

The Party Politics of Climate Change in Multilevel Democracies

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List of Abbreviations

AC	Autonomous Community
AMB	Metropolitan Area of Barcelona
BC	Barcelona in Common
BCC	Barcelona City Council
BNG	Galician Nationalist Bloc
C40	Cities Climate Leadership Group
CC	Canarian Coalition
CC-NC	Canarian Coalition – New Canaries
CC-PNC	Canarian Coalition – Nationalist Canary Party
CDC	Democratic Convergence of Catalonia
CiU	Convergence and Union
CMP	Commitment
CoM	Covenant of Mayors
Cs	Citizens
CUP	Candidacy of Popular Unity
EAJ-PNV	Basque Nationalist Party
ECP	In Common We Can
EHB	Unite the Basque Country
EM	In Tide
EP-EB	Together We Can – United Left-Greens
ERC	Republican Left of Catalonia
EU	European Union
FFF	Fridays For Future
FraTerr	Framing Territorial Demands
GEECB	Climate Emergency Expert Group
GHG	Greenhouse Gas
ICV	Initiative for Catalonia

ICLEI	International Council for Local Environmental Initiatives
JxC	Together for Catalonia
MP-E	More country – Equo
MRG/CMP/MARPOR	Manifesto Data Collection
NA+	Sum Navarre
NSWP	Non-Statewide Party
PDB	Provincial Deputation of Barcelona
PP	People’s Party
PRC	Regionalist Party of Cantabria
PSC	Socialist Party of Catalonia
PSOE	Socialist Party of the Spanish Workers
PSE-EE	Socialists’ Party of Euskadi – Basque Left
REC	Renewable Energy Cooperatives
RECC	Network of Cities for Climate Protection
RET	Renewable Energy Transition
RLP	Radical Left Party
RMP	Regional Manifestos Project
SWP	Statewide Party
TE	Teruel Exists
UNFCCC	United Nations Framework Convention on Climate Change
UP	Together We Can
UPN	Navarrese People’s Union

Publications

- PhD publications

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1. Introduction

Political systems play a crucial role in shaping the governance of societal challenges, including climate change (Selin & VanDeever 2012). While some of them react to the latter phenomenon by ignoring or refusing to act, others have been acting for decades to curb and reverse their greenhouse gas (GHG) emissions. Among those committed to mitigating climate change, key differences in their approaches often stem from the degree of authority their political systems grant to regional and local governments (Irepoglu Carreras 2019). In this regard, extensive research on climate federalism has produced several pros and cons of decentralized political systems for solving climate issues (Fenna et al. 2023; Alberton and Cocciolo 2023).

On the negative side, such systems may hinder climate policymaking due to the larger number of decision-makers and institutional duplicities, which increase the likelihood that policy changes are blocked, delayed or watered down (Tsebelis 2002). For instance, academic contributions have shown that mitigation action by the central governments of Switzerland and Austria were impeded by non-compliance from their constituent units in specific policy domains (Casado-Asensio & Steurer 2016). Moreover, if constituent units are represented in the second chambers of central governments, additional veto points may arise, potentially leading to lowest-common-denominator policies (Fenna et al. 2023).

Another downside is the difficulty in coordinating policies across various government levels, often resulting in redundant, incoherent, or contradictory measures that undermine overall effectiveness (Goulder & Stavins 2010; Galarraga et al. 2011). For example, attempts to reduce GHG emissions by one constituent unit are meaningless if others allow emissions to increase by an equal (or greater) amount (Gordon 2015). Furthermore, constituent units may underinvest in broader public interests that conflict with their material self-interest, fueling a "race to the bottom" as sub-national entities prioritize local economic gains over collective climate action (Weibust 2009; Adler 2008; Wälti 2004).

Conversely, other scholars suggest that decentralized systems can promote effective climate policies through experimentation, mutual learning, and healthy competition among sub-national entities (Fenna et al. 2023). The fragmentation of responsibilities allows for the development and testing of innovative solutions at multiple sites, which can then be adapted and scaled both horizontally and vertically, serving as models for other regions or the nation as a whole (Kerber & Eckardt 2007; Millimet 2013; Volden 1997; Bernstein & Hoffman 2018).

Decentralized political settings also present an opportunity structure, enabling constituent units to launch their own climate action programs even when the central level remains inactive (Oates 1998; Wälti 2009). This mechanism of "compensatory federalism" is evident in countries like Spain, where the absence of strong national climate policies initially spurred regional governments in areas like Catalonia, the Balearic Islands, and Andalusia to adopt their own climate legislation (Cocciolo 2020).

In the same way, decentralized systems benefit from having levels of government that are closer to local populations and better able to adapt their action to the

characteristics of this arena. On the one hand, this proximity can enhance the legitimacy and public acceptance of climate policies by engaging citizens directly in the policymaking process (Alberton & Cocciolo 2023; Millimet 2013). On the other hand, decentralized entities can leverage their unique knowledge, skills, and resources to develop climate solutions that align with their specific environmental, social, and economic contexts (Alberton & Cocciolo 2023).

The dominant rationale for decentralized climate governance underlying the previous academic contributions, gains further support in the light of the particularly pressing implications of climate change at regional and local levels (Vogel et al. 2020; Baker et al. 2012). This is primarily due to the significant concentration of energy production, transport, industrial and residential activities in urban areas, which are the main sources of GHG emissions (Marcotullio et al. 2014). For example, cities are responsible for more than 60% of global GHG emissions (Harris et al. 2020). Thus, considering the overall importance of regional and local governments to effectively implement climate policies and regulations (Jänicke 2017), their active commitment is critical to achieving substantial and rapid decarbonization (Jordan et al. 2021; Francesco et al. 2020; Roberts 2016).

In addition, regional and local areas are directly impacted by climate-related hazards, such as droughts (Trenberth et al. 2014), flood risks (Hirabayashi et al. 2013) and associated losses (Hallegatte et al. 2013), which are expected to increase in severity and frequency (Lee et al. 2023). As a result, climate policy has gained increasing importance and political prominence in these contexts. Indeed, research indicates that personal experiences with climate-related damages often lead people to perceive local hazards as more severe compared to national or global hazards (Lujala et al. 2014; Akerlof et al. 2013). Similarly, residents in areas affected by extreme weather events are more likely to support climate policies (Baccini & Leemann 2021; Hazlett & Mildemberger 2020), show greater environmental awareness and vote more often for green parties (Hoffmann et al. 2022).

In parallel to this, governments at both levels have begun to engage increasingly with climate change in response to regional (Valenzuela 2014; Rhodes et al. 2017; Howe et al. 2015) and local demands (Tosun & Schoenefeld 2017; Brink & Warmsler 2018; Rilling & Tosun 2018). Taking advantage of their proximity and deep knowledge of the geographical scales most affected (Alberton & Cocciolo 2023), they have been assuming a crucial role in terms of climate policy governance (Bernstein & Hoffmann 2018; Jørgensen et al. 2015; Reckien et al. 2018; Mi et al. 2019; Bulkeley & Castán Broto 2013). This growing involvement has even positioned regional and local governments as key contributors to the evolving international climate policy framework over the past decade (Dröge 2016). A notable milestone in this regard is the recognition of their critical role in achieving the decarbonization goals within the 2015 Paris Agreement (Hale 2016; Roberts 2016).

Along these lines, regions have been gaining competences in various climate-related sectors, including environmental, transport, energy and industrial policies (Galarraga et al. 2011; Tosun & Lang 2016). This has positioned them as prominent actors in reducing GHG emissions by setting specific mitigation targets that sometimes even exceed national ambitions (Bulkeley 2011). Local authorities have also taken on greater responsibilities in crucial areas for climate policy, such as infrastructure, housing, transport, waste management, land use or energy (Jänicke 2017; Nevens & Roorda 2014). Likewise, they are gradually joining transnational city networks, through which they commit to

ambitious goals in reducing GHG emissions and addressing climate-related risks and damages (Mi et al. 2019; Tosun & Leopold 2019).

The trend towards subnational climate empowerment motivates pro-periphery parties, such as Non-Statewide parties (NSWPs), to provide more emphasis to climate issues (Enguer & Navarrete 2023; Navarrete 2020; Hooghe & Marks 2010). The benefits of decentralization for effective climate policy, suggested by multilevel governance literature (Fenna et al. 2023; Alberton & Cocciolo 2023), reinforce the potential alignment of climate change commitments with the preferences and proposals of these parties. Moreover, emerging qualitative evidence from the scholarship on territorial identity politics (Hau 2022; Kerr 2023; Brown 2017) reveals that they use environmental and climate concerns in regional elections to highlight their demands for greater decentralization (McEwen & Bomberg 2014; Alonso et al. 2017) and, in some cases, to strengthen their aspirations to be recognized as independent states (Enguer & Navarrete 2023; McEwen & Bomberg 2014; Cornago 2010). However, this phenomenon has not yet been analyzed in depth by quantitative methods that can measure climate policy as a concrete and distinct issue from environmental policy.

In line with this, the particular presence of a voter profile at subnational tiers that prioritizes level-specific issues when casting their vote suggests possible cross-level variations in political parties' climate policy preferences (Cabeza 2018; Debus & Müller 2013). This implies that the territorialization of climate change drives political parties to develop electoral strategies that deviate from national narratives and focus more on this critical issue at the regional level. Together with additional institutional (e.g., the degree of decentralization) and contextual factors (e.g., the electoral presence of strong NSWPs) (Amat et al. 2020), this dynamic encourages parties to design broader and more detailed climate agendas during regional elections, through which pro-periphery parties can more frequently express their territorial demands than in their national counterparts. As a result, another gap in the literature concerns the extent to which pro-periphery parties replicate or deviate from their regional climate change behaviors in national elections.

In a different vein, the reduced focus on center-periphery discussions at the local level highlights the relevance of inclinations with broader cross-level validity, such as left-right ideology, in explaining parties' climate policy preferences. Interestingly, while prevailing academic arguments often associate left-wing party preferences with pro-climate change positions (Ladrech & Little 2019; McCright et al. 2016; Spoon et al. 2014), empirical findings on this relationship are mixed (Tobin 2017; Schulze 2021; Jahn 2022; Hess & Renner 2019; Carter & Pearson 2024; Tosun & Debus 2022; Båtstrand 2015). This suggests a valuable opportunity for research, particularly when examining evidence related to policy implementation at the tier primarily responsible for such actions (Jänicke 2017).

To address these gaps, the four articles of this cumulative dissertation investigate how the center-periphery and left-right preferences of political parties help to explain their climate policy inclinations at various levels of government (see Table 1.1). The initial part includes the first two articles (Chapter 1), which explore party preferences at the intersection of center-periphery dynamics and climate policy, separately at the regional and national levels. Given the similarities observed in the literature on how the aforementioned cleavage also interacts with the renewable energy transition (RET) (Tutt & Heubaum 2024), the link between both of them is also examined at the national level.

In the subsequent part, the third article of this thesis (Chapter 2) seeks to study the cross-level differences in the relationship between center-periphery and climate policy

preferences (regional vs national). Finally, in the last part, the fourth article (Chapter 3) focuses on the local level and examines how parties' left-right ideology influences government implementation and modification of climate policy instruments.

In the rest of this introduction, I present the key theoretical concepts. After that, I provide an overview of the theoretical arguments of this dissertation, interacting with the relevant literature. Next, I summarize the methodological underpinnings and describe the four articles in the dissertation. Finally, I conclude by elaborating on the articles' contributions to the literature and discussing possible avenues for future research.

Table 1. 1 Overview of the levels of government and main variables targeted in each article of this dissertation

Chapter	One		Two	Three
Article	Protecting Climate to Challenge the Center? Secessionism and Climate Policy Preferences in Catalonia	Party Preferences for Climate Policy and Renewable Energy Transition in Spain's Multilevel Democracy	Comparing Regional and National Climate Policy Preferences: An Analysis of Political Parties in the Basque Country and Catalonia	Local Preferences for the Adoption and Modification of Climate Policy Instruments under a Radical Left Government: Unveiling the Impact and Legacy of Barcelona in Common
Governance Level	Regional	National	Regional National	Local
Dependent Variables	Salience of climate in party manifestos Position on climate in party manifestos	Salience of climate in party manifestos Salience of Renewable Energy Transition in party manifestos	Salience of climate in party manifestos Position on climate in party manifestos	Introduction of climate policy instruments Expansion of existing climate policy instruments Dismantling of existing

				climate policy instruments
Explanatory Variables	Position on the center- periphery divide in party manifestos Salience of Decentraliz ation in party manifestos Salience of Independen ce in party manifestos	Position on Decentraliz ation in party manifestos	Position on Decentralizat ion in party manifestos Position on Independence in party manifestos	Governmen t left-right ideology

Source: Own elaboration (2024)

1.2. Overview of central concepts

This section introduces key concepts that are central to this dissertation. The first is *climate policy*, which has predominantly been examined in the existing literature under the broad umbrella of environmental policy. However, while *climate policy* is related to environmental protection, not all environmental policies are relevant for the climate (e.g., the closure of nuclear power plants). Also, climate policy encompasses a broader range of measures than typical environmental policies. Specifically, it requires stricter regulations and a more fundamental restructuring of markets, alongside an altruistic vision essential for adopting changes that will significantly affect the living standards of future generations. It is therefore a distinct field with different motivations for political parties, which requires specific research to be fully understood (Carter et al. 2018; Farstad 2018).

