to the IEA's PMD. This would allow for a broader scope of countries, which could provide greater generalizability across the developing-developed divide. Second, a mixed-methods approach could provide additional confirmation to the findings described in this paper. While the quantitative-only approach used here provides a macro-level analysis of the effects of climate clubs, it does not investigate the effectiveness of individual clubs. Using mixed methods is one way to incorporate the more micro-level analysis, while having the additional benefit of allowing for the triangulation of results. Whatever approach is taken, this paper suggests climate clubs are an effective tool for global climate governance. These novel findings merit additional research.

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