This dissertation addresses this distinction by focusing on climate policy as a distinct field that exclusively includes measures affecting GHG emissions (Carter et al. 2018). It defines *pro-climate* policies as those that reduce net GHG emissions or increase carbon sinks, while *anti-climate* policies are defined as those that increase net GHG emissions or reduce carbon sinks. Closely related to the first is the concept of *renewable energy transition*, which refers to long-term structural change in energy systems to replace energy produced from non-renewable resources with renewable energy (Tosun et al. 2019).

The second critical concept is the *center-periphery divide*, which revolves around political control over peripheral areas within states. Despite its complexity, which encompasses historical, cultural, socio-economic and constitutional issues, the

predominant literature suggests that it can be understood through two essential dimensions (Alonso et al. 2013). The first is the *competence dimension*, which concerns the territorial distribution of political authority between the state and peripheral territories. This element categorizes actors' preferences in relation to the competences assigned to the state and the periphery: the greater the number of exclusive competences assigned to the peripheral territory, the greater its autonomy. Thus, a preference for a greater number of competences in a wider range of policy fields aligns with the pro-periphery side, while a preference for concentrating competences in the center corresponds to the pro-center flank.

The second is the *identity dimension*, which refers to processes of nation-building, nation preservation and the justification behind demands for self-government (Alonso et al. 2013). This aspect allows for the classification of inclinations between the belief that the peripheral territory constitutes a distinct nation and state nationalism. Consequently, the stronger the defense of elements such as peripheral minority language, cultural symbols, historical rights to self-governance or even the right to self-determination (e.g., secession), the more pro-periphery actors can be considered. In contrast, at the pro-center extreme, we find positions that favor the preservation of the language and symbols of the majority state within the peripheral territory, promoting the assimilation of minority cultures into the majority one.

Another relevant concept in this thesis refers to *left-right ideology*. Political analysts have long used the classic left-right cleavage to define opposing positions on major political issues. Lipset and Rokkan (1967) traced it back to the 19th-century industrial revolution, when class conflict spread through most industrializing nations, leading to the emergence of political parties based on a class-oriented left-right divide. Over time, the European right, initially aligned with the interests of privileged groups like the aristocracy and the high clergy, shifted to advocate for property owners and the new wealth generated by trade and industry. Meanwhile, the left increasingly came to represent the interests of large groups of rural and industrial workers, gradually moving away from its original liberal roots towards socialist ideals (Caprara & Vecchione 2018).

While left-right distinctions continue to dominate political discourse in Western democracies, various studies have underscored the challenges of linking the full range of contemporary political attitudes to a single dimension, making it difficult to fit them all along the same continuum (e.g., Ashton et al. 2005). This suggests that we need multidimensional approaches to political ideology to encompass the diverse beliefs, values, and habits from various domains that ultimately shape political preferences (Freire 2015; Inglehart 1984).

In line with this, literature and specialized databases, such as the Manifesto Data Collection (MRG/CMP/MARPOR) (Lehmann et al. 2024), define left-wing ideology based on parties' preferences in various domains, including economy (e.g., support for market regulation, economic planning, protectionism, or controlled economy), foreign relations (e.g., support for peace or internationalism, opposition to imperialism or militarism), the political system (e.g., support for democracy), social groups (e.g., favoring labor groups), and advocacy for the expansion of the welfare state or education. Similarly, the right-wing category considers positions on economy (e.g., support for incentives, economic orthodoxy, or opposition to protectionism), foreign relations (e.g., favoring militarism), the political system (e.g., supporting political authority), social issues (e.g., favoring traditional morality, law and order, a national way of life, or social harmony), and affinities for freedom, constitutional order or limiting both the welfare state and education.

The study of the above inclinations redirects attention to the concept of the *party manifesto*. These key documents, produced by party representatives, constitute official and primary statements of party priorities (Elischer 2011). Their content in this thesis is primarily analyzed through the relevant notion of *quasi-sentence*. Defined as the verbal expression of a political idea or issue (Schmitt & Wüst 2012), this coding unit facilitates the measurement of *issue salience* and *issue position* (Lehmann et al. 2024). *Issue salience* captures the amount of content allocated to a particular matter, indicating its importance for political parties; the more content devoted to a specific issue, the more relevant it is. Measures of *issue position* contrast the content assigned to two opposing positions on a topic, revealing the parties' position within that spectrum. Higher values signify favorable positions on an issue, while lower figures indicate more negative stances.

On a different note, this thesis focuses on the concept of *climate policy ambition*, which recent research links to the assessment of how quickly and firmly policy measures are envisaged to promote GHG reduction (Schaub et al. 2022; Schaffrin et al. 2015; Tobin 2017). To examine the aforementioned notion, this thesis focuses on *climate policy instruments*, tools enacted through climate protection laws or climate action plans to mitigate climate change (Knill et al. 2012). This approach facilitates the analysis of *climate policy ambition* from a *policy density* perspective by focusing on the number of climate policy instruments enacted. Furthermore, it allows considering *policy stringency*, which is defined by the *policy level* (degree to which an instrument puts pressure on target groups to change their behavior) and the *policy scope* (target groups addressed by the instrument) of policy instruments (Hall 1993; Steinebach & Knill 2017). The focus of this thesis on the aforementioned policy settings is also connected to the notions of *policy expansion* and *policy dismantling*. An instrument is considered to be expanding if it increases in scope and/or level, while reductions in these parameters indicate a dismantling of the instrument (Steinebach & Knill 2017).

Finally, the study of policy instruments in this thesis allows to classify them according to their *degree of authoritative force*. Following relevant literature (Schulze 2021), “*hard*” policy instruments are those regulatory and economic instruments whose costs are more visible, thus generating higher negative incentives for political parties. Based on this definition, I have identified the following as “hard” policy instruments: taxes, tradable permit schemes, user charges, codes and standards, obligation schemes, other mandatory requirements, prohibition mechanisms, sanctions, and deposit-refund systems. On the other hand, “*soft*” climate policy instruments are considered to be those public investments and economic, organizational, informational and voluntary instruments whose costs are less visible. More specifically, I have classified the following as “soft” policy instruments: direct investments, grants and subsidies, research and development initiatives, educational tools, and voluntary commitments.

1.3 Theoretical, methodological and empirical arguments

1.3.1 Theoretical arguments

The first two articles of this doctoral thesis aim to shed light on how parties' positions along the center-periphery axis relate to their climate and RET policy preferences (Chapter 1). The third article seeks to uncover possible differences in this relationship between regional and national contexts (Chapter 2). The fourth article intends to deepen our understanding of how parties' ideology correlates with their climate ambition at the local level (Chapter 3). In this vein, Chapter 1 is based on the theoretical premise that parties with more pro-periphery positions show more pro-climate and pro-RET inclinations in their manifestos, while Chapter 2 argues that this relationship is more positive at the regional level than at the national level. Chapter 3, on the other hand, is based on a third premise that the introduction of new climate policy instruments and their expansive modification at the local level tend to be more likely the more left-wing the ruling party in government is.

The first assertion is based on contributions from two strands of literature. First, it highlights the benefits of decentralization for effective climate change mitigation, as discussed in the climate federalism scholarship (Fenna et al. 2023; Alberton & Cocciolo 2023). These benefits include various levels of experimentation provided by decentralized systems, which increase the likelihood of identifying effective solutions that can be scaled vertically to national policies or horizontally to other regions (Volden 1997; Bernstein & Hoffman 2018). Another notable advantage of decentralized institutional settings is their ability to empower subnational governments to complement or compensate for national inaction. This was evident in the significant state-level innovations that emerged in response to climate inaction by the United States federal government during George W. Bush's presidency (Rabe 2011; Derthick 2010). In addition, states with greater decentralized powers allow subnational governments to tailor climate and RET policies to their specific contexts, increasing also their legitimacy and public acceptance (Alberton & Cocciolo 2023; Millimet 2013). In this way, the benefits of decentralization for climate policy and RET align closely with the intrinsic preferences of parties advocating the transfer of power from the central to the regional level.

This initial assertion is also supported by the literature on territorial identity politics. Scholars have identified connections between environmentalism and regionalism for decades, as illustrated by a study of the 1992 general election in the Welsh constituencies of Ceredigion and Pembroke North (Fowler & Jones 2006). This research highlighted the implications of the alliance between the nationalist Plaid Cymru party and the semi-autonomous wing of the Green Party of England and Wales, known as the Welsh Green Party, for the convergence of these concepts. Although the authors considered this relationship somewhat nebulous due to situational factors, it has since evolved along with a trend known as Green Nationalism (Conversi 2020; 2022; Conversi and Hau 2021). This form of nationalism emphasizes the adoption of comprehensive policies aimed at protecting the environment and combating climate change (Hau 2022).

Green Nationalism has been identified in numerous regions, including Scotland (Brown 2017; McEwen & Bomberg 2014), Corsica (de Winter & Tursan 2003; Hau 2022), Quebec (Teare 2012), Brittany (Kernaleggen 2023), Galicia (Hau 2022), Catalonia (Conversi & Hau 2021; Kerr 2023; Enguer & Navarrete 2023), and the Basque Country

(Kerr 2023). Key findings from these studies suggest that pro-periphery parties, such as NSWPs, leverage climate change to pursue greater economic and political autonomy (Alonso et al. 2017; McEwen & Bomberg 2014). Moreover, this research indicates that these parties can adopt more ambitious climate commitments by engaging in forms of paradiplomacy, enhancing their “quasi-state” status and promoting nation-building (Enguer & Navarrete 2023; McEwen & Bomberg 2014; Cornago 2010). Furthermore, recent studies suggest that RET, with its low-carbon attributes, can cross-cuttingly strengthen arguments for nationalism within the evolving framework of Green Nationalism (Tutt & Heubaum 2024).

However, the localized nature of the empirical findings in regional contexts prompts a second claim about the possible lower intensity of this relationship at the national level. This is due to the impact of the territorialization of climate change, as described in the introduction, in subnational settings with voters who have a pronounced regionalist profile (Cabeza 2018; Debus & Müller 2013). These voters, who are more engaged and informed about regional politics, tend to prioritize subnational over national issues in their voting decisions (Liñeira 2016; Johns 2011; Schakel & Romanova 2023). In this way, addressing climate change as a region-specific issue becomes more important, encouraging political parties to develop electoral strategies that deviate from national narratives and emphasize this essential issue at the regional level.

This dynamic can be further intensified by institutional factors that reduce regional dependence on the national level, such as the degree of decentralization (Amat et al. 2020). The greater financial and decision-making authority of regional governments incentivizes leaders to create policies tailored to the specific needs of their regional constituencies (Mazzoleni 2009). Moreover, in decentralized states, these leaders can more easily deviate from central party strategies due to greater autonomy and the potential for political advancement within their regions (Maddens & Libbrecht 2009; Cordero & Collier 2014). Contextual factors related to the competition of strong regionalist parties in regional elections are also significant. These parties often demand attention (Hopkin & Barbera 2009; Navarrete 2020) and provide policy alternatives aligned with regional interests (Hooghe & Marks 2010), forcing Statewide parties (SWPs) to respond to these demands and prioritize regional issues (Meguid 2015).

The third claim is based on evidence indicating that traditional left-right political orientations are linked to affinities with climate policy (Farstad 2018). Generally, right-wing parties adopt weaker positions on climate change than left-wing parties, as they tend to oppose the state regulation and intervention needed to decarbonize the global economy. Likewise, leftwing voters’ preferences show a higher degree of affinity towards adopting measures to address climate change (McCright et al. 2016), which specially incentivizes left-wing parties to be proactive in this field. In a similar vein, the ideological proximity of green parties to the left poses a greater electoral threat to left-wing parties than to right-wing ones (Fagerholm 2016). As a result, left-wing parties tend to emphasize green issues more when facing competition from green parties (Spoon et al. 2014), while right-wing parties are likely to deprioritize these issues (Abou-Chadi 2016). Additionally, new political issues like environmentalism and feminism have emerged among former Communist parties that sought to redefine their political identity after the fall of the Soviet Union (March 2008). This shift, along with their general tendency to attribute environmental exploitation to capitalism (Socialist Left Party 2011), creates a potential connection between Radical Left Parties (RLP) and advocacy for environmental and climate issues.

Moreover, ideological differences between parties are expected to interact with the degree of authoritative force of the instruments they tend to adopt most frequently (Schaffrin et al. 2015; Steurer 2011). On the one hand, “soft” climate policy instruments tend to be generally implemented in greater numbers than “hard” ones, due to the lower visibility of their costs (Schulze 2021). On the other hand, considering the higher electoral motivation of left-wing political parties to adopt climate policies, it is assumed that they will prioritize more often the enactment of “hard” policy instruments (Schulze 2021). In other words, the more left-leaning the party in government, the greater its expectable willingness to adopt new “hard” policy instruments or to expand existing ones. Interestingly, despite the theoretical motivations presented for left-wing parties to support climate policy, empirical evidence on this issue is mixed. While some studies link left-leaning governments with the adoption of more ambitious climate policies (e.g., Tobin 2017; Schulze 2021; Jahn 2022), recent research also reveals a notable commitment to climate policy by parties within the conservative (Carter & Pearson 2024; Hess & Renner 2019; Båtstrand 2015) and even the far-right party family (Tosun & Debus 2022).

1.3.2 Case selection and methods

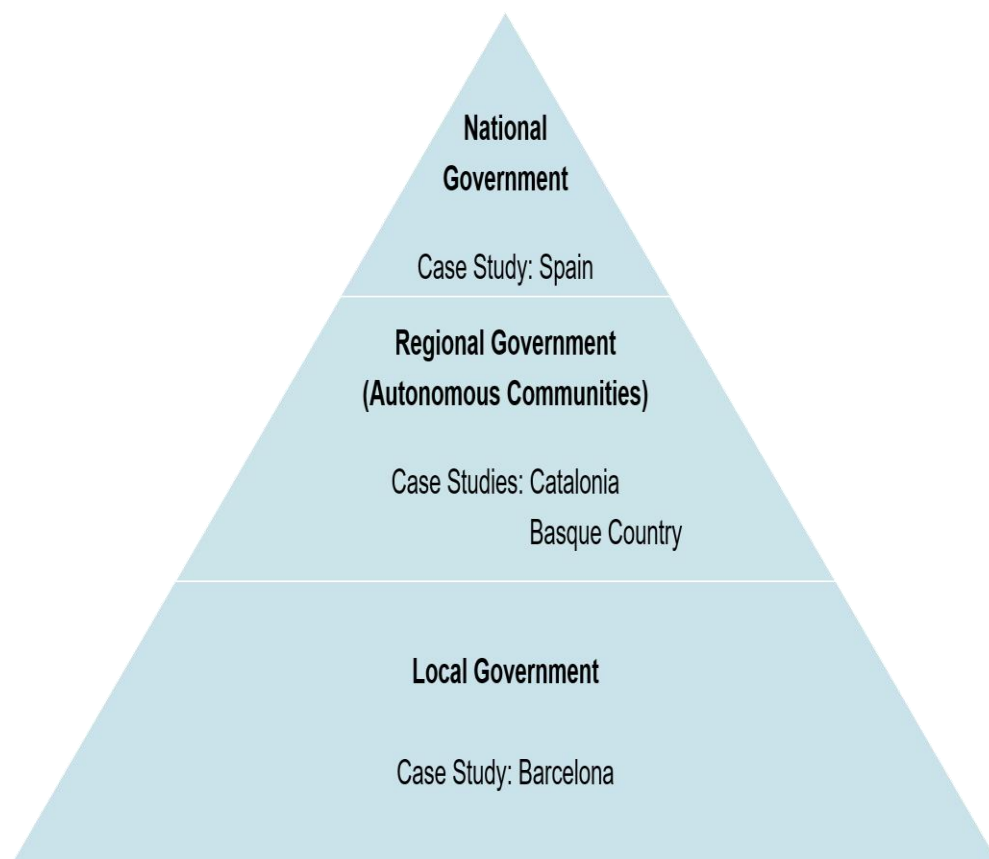
All the articles in this thesis focus on different tiers of government within Spain's multilevel institutional structure. The evolution of the decentralization processes promoted by the 1978 Constitution in Spain has led to the development of a legal framework that includes shared competences on climate change between the national government, the regions - also known as Autonomous Communities (ACs) - and local authorities (see Figure 1.1) (Mora Ruiz 2023; Vargas-Amelín & Pindado 2014; Iranzo 2023). In this system, the central level has exclusive authority over “hydraulic resources when the waters flow through more than one AC”, “the authorization of electricity installations when their use affects another AC or the transport of energy leaves its territorial scope”, “the bases of the mining and energy regime”, “basic legislation on mountains, forest use and livestock trails”, and the capacity to enact “basic legislation on environmental protection” that the ACs can later on further develop.

Subsequently, the regions may assume powers in matters of “spatial planning, town planning and housing”, “forests and forest use”, “environmental protection management”, and “projects, construction and exploitation of hydraulic resources, canals, and irrigation systems of interest to the ACs; mineral and thermal waters”. These competences can be extended given the closing clause in the Constitution, which states: “matters not expressly attributed to the State by this Constitution may be assumed by the ACs.” Using these powers, the ACs have been developing their own climate change policies. Indeed, in response to perceived central government inaction, some ACs such as Catalonia, the Balearic Islands and Andalusia have taken an increasingly active role in the fight against climate change (Cocciolo 2020), which in cases such as Catalonia even led to the annulment of certain passages of its flagship regional law (Law 16/2017 on Climate Change and Energy Transition) by the Spanish Constitutional Court for exceeding regional competences (Rodríguez-Beas 2019).

For their part, local authorities play a key role in achieving the climate change targets of the ACs (Iranzo 2023). They contribute to this through their authority to develop their own policies in the areas of “urban environment and water”, “urban planning”,

“transport” and “energy”, as well as being able to exercise additional competences delegated to them by the national level and the ACs. Moreover, their role is becoming more important considering the participation of many cities and local governments in international climate networks, such as the Global Covenant of Mayors for Climate and Energy, as of 2017.

Figure 1. 1 Levels of Government in Spain with Case Studies



Source: Own elaboration (2024).

Moving to the methodology employed, the first three articles of this thesis are based on a study of party manifestos (see Codebook A.1 in Appendix A). They used a qualitative approach both to observe the characteristics and structure of these documents and to develop a content analysis of each of the quasi-sentences that compose them. The latter procedure made it possible to calculate the dependent variables in terms of the parties' preferences regarding climate change and the RET. Based on the coding scheme of Carter et al. (2018), this process allowed me to classify the content of each party manifesto according to the different categories of the “Climate Code” variable: “pro-climate”, “anti-climate”, “neutral” and “not sufficiently relevant”. Having clarified in previous sections the meaning of the first two categories, the third one covers those quasi-sentences whose content, although relevant to net GHG emissions, implies that they would remain at

current levels (e.g., displacing emissions domestically or internationally, etc.). The fourth group refers to content that is not sufficiently relevant for net GHG emissions to be coded in any of the other categories. After calculating the percentage of these categories in each party manifesto, a measure of salience of the dependent variable was obtained, based on the sum of pro- and anti-climate content, as well as a positional estimate inspired by the difference between the same two.

In addition, the pro- and anti-climate content was classified by a second variable called “Climate Code Subcategory”, which divides these groups into more detailed subcategories. Thus, the pro-climate content of each manifesto was classified as “pro-environmental”, “pro-climate policy”, “pro-renewable energy”, “pro-low carbon transport”, “pro-energy efficiency”, “pro-carbon sinks”, “planning”, “agriculture and food”, “waste” or “anti-growth” content. Anti-climate content was coded according to its correspondence with the following options: “pro-roads”, “pro-aviation and shipping”, “pro-fossil fuels”, “anti-environment”, “anti-climate (other)”, “pro-growth”, “anti-environmental taxes”, “pro-tourism”, “pro-global free trade”, “pro-intensive agriculture” or “anti-regulation”. The proportion of quasi-sentences dedicated to the “pro-renewable energy” category was used to gauge the prominence of parties’ preferences regarding the RET.

The same manual coding process was used to estimate the independent variables based on the parties’ center-periphery preferences. By subtracting the percentage of content opposed to decentralization and secessionism from the percentage of content favorable to these categories in each manifesto, the position of each political party on decentralization and secessionism was calculated. To ensure intercoder reliability in the calculation of hand-coded dependent and independent variables, my coauthor and I independently coded a sample and then compared results to identify and resolve any discrepancies before proceeding to the final rounds of coding. For single-authored papers, I received support for the same task from an assistant researcher.

In addition, these estimates were supplemented, as far as possible, with data from further reputable databases. Given the absence of estimates in these sources for climate change as a distinct category from environmental protection, this was applied to measures of the independent variables. In the first article, I used data on the center-periphery position of political parties from the Regional Manifestos Project (RMP) (Alonso et al. 2013; Gómez et al. 2022); in the second article, I took the decentralization position from the MRG/CMP/MARPOR (Lehmann et al. 2024); and in the third, I considered the decentralization positions calculated by the RMP for regional manifestos and those calculated by the MRG/CMP/MARPOR for national ones. All in all, these processes facilitated a quantitative analysis of the bivariate correlation between the independent and dependent variables through various graphical representations.

The fourth article of this thesis developed an in-deep study of the different climate policy instruments that can be found in the climate-related laws and action plans adopted by the city of Barcelona from January 1984 to 28 May 2023. Both newly adopted policy instruments and those modifying existing ones were quantified according to whether they belong to the “hard” or “soft” categories (see Codebook A.2 in Appendix A). This approach provided a quantitative overview of the newly adopted policy instruments and modifications made by each of the political parties that governed in the period of analysis: Socialist Party of Catalonia (20 January 1984 - 22 May 2011), Convergence and Union (23 May 2011 - 24 May 2015) and Barcelona in Common (BC) (25 May 2015 - 28 May 2023). Furthermore, modifications to existing instruments were classified according to their expansive or dismantling nature, depending on their scope or level increase or

decrease (Hall 1993; Steinebach & Knill 2017). My coauthor and I coded independently an initial sample with the same climate action plans and protection laws, comparing our results to ensure intercoder reliability before moving to the next round of intensive coding.

Ultimately, to delve deeper into the differences between the different periods of government mentioned above, semi-structured interviews were conducted with four Barcelona City Council officials, one official from the Barcelona Metropolitan Area and one member of the advisory group known as the Climate Emergency Expert Group, created by the BCC to obtain advice and support in the field of climate emergency. The data obtained from the interviews was analyzed by means of a qualitative thematic analysis (Sung et al. 2019). It involved transcribing the interviews, and code the most relevant statements into two comprehensive themes: a) the adoption of new climate policy instruments, determined by their level of authoritative force, and b) the expansive modification or dismantling of established climate policy instruments, also dependent on their degree of authoritative force (“soft” versus “hard”). After this, we included and examined more thoroughly key excerpts from the different interviews in the results section.

1.4 Empirical findings

In this section I summarize how the main findings of each paper in this thesis respond to the different research questions posed.

1.4.1 Protecting Climate to Challenge the Center? Secessionism and Climate Policy Preferences in Catalonia

The first article aims to quantitatively explore how the prominence and positions on climate change in party manifestos varies across political parties competing in subnational elections and how this prominence relates to their preferences on the center-periphery axis. In this sense, this study seeks to determine whether the dynamics observed in the Catalan context correspond with the qualitative findings identified in other regions within the Green Nationalism literature (Conversi 2020; 2022; Conversi & Hau 2021).

Initial results reveal that relevant NSWPs such as Republican Left of Catalonia, Candidacy of Popular Unity and Together for Catalonia devote the highest proportions of quasi-sentences to addressing climate change in their manifestos. In this context, the most frequently used pro-climate sub-categories by parties during the two election periods studied are “pro-environment”, “agriculture and food”, “pro-low-carbon transport” and “pro-carbon sinks”. Similarly, the results show how relevant SWP such as Peoples’ Party (PP) or VOX lead the anti-climate category, with recurrent sub-themes such as “anti-taxes” and “pro-tourism”.

In order to confirm more solidly the initial support that these data provide for the hypotheses, we plotted graphs, including scores, linear regression lines and confidence intervals. The data initially illuminate that the more pro-periphery a party’s position on

the center-periphery axis, the more attention it devotes to climate content, and the more pro-climate its position on manifestos. It is also observed that a higher proportion of quasi-sentences devoted to support for decentralization correlates with a higher prominence of climate-related content in party manifestos. Finally, the results of this research indicate that the more pro-secessionist content parties include in their manifestos, the greater the proportion of text they devote to climate issues.

These observations align with the concept of Green Nationalism (Conversi 2020; 2022; Conversi & Hau 2021), suggesting that the political objectives of pro-periphery parties such as NSWPs, go beyond simple environmental concerns. In this sense, research suggests that they place a greater emphasis on climate change for two main reasons: a) to assert the political importance of the sub-state level, seizing the opportunities offered by this issue as a complementary justification for seeking greater political and economic power (Alonso et al. 2017; McEwen & Bomberg 2014), and b) to project a “state” image, enhancing their status and promoting nation-building (McEwen and Bomberg 2014).

1.4.2 Party Preferences for Climate Policy and the Renewable Energy Transition in Spain's Multilevel Democracy

The second article of this thesis is one of the first studies to analyze at the national level the relationship between parties' preferences around the center-periphery divide and their inclination towards both climate policies and the RET. Its focus on the central arena, which involves pro-periphery actors from regions whose characteristics make identity-based demands lose weight in favor of competences, led me to exclusively concentrate on the competence dimension of the center-periphery rivalry. In line with this, in addition to considering the findings of the Green Nationalism literature (Conversi 2020; 2022; Conversi & Hau 2021), this paper also reflects on the multilevel arguments analyzed in the Climate Federalism bibliography (Fenna et al. 2023; Alberton & Cocciolo 2023). Likewise, given that the arguments of both literatures can have a significant impact on RET policies, this article incorporates a second dependent variable related to this issue. As a result, the paper aimed to investigate how the emphasis placed on climate change and RET in party manifestos correlates with their stances on decentralization.

Along these lines, the article initially provides empirical evidence of variations between parties and across elections regarding pro-climate emphasis. This emphasis was led by Commitment (CMP), Together We Can (UP), Citizens, and Democratic Convergence of Catalonia in the first elections, by More Country – Equo (MP-E), CMP, Unite the Basque Country, Teruel Exists (TE), UP, and Basque Nationalist Party (EAJ-PNV) in the second elections, and by Unite, EAJ-PNV, Galician National Bloc, and Socialist Party of the Spanish Workers in the third elections. Among pro-climate topics, Spanish parties tend to emphasize “pro-environment”, “pro-lower carbon transport”, “pro-renewable energy”, and “pro-carbon sinks”. Occasionally, notable focuses were additionally observed in 2019, such as MP-E's emphasis on “waste” and “planning”, Regionalist Party of Cantabria's focus on “pro-energy efficiency”, and TE's emphasis on “pro-lower carbon transport”.

This variation between political parties is associated with the variables suggested in the research questions of this paper. First, I found that parties whose manifestos hold a more pro-periphery stance tend to confer more prominence to climate policy. Secondly,

I identified that more pro-decentralization manifestos place greater prominence of RET content. These findings initially suggest that climate change and the RET resonate more strongly with the agenda of pro-peripheral parties (Fenna et al. 2023; Alberton & Cocciolo 2023). Due to the observed positive relationship between decentralization and commitment in these areas, promoting advancements in both aligns better with the original pro-decentralization inclinations of these parties.

Second, aligned with findings in the Green Nationalism literature at the regional level (Conversi 2020; 2022; Conversi & Hau 2021), this research corroborates that parties are increasingly including climate change and the RET in their national agendas. This strategic adoption aims to bolster their political dominance in the center-periphery cleavage to pursue greater economic and political autonomy (McEwen & Bomberg 2014; Alonso et al. 2017). For instance, the expansion of renewable energy facilities emerging with the RET promotes decentralized energy production across various regions. Consequently, motivated by the potential to strengthen regional power in the field of energy production, pro-peripheral parties are incentivized to prioritize and champion renewable energy initiatives.

1.4.3 Comparing Regional and National Climate Policy Preferences: An Analysis of Political Parties in the Basque Country and Catalonia

The findings of the previous two articles, especially the lower intensity observed in the correlations in the graphs of the second one compared to the first, raise a new question of interest: to what extent does the relationship between party preferences in the center-periphery divide and climate policy vary between regional and national elections? Based on this question, the third paper of this dissertation proposes a first set of hypotheses that seeks to confirm that political parties' pro-decentralization and pro-independence positions are positively associated with the climate emphasis and positions they adopt when analyzing jointly the manifestos used in both regional and national elections. A second set of hypotheses is then posed that expects to find a stronger relationship in regional manifestos when studied separately from national ones.

Initial results verify that, as parties adopt more pro-decentralization stances in their manifestos, they devote more content to climate change and adopt more favorable stances towards this issue. Similarly, I find that parties with more pro-independence positions allocate more content and adopt more favorable positions on climate change in their manifestos. This phenomenon can be explained by the aforementioned arguments based on both Green Nationalism (Conversi 2020; 2022; Conversi & Hau 2021) and Climate Federalism (Fenna et al. 2023; Alberton & Cocciolo 2023).

Furthermore, this article demonstrates that the relationship between the variables discussed is stronger at the regional tier than at the national one. These findings highlight the consolidation of climate change as a priority issue at the regional level in the Basque Country and Catalonia, where the importance of specific concerns for regionalist voters (Vieytez 2019; Molina & Quiroga 2017) leads political parties to develop electoral strategies that place greater emphasis on this issue. Thus, parties are likely to develop election manifestos with broader and more detailed sections on climate change at the regional level, allowing pro-peripheral parties to more frequently express their demands for decentralization and independence compared to their national counterparts.

Interestingly, while the relationship between positions on decentralization and the dependent variables remains positive in national elections, the position on independence shows negative correlations at the central level. This reflects the limited empirical evidence of Green Nationalist dynamics in this electoral arena and the absence of secessionist arguments for an improved climate action in Climate Federalism discussions. As a result, these issues are often disconnected in national party manifestos. Therefore, contexts of increased focus on independence at the national level (Greene & McMillan 2020; López & Sanjaume-Calvet 2020) may limit the attention devoted to climate change in manifestos in this arena.

1.4.4 Local Preferences for the Adoption and Modification of Climate Policy Instruments under a Radical Left Government: Unveiling the Impact and Legacy of Barcelona in Common

Following the results obtained at the national and regional level, this dissertation finally focuses its analysis on the local level to complete its multilevel contribution. More specifically, it investigates to what extent the political leadership of an RLP, such as BC, translate into the expansion of climate policy instruments (in terms of adoption of new instruments and broadening modification of existing ones) and the choice of “harder” versus “softer” policy instruments in the city of Barcelona.

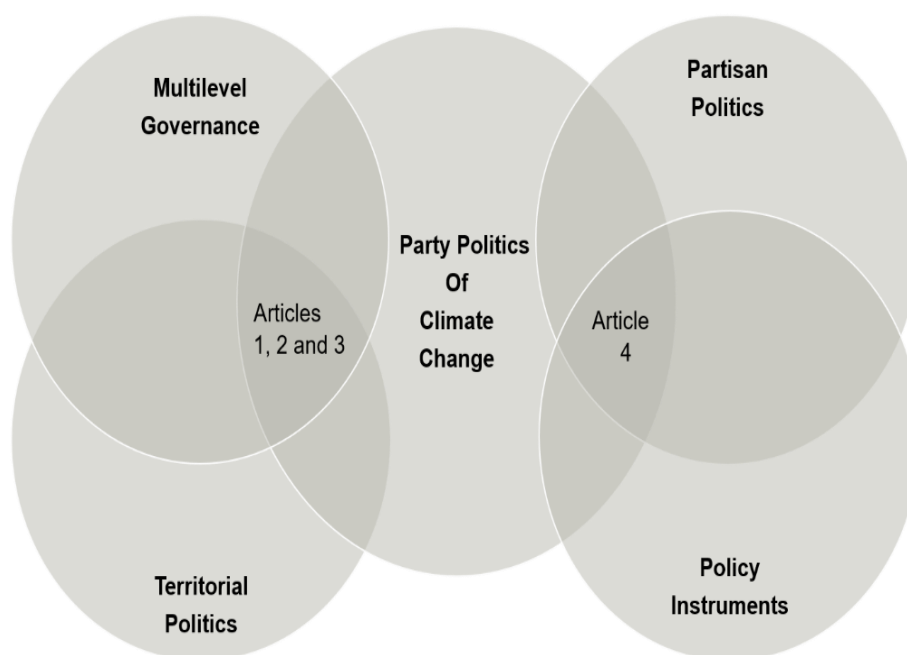
The mixed-methods approach utilized firstly confirms a greater adoption of climate policy instruments under an RLP-led government, which aligns with existing literature suggesting that left-wing parties tend to show a greater commitment to tackling climate change. Second, although the quantitative evidence is less conclusive in this regard, the qualitative data support that RLPs are more likely to enact “hard” instruments compared to political parties with less left-leaning orientations. This tendency is partly due to the alignment between the nature of “hard” instruments and left-wing parties' preference for state intervention (Båtstrand 2014). Additionally, adopting these instruments enables left-wing parties to more visibly demonstrate their commitment to climate change, thereby reinforcing their stance to their voter base. However, it is interesting to note that the overall greater proactivity of RLPs manifests itself in a proportional preference for “soft” over “hard” instruments. This finding suggests that, despite their ideological inclinations, the lower electoral costs of “soft” instruments generally motivate parties to prioritize them over “hard” ones.

Thirdly, other findings suggest that the overall predominance of expanding over dismantling modifications is due more to technical circumstances (e.g., changes in regulations at higher administrative levels) than to ideological differences. Similarly, changes in established policy instruments affect “hard” instruments to a greater extent. This can be explained by the fact that “hard” instruments are often adopted through climate protection laws, which tend to undergo more modifications in subsequent legislation. In contrast, “soft” instruments are mainly implemented through climate action plans, which are more likely to be replaced by new plans rather than modified.

1.5 Contributions

This dissertation studies how political parties' preferences along center-periphery and left-right axes determine the positions they adopt and the degree of policy ambition they promote in relation to climate change across the different tiers within multilevel states. Theoretically, it draws mainly on previous literature on party politics of climate change (Carter et al. 2018; Farstad 2018), territorial politics (Conversi 2020; 2022; Conversi & Hau 2021), multilevel governance (Fenna et al. 2023; Alberton & Cocciolo 2023), partisan politics (Schulze 2021; Farstad 2018) and policy instruments (Steinebach & Knill 2017; Acciai 2021) (see Figure 1.2). While the articles in Chapters 1 and 2 explore the intersection of the first research field with territorial politics and multilevel governance literature, Chapter 3 elaborates on the connections that the party politics of climate change holds with both partisan politics and policy instruments scholarship. Beyond better integrating these literatures, the empirical findings of this dissertation make distinct contributions to various academic disciplines.

Figure 1. 2. Venn diagram on the integration of the five literature strands



Source: Own elaboration.

First, this thesis makes a fundamental contribution to the comparative climate policy literature, given the focus that each of the articles makes on understudied actors in this field, such as political parties and their characteristics. This advancement is evident in the examination of political parties competing in the Catalan regional elections of 2017 and 2019, in the Spanish general elections of 2016, 2019 and 2023, in the Basque regional

elections of 2016 and 2020, and the various parties that have successively integrated the local government of Barcelona from 1984 to 2023. Relatedly, it highlights the study of these parties' treats with respect to different issues of the center-periphery divide, such as decentralization or independence, as well as the left-right axis. Notably, the first and third articles make an almost totally novel contribution by incorporating secessionism into their analyses of the center-periphery dimension, as it has not yet been widely addressed in the most prominent studies in the field (except for Elias et al. 2023; Zuber & Szöcsik 2019).

Besides demonstrating the importance of parties in climate policy-making and enhancing our understanding of the factors driving their efforts, this thesis also clarifies better how these endeavors are translated into policy outputs. In this regard, the fourth article advances the climate policy literature by deepening our knowledge of parties' climate ambitions when enacting policy instruments. This contribution provides insights both in terms of density, by examining the number of climate policy instruments adopted by parties, and in terms of intensity, by analyzing how these instruments are expanded or dismantled over time.

Moreover, this thesis addresses an important gap in the literature on party politics by considering a wide range of parties with different sensitivities in the study of climate policy. Moving beyond the more usual focus on green parties, this approach allows for a general examination of how more underexplored party inclinations are associated to climate policy. In this manner, the comprehensive analysis of all relevant parties both in the various national and regional elections examined as well as the local government of Barcelona, has provided valuable insights into the influence of the center-periphery and left-right axes.

In a similar vein, this thesis makes a significant contribution to the literature on position-taking in climate policy by applying a novel coding scheme that allows for the measurement of both climate salience and climate positions of political parties (Carter et al. 2018). This methodology helps to overcome the inaccuracies incurred by prestigious studies in the field, which still consider often climate change within broader environmental categories and treat it as a generally accepted valence issue across the political spectrum. In contrast to studies that focus on positive mentions of climate change (e.g., Debus & Tosun 2021), this thesis demonstrates the increasing presence of negative statements in parties' party manifestos. Consequently, party preferences in this thesis have not only been studied through measures of salience, but also positional ones, demonstrating the increasingly partisan (as opposed to valence) nature of this issue.

On top of that, the different articles presented contribute to the literatures on multilevel governance and territorial identity politics. In terms of the former, they reveal that the potential benefits of decentralized management of climate change and the RET facilitate pro-periphery parties' roles as advocates for both of them. With regard to the latter, it quantitatively confirms qualitative findings from previous research on Green Nationalism (Conversi 2020; 2022; Conversi & Hau 2021), showing that NSWPs use climate change politically to channel their territorial demands for greater autonomy (McEwen & Bomberg 2014; Alonso et al. 2017) and even secession (Enguer & Navarrete 2023; McEwen & Bomberg 2014). By providing evidence on these dynamics, this dissertation consolidates climate change as a critical arena for expressing broader political and regional demands.

Along these lines, localized differences between the regional and national levels reflect that the articulation of these strategies is closely related to the level at which parties compete (Cabeza 2018; Debus & Müller 2013). In this sense, the third article of this

reveals a stronger relationship between pro-periphery positions and climate policy preferences at the regional level, suggesting that the issue has acquired particular significance among the electorate when voting at the regional level. It also implies the possible incidence of other elements, such as high levels of decentralization or the strong electoral presence of NSWPs. In any case, the findings of this dissertation lead us to affirm that analyses of party competition on climate issues are not independent of multilevel governance structures.

Finally, this dissertation contributes to the literature on partisan politics by providing an in-depth case study on the association between party ideology and the level of climate ambition evident in their governance at the local level. In this regard, the fourth article reveals that RLPs tend more often to both enact climate-related policy instruments and increase the ambition of pre-existing ones compared to parties with less left-leaning ideologies (Tobin 2017; Schulze 2021; Jahn 2022). In addition, by investigating the role of party politics in climate change, the same article contributes to the literature on policy instruments. Through a detailed analysis of instrument choices across different periods, it describes how the political ideology of governments influences the authoritative force of the policy instrument enacted. This represents a remarkable contribution considering that the most prominent academic research in relation to climate policymaking still operate at the policy level, ignoring the specificities that arise from the study of the concrete tools used by policymakers (e.g., Schulze 2021). Likewise, the most significant studies on policy change often overlook the nuances that lie in the differences between “hard” and “soft” policy instruments (e.g., Steinebach & Knill 2017).

The main limitation of the first two sections of this thesis is that their conclusions are based on a relatively small sample of party manifestos. The first article draws on 15 documents from parties that competed in the 2017 and 2021 Catalan elections; the second article analyzes 41 manifestos from parties in the 2016, 2019, and 2023 Spanish general elections; and the third article examines 46 manifestos from parties that successfully contested the 2016 and 2019 Spanish general elections, as well as the 2017 and 2021 Catalan elections, or the 2016 and 2020 Basque elections. Additionally, the primary limitation of the third section is that, while it offers a detailed analysis of the specific case of Barcelona, its findings cannot be easily generalized to other cities. Furthermore, the analysis is confined to the period between 1984 and 2023.

Given these constraints, future research could significantly expand upon the insights presented in this thesis in various ways. Chapters 2 and 3 could be extended by examining the manifestos of political parties competing in multilevel democracies similar to Spain. Studying these parties in both regional and national elections could enhance the assessment of the generalizability of the findings presented in articles 1 and 2. Additionally, comparing their performance at both levels would provide further insights into the findings of the third article. On the other hand, subsequent investigations could build on the findings of Chapter 4 by comparing the relationship between party ideology and climate policy ambition in different cities. In particular, it would be valuable to investigate similarities or differences in the roles played by other RLPs when they have been in local government. Finally, there is considerable merit in further studies investigating the influence of other levels of government on local politics, such as regional, central, or European levels (Tosun & Peters 2021).

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2 Protecting the Climate to Challenge the Center? Secessionism and Climate Policy Preferences in Catalonia

*Research article written with Rosa M. Navarrete*¹*

Abstract

Climate policy is mostly ruled by national governments, which in multi-level systems creates tensions with sub-national tiers. Recent research has suggested that political parties' climate policy preferences and their stances on decentralization are associated as pro-peripheral parties tend to assume the role of climate pioneers not solely due to environmental concerns, but also as a means to challenge the central authority of the state. In this research, we analyze whether the salience of climate change in the manifestos of parties competing in the 2017 and 2021 Catalan regional elections varies between them and if these differences are associated with the aforementioned cleavage. Our empirical findings reveal that the prominence given to climate change in the manifestos of the parties studied tends to be higher the more pro-periphery the positions of parties are, and the more salient decentralization and independence.

Keywords: Climate Policy, Subnational Elections, Center-Periphery, Green Nationalism, Political Manifestos, Regional Parties, Multi-level Politics, Catalonia.

2.1 Introduction

Prior to the enactment of the Law 7/2021 on Climate Change and Energy Transition in May 2021, there existed no framework law concerning climate change in Spain. Consequently, the Catalan Parliament, under the leadership of the Republican Left of Catalonia (ERC) and leveraging its substantial authority in environmental policy-making (de la Varga Pastor, 2018; Rodríguez Beas, 2019), approved the Law 16/2017 on August 1, 2017, to establish a foundation for its public policies on climate change. But notwithstanding, less than two years later, this law was challenged by the central government, then led by the Popular Party (PP), on the grounds of unconstitutionality. The Spanish Constitutional Court declared several sections of the law null and unconstitutional in response to the appeal, while also subjecting the validity of further content of the mentioned regulation to the interpretation established by this Court (Rodríguez Beas, 2019). This limitation of regional public authorities' ability to combat climate change falls within an increasing tension between the Catalan pro-independence

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parties' green agenda being contested by the Spanish judiciary on territorial grounds, that has been propitiating a political scenario with connections between climate concerns and one of the fundamental cleavages traditionally structuring the political competition in Spain (Alonso et al., 2015): the center-periphery divide (Conversi and Hau, 2021).

Along these lines, a significant body of literature demonstrates that political parties' emphasis on climate policy at the regional level is moderated by their center-periphery preferences (Conversi and Hau, 2021). The study of Green Nationalism (Conversi, 2020, 2022; Conversi and Hau, 2021), reveals that pro-peripheral parties have assumed the role of climate pioneers not only for environmental reasons but also to challenge the structure of political authority within the state (Conversi and Posocco, 2022; Alonso, 2012). Moreover, as subnational authorities are increasingly addressing climate change (Hjerpe et al., 2015; Galarraga et al., 2011; Bulkeley, 2011), the aforementioned connection between territorial identity and progressive politics is consistent with the expectable effects of further findings indicating that political parties with a higher pro-periphery preference tend to demand attention (Hopkin and Barbera, 2009; Navarrete, 2020) and offer policy alternatives tailored to regional interests (Hooghe and Marks, 2010). However, although this has been observed among regional political parties of various minority or stateless nations in Europe, the degree to which political parties adjust their preferences to address climate change at subnational levels of government has not been yet fully investigated with a quantitative focus on party manifestos based on a coding scheme that is capable of studying it as a concrete and differentiated subject from environmental policy (Carter et al., 2018). Furthermore, some of the most prestigious studies in the field (except for Elias et al., 2021; Zuber and Szöcsik, 2019) have not yet benefited from the inclusion of the secessionist dimension in their approach to the center-periphery dimension, which is notably offered by the case of Catalonia.

Our current article aims to address the following research question by analyzing the party manifestos from the Catalan regional elections in 2017 and 2021, utilizing an innovative coding scheme developed by Carter et al. (2018): *Are parties climate policy preferences associated with their center-periphery preferences at the subnational level?* We begin by clarifying the relevance and existing knowledge in relation to the climate policy preferences of political parties within the center-periphery divide. This section is followed by an exposition of the case selection, and the chosen methodology. Later on, we present the results before offering some conclusions.

2.2 Political parties' climate policy preferences within the context of the center-periphery cleavage

In multinational democracies, political parties may position themselves within the center periphery cleavage. In regards to this, both, their drivers of mobilization and political/institutional demands have been sought to differ from place to place (Elias et al., 2015). When it comes to the variation on the first-mentioned dimension, the literature shows that commonly researched factors, such as culture, language, identity, and ethnicity have not been equally significant everywhere (Alonso, 2012). For its part, the diversity of peripheral interests and demands, has made it difficult to find a shared label to define the set of actors rooted in the center-periphery conflict, being a desire for territorial

empowerment in political, economic, cultural, social, or symbolic terms, the most common priority identified for all of them (Hepburn, 2009). These findings have stimulated a conceptualization of the territorial dimension as a rivalry over the structuring of political authority within the state, in which peripheral actors' position themselves through different combinations of issue preferences. But, to what degree do political parties prioritize climate regulations and proposals among their issue preferences?

The links between environmentalism and regionalism date back to a long time (Kernalegenn, 2022). Nevertheless, although sub-state nationalist movements have a long-established history of protecting local territory, there has been a noticeable shift in recent years. Rather than focusing on preservationist or conservationist initiatives as was common in the 1970s, these movements now prioritize a full spectrum of policies aimed at combating climate change in the 2010s (Hau, 2022). Indeed, more recent studies surrounding this phenomenon rely on a new form of nationalism toward robust climate action, known as Green Nationalism (Conversi, 2020, 2022; Conversi and Hau, 2021) that is conceptually distinct from earlier ecological and environmental components within nationalism (Conversi, 2020). The fundamental rhetoric shares commonalities as it combines the traditional nationalist emphasis on land and belonging with the progressive political stance seen in many modern autonomist and pro-independence movements, but there has been a notable change in how climate change is portrayed, now being viewed as a global, all-encompassing problem necessitating localized remedies (Hau, 2022). Along these lines, the distinctive manner in which stateless nations embrace Green Nationalism and use it as a tool against those in power, often by embodying the traits of environmental champions and portraying their political opponents as inept and/or indifferent toward it (Conversi and Posocco, 2022), has been identified among various minority or stateless nations within Europe.

For instance, the case of Scotland shows that the strength of sub-state climate ambitions is intimately linked to the high priority that demands for more self-government enjoy in the political agenda of the region as well as the presence of strong sub-state nationalist parties and their work in ensuring that the territorial division remains significant (McEwen and Bomberg, 2013). In this sense, climate ambition provides parties like the Scottish National Party (SNP) with opportunities to assert the territorial distinctiveness of their region on the national and international stage, maximize decision-making autonomy, and engage in 'paradiplomacy' to assert national autonomy and enhance their international perception as 'nation-states in waiting' (Cornago, 2010). Further research also uncovers that minority nationalist parties in Scotland and Catalonia, such as the SNP and Republican Left of Catalonia (ERC), bridge the more traditional nationalist preservationism ideals with contemporary climate change policies through their claims in manifestos, posters, policy briefs, and flyers, green policies and bill proposals (Conversi and Hau, 2021). Likewise, we know that, once again in Catalonia but also in the Basque Country, left-leaning nationalist parties strategically incorporate climate change concerns into their assertion of claims, narratives, and frameworks as integral parts of their nationalist endeavors (Hau, 2022; Kerr, 2023). In a similar vein, we are aware that center left minority nationalist parties such as We Make Corsica/For Corsica in Corsica (de Winter and Tursan, 2003; Hau, 2022), and the Galician National Bloc (BNG) in Galicia (Hau, 2022), have been intertwining environmentalism and autonomy in their campaigns, placing increasing emphasis on climate change as a phenomenon with locally-tailored solutions.

Furthermore, this link between territorial belonging and progressive politics aligns with the expected effects of additional discoveries indicating that pro-peripheral political parties, such as Non-Statewide ones (NSWPs), can focus more on demanding attention

(Hopkin and Barbera, 2009; Navarrete, 2020) and may offer narrow packages that may be more suitable (Hooghe and Marks, 2010) for different regional interests. Interestingly, other findings show that these parties tend to appeal in their manifestos to every available regional treat in the design of their issue packages: if their territory has a different language, language matters will be resourced, and if not, other topics will take their place (Alonso et al., 2017). It has also been noticed that until a certain level of devolution is reached, they will give more salience to competence claims, leaving nation-building strategies behind or mixing them with competence preferences (Alonso et al., 2017).

These findings are particularly relevant when considering that in the face of problems arising from the lack of coordination between the national and regional levels of decentralized regimes, or the lack of commitment to climate change by the central government, the regional levels tend to take the initiative (Jordaan et al., 2019). These issues have created a widespread challenge for decentralized countries that participate in international climate agreements through the United Nations Framework Convention on Climate Change (UNFCCC) to involve their subnational governments in the fight against climate change (York et al., 2021). This is consistent with additional observations that emphasize the power of local institutions to develop operational global agreements on climate change (Galarraga et al., 2011), the increasingly importance of local governments in adopting adaptation measures (Hjerpe et al., 2015), and the leading role of regional governments in demonstrating the potential for reducing greenhouse gas (GHG) emissions through their policies in energy, water, transport, and waste management in many parts of the world (Bulkeley, 2011). Therefore, given the escalating role played by regional parliaments in climate policy, the content mentioned in the previous paragraph suggest that pro-peripheral political parties may benefit from placing greater emphasis on climate-related issues in their communication strategies.

On the contrary, statewide parties (SWPs) competing also at the subnational level need to adapt their strategy in those political arenas with strong peripheral nationalist preferences, as well as to others where the electorate votes according to the political agenda at the central level (Hopkin and Barbera, 2009; Navarrete 2020). Since party branches share their label across levels, these organizations are constrained to optimally adapt their communication approaches to regional preferences (Müller, 2013) and need to develop manifestos and discourses that are coherent through the different competition tiers of a country (van Houten, 2009). Indeed, the national party may impose limits to the programmatic deviation of its regional branches because it fears the side effects of the regionally tailored choice (Klingelhöfer, 2016). However, while keeping consistency can improve the framing of voters' choices in national elections, it can lead to regional policy rigidity, limiting the attention conferred to issues that are increasingly specific to this level, such as climate change. Interestingly, these limits can be quite variable, as reflected in some studies, for example, on the Spanish case (Barrio et al., 2021). While certain SWPs such as PP or PSOE adjust their policy positions and salience to the regional context, thus creating a certain degree of cross-regional variation, others like VOX insist on conveying a uniform message across regions.

Based on the reviewed research, it appears that there might be an association between political parties' focus on the center-periphery divide and their attention to climate issues. Building on this, we propose two hypotheses:

Hypothesis 1: The salience of climate content in subnational manifestos increases the more prominent the pro-peripheral preferences are.

Hypothesis 2: The more pro-climate a party is in its regional manifesto, the more pro-peripheral is.

However, as we have noted, the centre-periphery divide is a complex issue that cannot be fully addressed through a single dimension. To this end, we also propose two additional hypotheses that consider decentralization and secessionism:

Hypothesis 3: The salience of climate content in subnational manifestos, increases the more prominent the pro-decentralization preferences are.

Hypothesis 4: The salience of climate content in subnational manifestos, increases the more prominent the pro-independence preferences are.

In both cases, parties are expected to prioritize climate issues in their manifestos, even if these issues fall under the jurisdiction of the national government. By doing so, parties demonstrate their aspirations to rule on climate-related matters and to promote their regional interests.

To summarize, our hypotheses propose that there is a correlation between a political party's position on the center-periphery divide and its prioritization of climate issues in its manifestos.

2.3 Case selection and background information

Building on increasingly decentralized legal-administrative frameworks and multiple calls for urgent action (e.g., Paris Agreement), some regional Parliaments have been adopting a more pro-active role in regards to environmental and climate policy (Bulkeley, 2011). This is the case of Spain, where environmental protection has become a shared competence between the central State and the Autonomous Communities (Rodríguez Beas, 2019). Drawing on this legal-administrative framework, and due to the prolonged absence of a Spanish law on climate change until May 2021 (Law 7/2021, on Climate Change and Energy Transition), regional regulations have been considered the ideal instrument to achieve international and European commitments for a long time. Moreover, subnational policy makers know the regional peculiarities that must be considered when designing climate policy (Rodríguez-García et al., 2022).

Remarkably, the Catalan Parliament was a pathfinder in Spain by developing the backbone of its public policies in this area through the approval of the Law 16/2017 on climate change in 2017 (Rodríguez Beas, 2019). However, this rule, among further climate-related legislation mainly promoted by the left-wing pro-independence political party ERC, was vetoed by the Constitutional Court at the request of the central government of the time led by the PP. The court argued that they exceeded the competences held by the Autonomous Communities according to the 1978 Spanish Constitution (Arana-Landín, 2021). This dialogue between the Catalan pro-independence parties' green agenda being contested by the Spanish judiciary on territorial grounds, has confirmed, on the one hand, the constitutional and administrative 'update' that Spain needs to face due to the complexity of climate change (Cocciolo, 2020). Indeed, the

imprecision in the determination of the respective fields of action has been leading to a series of inoperative situations of the policies developed by the different levels of self-government (Gabaldon, 2013).

On the other hand, this situation of conflict in Catalonia has led to a stimulating scenario that scholars have already recognized within the framework of Green Nationalism, establishing connections between environmental concerns and center-periphery preferences (Conversi and Hau, 2021). This scenario presents opportunities for comparison with similar cases in other stateless or minority nations in Europe, such as Scotland (Brown, 2017; McEwen and Bomberg, 2013), Corsica (de Winter and Tursan, 2003), Galicia (Hau, 2022), or the Basque Country (Kerr, 2023). Moreover, the case of Catalonia presents an opportunity to explore new dimensions in the center-periphery axis, given the region's recent context. Catalonia has not only traditionally been at the forefront of promoting greater decentralization in its country but has also witnessed a significant surge in support for secession over the last decade (Rodríguez-Teruel and Barrio, 2021). This trend has been especially evident in the repressed attempts to hold a self-determination referendum in 2014 and the unilateral declaration of independence issued by the Catalan government in 2017.

2.4 Data and methods

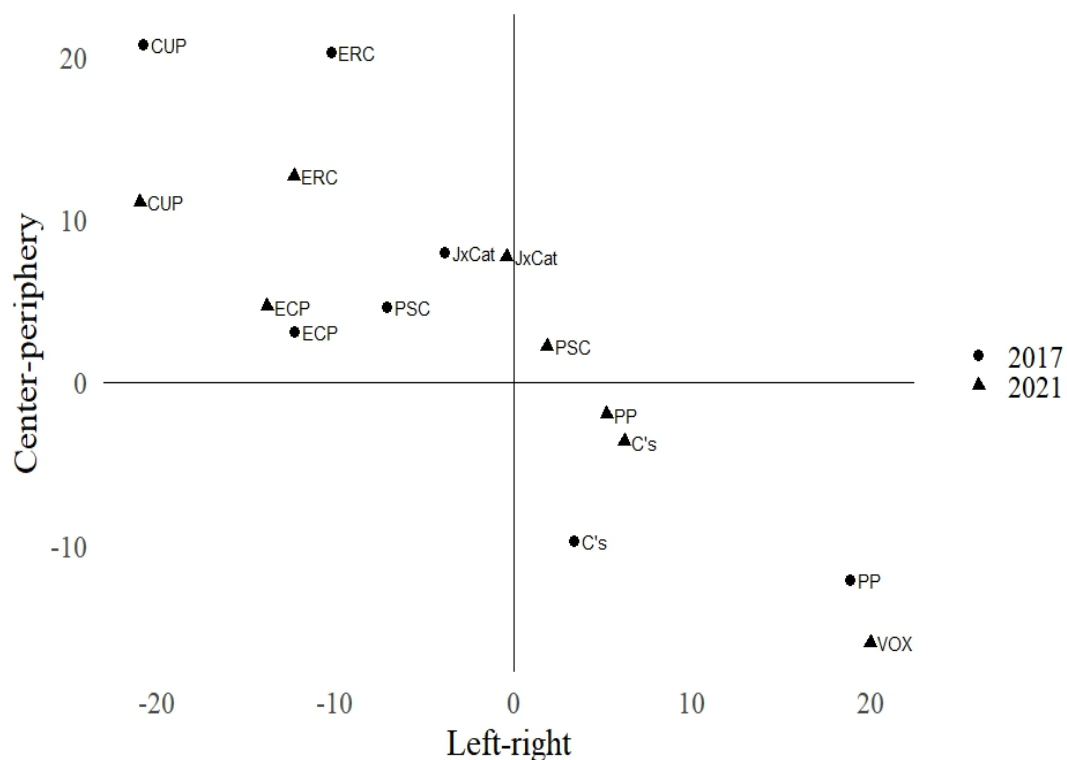
The methodology employed in the present article involved an initial qualitative analysis of the extent to which the issue of climate change is integrated within the structure of the fifteen electoral manifestos of the main political parties that competed in the regional elections of December 2017 and February 2021 in Catalonia - including Socialist Party of Catalonia (PSC), People's Party (PP), VOX, Together We Can (ECP), Together for Catalonia (JxC), Republican Left of Catalonia (ERC), Citizens (Cs), and Popular Unity Candidacy (CUP). We chose to look at these two elections, to identify evidence regarding our hypotheses to the long of a period that includes and at the same time is capable of transcending the specific context that follows the events mentioned regarding the rebuttal of Law 16/2017.

This is followed by quantitative analysis based on Carter et al.'s (2018) approach, which draws from the Regional Manifestos Project (RMP) (Gómez et al., 2022; Alonso et al., 2013) and the Framing Territorial Demands (FraTerr) dataset (Elias et al., 2021) to incorporate additional aspects (see Codebook A.1 in Appendix A). Since party manifestos provide official policy preferences that are publicly accessible and amenable to future analyses, they were used as the basis for the analysis. The coding unit in a given manifesto is the 'quasi-sentence', defined as the verbal expression of one political idea or issue (Schmitt and Wüst, 2012). Likewise, the quantity of content allocated to a particular issue was employed as a measure of salience, indicating the importance of this topic for political parties. Meanwhile, the contrast in the number of quasi-sentences assigned to two opposing stances regarding a topic was utilized as a positional indicator, reflecting the positioning of parties within it. This approach was applied to the fifteen party

manifestos mentioned earlier, resulting in an initial hand-coded database containing 25,244 quasi-sentences².

For a better understanding of Catalan parties' positioning, here we provide a spatial analysis combining parties' left-right and center-periphery preferences in 2017 and 2021 (Figure 2.1). Overall, the resulting distribution places ERC, ECP, CUP and JxC in the highest positions of decentralisation, while the first three also dominate the strongest positions on the left-wing ideology together with ECP. On the contrary, PP and VOX are the ones that are most leaned towards centralisation and right-wing positions, while the inclinations of PSC and C's are quite centrally located close to the crossover point between both axes. Interestingly, with the exception of ECP, all parties took a more moderate position in the center-periphery dimension in the 2021 elections compared to their stances in 2017. Also, all political parties that map closest to decentralisation preferences except ECP are NSWPs, while those that map closest to centralisation locations are SWPs.

Figure 2. 1 Positioning of the Catalan parties on the left-right and center-periphery dimensions



Source: Scores on left-right and center-periphery taken from the RMP (2022)³.

² The coding of the manifestos was carried out by the first author, followed by an intra-coder reliability check to ensure consistency in the coding process.

³ Based on the variable 'RILE_position', that gauge the ideological position along the general left-right scale from -100 (for a manifesto exclusively dedicated to pro-left categories) to 100 (for a manifesto totally devoted to pro-right categories), and the 'CP_position', that measure the position along the center-periphery scale from -100 (for

The chosen method particularly followed Carter's approach (2018) by mainly focusing on climate policy, and sticking to its accurate conceptualization and operationalization of this notion through four categorical variables. In this sense, there is a first a variable that captures the percentage of quasi-sentences out of the entirety of each political party's manifesto that are considered to be 'pro-climate' -content that indicates support for policies that would, if implemented, reduce GHG emissions or enhance GHG sinks-, 'anti climate' -content that indicates support for policies that would increase GHG emissions or diminish GHG sinks-, 'neutral' -content relevant to net GHG emissions, which implies that net emissions would be maintained at current levels (e.g., by displacing emissions nationally or internationally, etc.)- and 'not sufficiently relevant' -content that is not sufficiently relevant to net GHG emissions to be coded as one of the other categories-. Secondly, there was an additional variable developed to provide insights into the substantive content of the 'pro' and 'anti' climate categories as a means of systematically varying the content of our measures. Thus, the 'pro-climate' of the first variable was coded in the second one according to the percentage of quasi-sentences out of the entirety of each political party's manifesto devoted to series of more detailed subcategories⁴-, in a similar way as we did for the 'anti-climate' quasi-sentences⁵. Finally, we calculated the salience of climate content in each manifesto by summing the proportions of 'pro-climate' and 'anti-climate' quasi-sentences. Thus, higher values indicate more salience of climate issues. This allowed us to estimate the relevance that each party assigns to climate issues, regardless of their position on climate protection. In relation to the latter, we assessed parties' positions on the climate dimension by subtracting the proportion of 'anti-climate' quasi-sentences from the proportion of 'pro-climate' quasi-sentences. Positive values indicate a more pro-climate stance, while negative scores suggest a more anti-climate position.

Having clarified the measurements of the dependent variable, attention is now turned to the operationalization of the independent one. The measurement of center-periphery preferences relied on various positional and salience estimations inspired on the RMP and the 'FraTerr' dataset. On the one hand, the center-periphery position of the parties was measured using the values that the variable 'CP_position' from the RMP confer to each political party manifesto. On the other hand, to gauge the salience of parties' preferences, the methodology of the present article used a variable consisting of the percentage of quasi-sentences out of the entirety of each political party's manifesto that are exclusively dedicated to supporting greater regional autonomy for politics or economics, and a second one doing the same with of pro-independence content. The aim of the first is to represent the content of the variable 'TDR_modify_selfrule' and the financial and fiscal aspects captured by 'TDR_fund_general', whereas that of the second one aims to encompass the same content as the variable 'TDR_independence' from the 'FraTerr' dataset. This way, we had two main types of variables to measure center-periphery preferences: one positional (RMP) and two of salience (the percentage of quasi sentences devoted to pro-decentralisation, and the share of quasi-sentences dedicated to pro-independence).

a manifesto exclusively dedicated to pro-center categories) to 100 (for a manifesto totally devoted to pro-periphery categories).

⁴ 'Pro environment', 'pro-climate policy', 'pro lower carbon energy', 'pro lower carbon transport', 'pro carbon sinks', 'planning', 'agriculture and food', 'waste', and 'anti-growth'.

⁵ 'Pro roads', 'pro aviation and shipping', 'pro fossil fuel', 'anti-environment', 'anti climate', 'anti-nuclear', 'pro-growth', 'anti-taxes', 'pro tourism', and 'pro global free trade'.

Finally, we also included a variable that distinguishes SWPs from NSWPs, which allows us to offer that differentiation in each of the graphs included in our results section.

Once we had all the measurements, we plot the scores for each party as well as the results of linear regression models including the dependent variable and one of the four independent variables. In the next section we present and discuss our analysis.

2.5 Presentation and discussion of the empirical findings

An initial overview of the electoral manifestos studied allows us to discern that, by the year 2017, climate change was already of a certain importance for Catalan parties, which has progressively increased towards 2021. In this sense, we find that, in the elections of the first of the mentioned years, the content related to climate change in the analyzed manifestos enjoys a well-developed and structured main section by key themes in the case of ECP. Somewhat less systematically, we also find a main section on the issue in the manifesto of C's, while substantial subsections are dedicated to it in that of JxC, and, although more scattered throughout different sections related to social rights and their proposed model of independent republic, in that of CUP. On the other hand, climate change has few discrete subsections in the manifestos of ERC and PSC, in which the issue is mentioned in combination with territorial sustainability matters. Finally, we see how in the text of PP the subject is disseminated among several specific measures without having its own section.

For the elections of the year 2021, we observe that the party manifestos of ECP, CUP, JxC, PSC, and ERC have comprehensive differentiated sections that systematically deploy various topics related to climate change. Likewise, the manifestos of C's and PP have a markedly more superficial section regarding this issue, which they develop in twelve and four measures respectively, while VOX does not mention it at all. Despite the increase in the prominence given to climate change that would be expected in view of the structural evolution experienced by the electoral manifestos of most of the political parties mentioned, the proportion of text that parties actually devote to the issue has not always grown following this expected logic. Therefore, in order to gauge more precisely the salience of climate change in the Catalan elections of 2017 and 2021, we develop a quantitative study based on the two variables designed for this purpose that were first presented in the previous section.

According to the first of them, we show in Table 2.1 the percentage of content devoted to each category of the variable 'climate code' by political party in our two elections studied. This overview reveals a considerable global prominence given to 'pro-climate' political content by Catalan political parties in their manifestos, with somewhat higher figures in the elections of 2021. Concerning the importance that each political party assigns to this category in their manifestos, it can be observed that ECP and CUP are positioned at the top of the list. Subsequently, in a second tier, we can identify ERC, JxC, and -especially from 2021- PSC. It is noteworthy that the manifesto of Cs shows a significant decrease in pro-climate content between the first and second studied elections. On the other hand, VOX's manifesto did not show any significant proportion of the 'climate code' category. Additionally, the manifestos of PP and the aforementioned party have the highest proportions of 'anti-climate' text.

Table 2. 1 Share of quasi-sentences out of the entirety of each party manifesto, by climate code and political party (%)⁶

Climate Code	C's	CUP	ECP	ERC	JxC	PP	PSC	VOX
2017								
Pro-climate policy	9.8	20.4	20.0	12.0	10.8	4.2	7.6	.
Anti-climate policy	2.6	0.1	0.1	0.6	1.2	4.2	0.0	.
2021								
Pro-climate policy	4.3	17.9	24.6	18.3	13.2	4.6	13.1	0.0
Anti-climate policy	0.5	0.0	0.2	0.4	1.4	6.5	0.5	11.1

Source: Own elaboration (2023)

Note: The ‘pro-climate policy’ category includes general climate protection content that may contain quasi-sentences about pro-environmentalism, pro-sustainable development, pro-green growth, general criticisms of the government’s environment policy that potentially encompass but are not specific to climate policy, pro-general environmental EU action that potentially involves climate change, pro-use of environmental indicators, pro-foreign environmental aid, pro-environmental taxation, and pro sustainable tourism.

Additional differences are evident within specific ‘pro-climate’ policy subcategories (Table 2.2). The outcomes provided by our second more fine-grained measurement of ‘pro-climate’ policy salience indicate that Catalan political parties emphasize more ‘pro environment’ content in their manifestos, which makes sense considering that it is the most encompassing of all the categories coded for this variable. It is followed by ‘agriculture and food’, ‘pro lower carbon transport’, ‘pro carbon sinks’. The categories of ‘pro lower carbon energy’ and ‘anti-growth’ in the 2017 election, as well as the those of ‘planning’, ‘pro lower carbon energy’, and ‘waste’ in the 2021 election, also show some degree of relevance.

These differences in the share of sentences devoted to each climate issue reveals the various typologies of pro-climate content that are mostly appealed by political parties to compete in regional elections such as those of Catalonia in 2017 and 2021. Hence, while some parties weight more issues related to agriculture and food as part of their climate policy as it is the case of ECP, other parties’ climate policy is focused on lower carbon transport as it is the case of C’s, or JxC in 2017 and of PSC in 2021. Regarding the ‘anti-climate’ categories, it is worth noting that the manifesto of VOX stands out for its anti-tax content, while the manifesto of PP, albeit to a lesser extent, focuses on the same category as well as pro-tourism.

⁶ We removed the categories ‘Neutral’ and ‘Not sufficiently relevant’ due to lack of relevance in the results.

Table 2. 2 Share of quasi-sentences out of the entirety of each party manifesto, by pro-climate and anti-climate policy subcategory and political party (%)⁷

Climate Code Subcategory	C's	CUP	ECP	ERC	JxC	PP	PSC	VOX
2017								
Pro-climate categories								
Pro-Environment	1.4	8.0	5.2	4.1	2.3	0.9	2.9	.
Pro-lower Carbon Energy	0.3	1.5	1.4	1.7	0.1	0.0	0.7	.
Pro-lower Carbon Transport	3.7	1.2	1.3	1.1	3.2	2.7	1.4	.
Pro-energy Efficiency	0.1	0.3	0.6	0.1	0.3	0.3	0.3	.
Pro-Carbon Sinks	1.3	1.4	3.7	0.8	2.7	0.0	0.8	.
Planning	0.3	0.6	0.4	0.3	1.0	0.0	0.2	.
Agriculture & Food	2.2	3.8	4.7	3.7	0.3	0.3	1.2	.
Waste	0.4	0.6	1.2	0.1	0.9	0.0	0.0	.
Anti-Growth	0.0	3.1	1.6	0.0	0.2	0.0	0.2	.
Anti-Climate Categories								
Pro-roads	0.7	0.0	0.0	0.0	0.1	2.1	0.0	.
Pro-aviations & Shipp	0.0	0.0	0.0	0.0	0.1	0.0	0.0	.
Anti-nuclear	0.0	0.1	0.0	0.0	0.0	0.0	0.0	.
Pro-growth	0.0	0.0	0.0	0	0.0	0.9	0.0	.
Anti-taxes	0.7	0.0	0.1	0.4	1	1.2	0.0	.
Pro-tourism	0.0	0.0	0.0	0.2	0.0	0.0	0.0	.
Pro-global free trade	1.0	0.0	0.0	0.1	0.0	0.3	0.0	.
Agriculture	0.1	0.0	0.0	0.0	0.0	0.0	0.0	.
2021								
Pro-climate categories								
Pro-Environment	0.9	7.0	8.7	9.3	5.3	2.0	6.0	0.0
Pro-lower Carbon Energy	0.0	0.9	1.5	1.4	1.0	0.0	1.1	0.0
Pro-lower Carbon Transport	0.6	1.1	2.5	1.8	2.1	0.0	3.0	0.0
Pro-energy Efficiency	0.3	0.0	0.4	0.5	0.2	0.0	0.2	0.0
Pro-Carbon Sinks	1.2	1.9	3.4	0.5	1.0	1.3	0.7	0.0
Planning	0.2	1.9	1.7	1.9	0.9	0.0	0.9	0.0
Agriculture & Food	1.2	2.0	4.9	2.1	1.9	0.7	0.7	0.0
Waste	0.0	1.5	1.0	0.7	0.8	0.7	0.4	0.0
Anti-Growth	0.0	1.5	0.5	0.2	0.0	0.0	0.2	0.0
Anti-Climate Categories								
Pro-roads	0.0	0.0	0.1	0.4	0.0	0.0	0.4	0.0
Pro-aviations & Shipp	0.0	0.0	0.0	0.1	0.2	0.7	0.1	0.0
Anti-nuclear	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Pro-growth	0.0	0.0	0.0	0.0	0.4	0.7	0.0	0.0
Anti-taxes	0.0	0.0	0.0	0.0	0.0	2.6	0.0	11.1

⁷ We removed the category 'Pro-climate (other)' due to lack of relevance in the results.

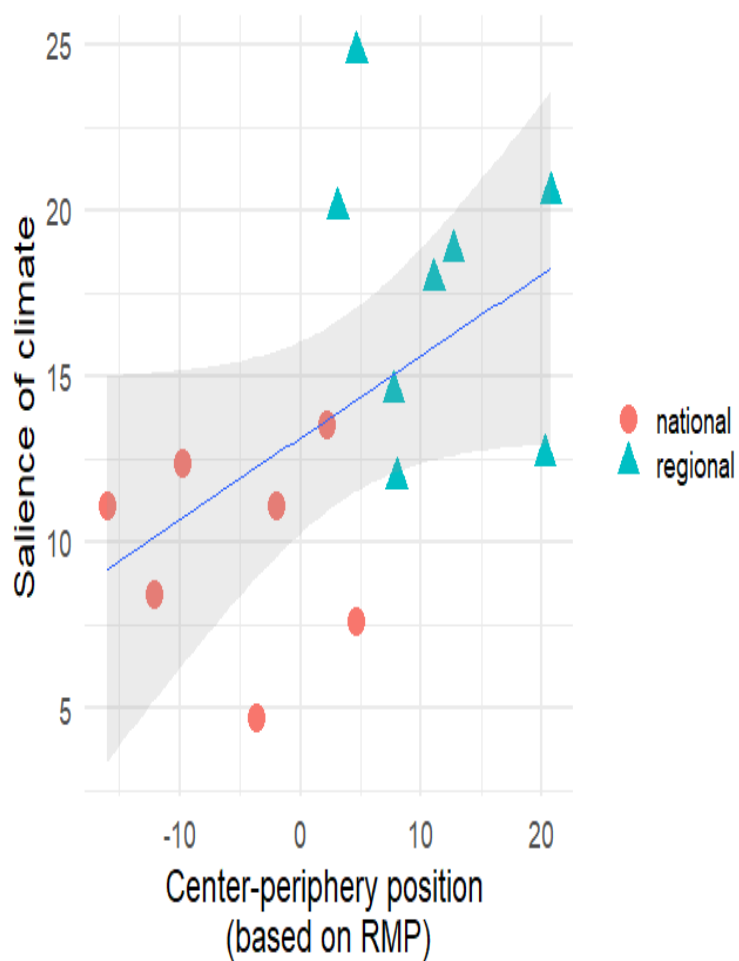
Pro-tourism	0.5	0.0	0.0	0.0	0.7	3.3	0.0	0.0
Pro-global free trade	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Agriculture	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0

Source: Own elaboration (2023)

In light of the percentages shown in tables 2.1 and 2.2 we can already infer an initial support for our first hypothesis suggesting that climate content is more salient among manifestos of parties with more pro-peripheral orientations. These figures also show the increased focus that the common left-wing parties give to climate change, with the significant exception represented by the percentages of the center-right party JxC (Sanjaume-Calvet and Riera-Gil, 2022). Therefore, despite the pivotal role that the ideology of political parties might be playing in shaping their climate policy preferences, the greater attention that the aforementioned NSWPs pays to climate-related topics compared to most of the SWPs, especially though not exclusively (e.g., PSC), those on the right (e.g., Cs, PP, and VOX), points to the importance of our expectations. In this regard, in order to confirm or reject the hypotheses that are central to the current study, we plot the scores, linear regression lines, and confidence intervals of different models that we construct using all of our combined data, regardless of the election year to which it belongs.

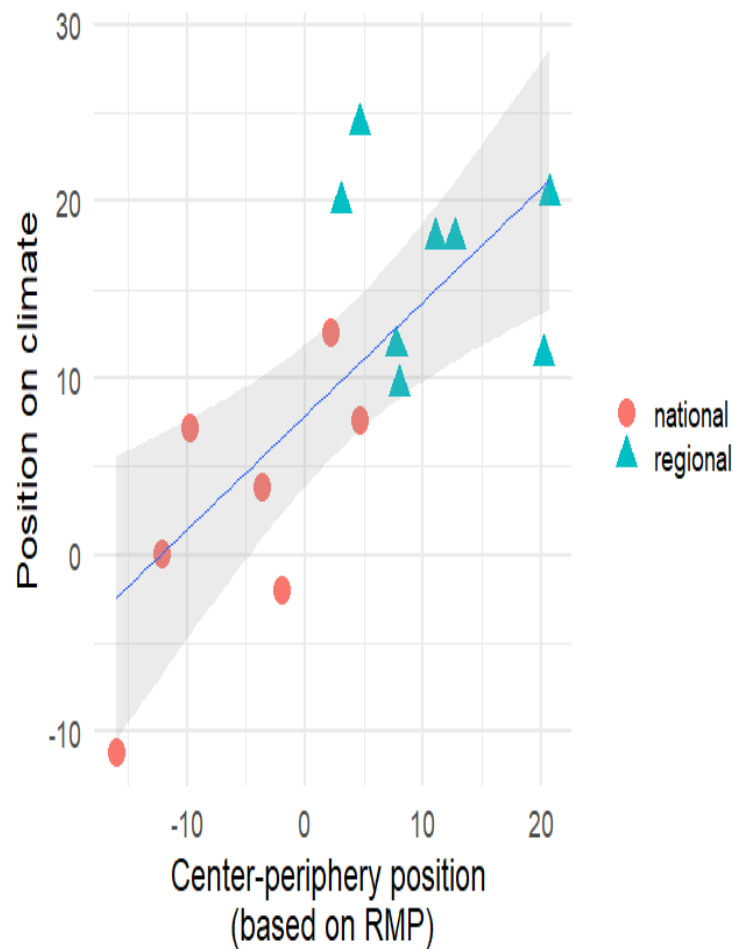
To establish this relationship, we initially examine the link between the center-periphery positioning of political parties according to the RMP and the emphasis they place on climate content in their manifestos (Figure 2.2 and Table B.2 in Appendix B). The data reveals that the greater a party's pro-periphery stance on the center-periphery axis, the more significant the attention given to climate content in their manifesto. This revelation supports our first hypothesis in a manner that is consistent with our second hypothesis, as we have identified a correlation between the independent variable and political parties' stances on climate change (Figure 2.3 and Table B.2 in Appendix B). Specifically, we find that political parties that take a more pro-periphery positioning tend to have a more pro-climate stance, while those with a more pro-center outlook tend to have reduced levels of both climate emphasis in their manifestos and pro-climate stances. In addition to the observed correlation between climate content and pro-peripheral stances, our findings also reveal a significant difference between NSWPs and SWPs regarding their attitudes towards climate change. NSWPs place greater emphasis on climate change issues and hold more pro-climate positions than SWPs, underscoring the varying regional priorities that these parties represent.

Figure 2. 2 Relationship between the center-periphery positioning and the salience of climate content



Source: Center-periphery positions taken from the RMP (2022). Scores on salience of climate calculated from data shown in Table 2.1.

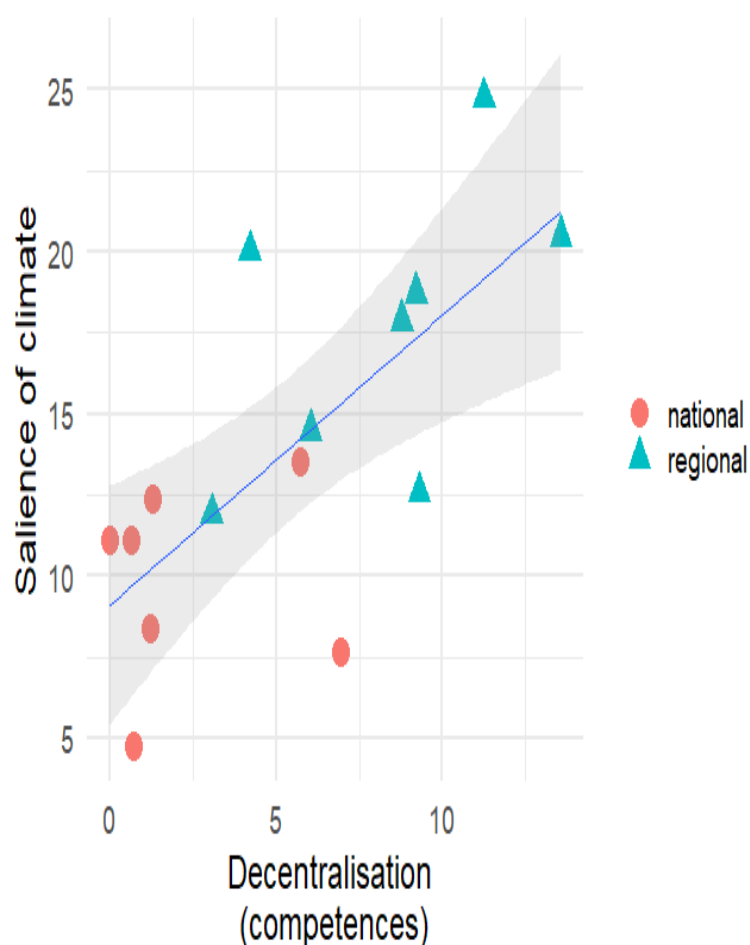
Figure 2. 3 Relationship between the center-periphery positioning and climate content positioning



Source: Center-periphery positions taken from the RMP (2022). Scores on climate positioning calculated from data shown in Table 2.1.

In testing our third hypothesis, we rely on the association between decentralization and the salience of climate text (Figure 2.4 and Table B.2 in Appendix B). The positive nexus found indicates that higher shares of quasi-sentences dedicated to specifically support decentralization correlate to a greater prominence of climate related content in parties' manifestos. This also suggests that when political parties dedicate fewer quasi-sentences to support decentralization, there is a lower emphasis on climate content in their manifestos. In another vein, we observe a stronger lineal association between pro-decentralization stances and the salience of climate content in the NSWPs manifestos compared to the SWPs manifestos. This suggests that NSWPs may prioritize climate issues more when advocating for regional autonomy, potentially reflecting the unique environmental concerns and priorities of their region.

Figure 2. 4 Relationship between the salience of pro-decentralization and the salience of climate content

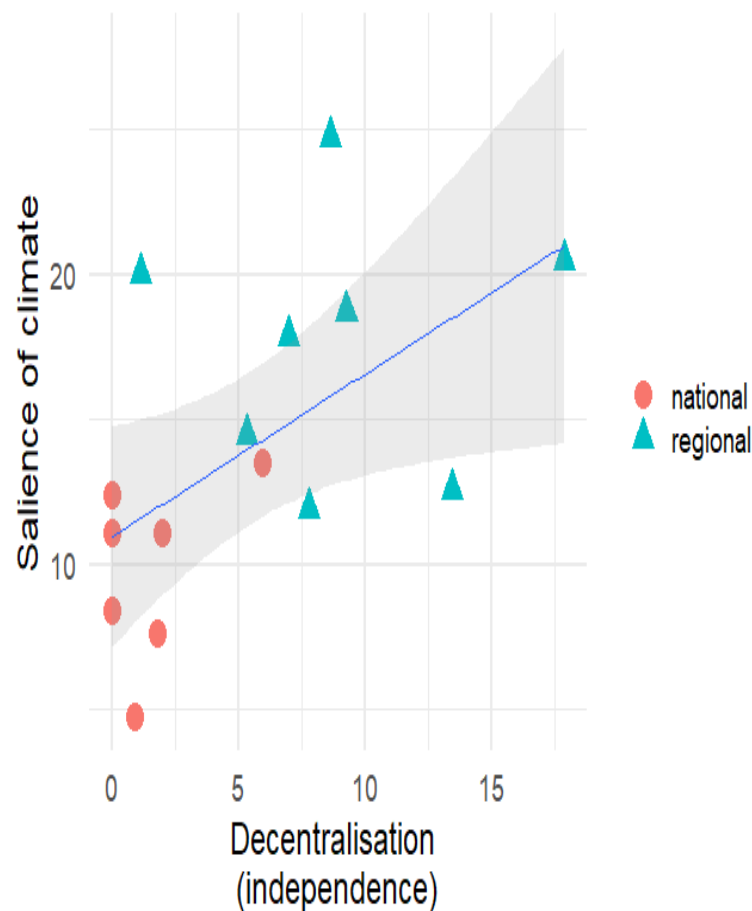


Source: Salience of pro-decentralization taken from data shown in Table B.1 in the Appendix B. Scores on salience of climate calculated from data shown in Table 2.1.

Finally, we test our latest hypothesis by studying the degree of association we find between the salience of pro-independence content and the prominence that political parties dedicate to climate issues in their election manifestos (Figure 2.5 and Table B.2 in Appendix B). The result of this approach reveals a positive relationship between the variables, which can lead to the affirmation that the more space parties dedicate to including content favorable to separatism in their manifestos, the greater proportion of text they invest in referring to climate content, while the less space devoted to Catalan independence, the less they will dedicate to climate categories. Nevertheless, the linearity of this association might be pushed by the outliers and analysis with more cases would contribute to clarify the strength between pro-independence stances and prominence of climate content in parties' manifestos. It has to be noted here that this could also be the result of independence not being present in all manifestos as there are several parties that do not deal with secessionism in their manifestos. As it might be expected, NSWPs are

also generally more pro-independence but there are some cases in which regional parties avoid this topic.

Figure 2. 5 Relationship between the salience of pro-independence and the salience of climate content



Source: Salience of pro-independence taken from data shown in Table B.2 in the Appendix B. Scores on salience of climate calculated from data shown in Table 2.1.

In light of the evidence presented, none of our hypotheses can be rejected. Our results related to the first two hypotheses are consistent with the academic observations that suggest political parties are progressively including climate change in their issue preferences to wage their contests over the structuring of political authority within the center-periphery divide. This trend, combined with the increasingly important role played by regional parliaments in climate policy, would bring together the premises of the new nationalist trend towards defending national sustainability proposed by Green Nationalism (Conversi, 2020, 2022; Conversi and Hau, 2021), with the possibility that the higher specific attention that parties with peripheral sensitivities (e.g., NSWPs) tend

to devote to issues specific to their territories (Hopkin and Barbera, 2009; Hooghe and Marks, 2010; Navarrete, 2020) could be fueling their emphasis on climate change. In fact, we can find several phrases in the manifestos of the most pro-periphery parties that point to the important role that the regional government of Catalonia should adopt with regard to climate action:

The Catalan institutions themselves must ensure that the reconstruction projects arising from the pandemic are aligned with the social, economic and climatic objectives of the European Green Deal (...).’ (ECP, 2021) ⁸

‘Through the new territorial planning, we must be capable of identifying the primary climate risks at a regional scale and defining development guidelines to successfully address them.’ (ERC, 2021) ⁹

‘We will uphold the spirit of the Climate Change Law and the Renewable Energy Decree of the Parliament of Catalonia, with a fully decentralized energy production model that emphasizes the EU’s substantial investment in combating climate change, including research and development of new clean technologies that enable the creation of high-value jobs in Catalonia.’ (JxC, 2021) ¹⁰

The findings presented in our work on the last two hypotheses of this paper could align with Green Nationalism by indicating political goals that go beyond mere environmental concerns, among parties that advocate for raising awareness about climate change. The argument put forth in our third hypothesis could suggest that these parties are using more this issue to assert the political significance of the sub-state level, take advantage of the opportunities presented by climate change as a complementary justification for seeking greater economic and/or political autonomy (McEwen and Bomberg, 2013; Alonso et al., 2017). These possibilities would align with the demands expressed through different quasi-sentences identified in the manifestos studied:

‘Tending progressively to align the tax on gasoline and diesel with the European average, based on pollutant emissions, and creating a tax on nuclear energy and the storage of radioactive waste, the revenue of which would be allocated in part to a fund managed by the autonomous communities for alternative development of the areas where the power plants are located, in order to enhance their economic fabric.’ (ECP, 2017) ¹¹

⁸ Original text: ‘Des de les mateixes institucions catalanes caldrà garantir que els projectes de reconstrucció derivats de la pandèmia estiguin alineats amb els objectius socials, econòmics, i climàtics que contempla el European Green Deal, i que una part d’ells siguin directament impulsats pel món local’.

⁹ Original text: ‘Hem de ser capaços, a través del nou planejament d’ordenació territorial, d’identificar a escala territorial els principals riscos climàtics i de concretar les directrius de desenvolupament per abordar-los amb èxit’.

¹⁰ Original text: ‘Defensarem l’esperit de la Llei de Canvi Climàtic i el Decret d’Energies Renovables del Parlament de Catalunya, amb un model de producció energètic plenament descentralitzat que posi en primer pla la necessitat que la UE inverteixi de manera substancial contra el canvi climàtic, incloent-hi la recerca i el desenvolupament de noves tecnologies netes que permetin generar llocs de treball d’alt valor afegit a Catalunya’

¹¹ Original text: ‘Tendir progressivament a anivellar l’impost sobre el petroli i el gasoil amb la mitjana europea, en funció de les emissions contaminants, i crear un impost sobre l’energia nuclear i l’emmagatzematge de residus radioactius, la recaptació del qual es destinaria en part a un fons, gestionat per les comunitats autònomes, per al desenvolupament alternatiu de les zones on se situen les centrals, per millorar-ne el teixit econòmic’

‘Advocating for the territorial distribution among autonomous communities of resources intended to implement research, mitigation, and adaptation policies to climate change.’ (JxC, 2017) ¹²

The results related to our fourth hypothesis align with previous academic contributions that point to the use of climate change by sub-state governments as an opportunity to appear 'state-like', enhancing their status and promoting nation-building (McEwen and Bomberg, 2013). This, which could be considered one of the most novel contributions that our study on Catalonia has offered, can be observed in party manifestos where there are direct connections between the adoption of pro-climate initiatives and the promotion of an independent Catalonia:

‘In a planet where natural resources are finite and climate change is a reality, the (Catalan) Republic will have the duty and responsibility to transition towards a sustainable production model and responsible consumption that ensures the needs of future generations.’ (ERC, 2017) ¹³

‘For this reason, and with the aim of facing the challenge of a true ecological revolution, we consider it essential to articulate an eco-social transition program that redefines our path in an ecological framework and outlines the steps to be taken to move towards an ecological revolution in the Catalan Countries¹⁴ in the next decade.’ (CUP, 2021) ¹⁵

In contrast, political parties like the SWPs that hold a more centrist stance tend to pay less attention to climate change in their manifestos. This is not only due to their general tendency to position themselves closer to the center of the political spectrum, but also because they need to adapt their communication strategies to different levels of governance (van Houten, 2009; Hopkin and Barbera, 2009; Navarrete, 2020). As a result, they may face greater challenges in addressing regional issues, such as climate change, in their manifestos.

¹² Original text: ‘Reclamar la distribució territorial entre les comunitats autònomes dels recursos destinats a materialitzar polítiques de recerca, mitigació i adaptació al canvi climàtic’.

¹³ Original text: ‘En un planeta on els recursos naturals són finits i el canvi climàtic és un fet, la República tindrà el deure i la responsabilitat de canviar cap a un model productiu sostenible i de consum responsable que garanteixi les necessitats de les generacions futures’

¹⁴ A name given to the country that would be formed in a hypothetical and independent political union of all Catalan-speaking regions (Fuster, 1977)

¹⁵ Original text: ‘Per aquest motiu, i amb l’objectiu d’encarar el repte d’una veritable revolució ecològica, considerem imprescindible articular un programa de transició ecosocial que redefineixi el nostre camí en un marc ecològic i dibuixi els passos que caldrà fer per avançar cap a una revolució ecològica als Països Catalans la dècada vinent’.

2.6 Conclusion

This article aimed to answer the questions of how the salience given to climate change in party manifestos differs between political parties competing in elections at the subnational level and how this prominence is associated with their center-periphery preferences. By focusing in the manifestos of political parties that participated in the regional elections of Catalonia in December 2017 and February 2021, we firstly find empirical evidence of a between-party variance of pro-climate salience leaded by ECP, ERC, JxC, CUP, and PSC. Among pro-climate topics, Catalan parties emphasize more on ‘pro-environment’, ‘agriculture and food’, ‘pro lower carbon transport’, and ‘pro carbon sinks’ content.

Furthermore, we discover that this variation between political parties is associated with the variables suggested in our research question, that more explicitly stated through our four different hypotheses. First, we find that parties whose manifestos give more salience to decentralization and those with a more pro-periphery stance tend to confer more prominence to climate policy. In line with the Green Nationalism literature, this would imply that parties are incorporating climate change more and more into their issue preferences as a strategy to compete for political authority within the center-periphery divide, in addition to their environmental concerns. This would run in parallel to the more and more relevant role played by regional parliaments in climate policy, that would be encouraging parties with peripheral sensibilities to focus more on this increasingly ‘territorialized’ matter (Hopkin and Barbera, 2009) at a level where they can offer narrow packages more suitable for different regional interests (Hooghe and Marks, 2010). Second, we detect that higher shares of quasi-sentences dedicated to support decentralization correlate to a greater prominence of climate content in parties’ manifestos. This finding would propose that these parties are using more this issue to assert the political significance of the sub-state level, take advantage of the opportunities presented by climate change as a complementary justification for seeking greater economic and/or political autonomy (McEwen and Bomberg, 2013; Alonso et al., 2017). And third, we uncover that the more space parties dedicate to including content favorable to separatism in their manifestos, the greater proportion of text they invest in referring to climate content. This considerably novel contribution of our study on Catalonia is consistent with earlier academic discoveries that suggest sub-state governments are leveraging climate change as a means to appear more ‘state-like’, adding that they openly use this matter to advocate the construction of an independent state.

As we predominantly conducted a quantitative analysis of the manifestos presented by the political parties competing in the last two regional elections held in Catalonia, our conclusions are drawn from a specific method of analyzing only fifteen manifestos of political parties competing in two different electoral periods. Future research could broaden our perspective by focusing on additional parties from prospective elections in Catalonia or from other subnational regions where the center-periphery cleavage enjoys high levels of relevance that can potentially intertwine with climate change. This would enable researchers to assess the extent to which our findings can be applied generally, as well as to uncover the degree to which the climate policy preferences of political parties might arise from factors beyond those examined in this paper. In this sense, considering the indications pointing toward the heightened focus that left-wing parties allocate to climate change as indicated by the data collected in this study, and the established correlations between the center-periphery dimension and ideology (Masseti, 2009; Massetti and Schackel, 2015), we would encourage future studies to delve into how the

latter factor mediate the relationships researched in the current paper. In a similar but different direction, prospective studies could also delve into the cross-tier performance of political parties competing at the central and regional levels. This could lead to a better understanding of the impact of the geographic dimension of elections in relation to climate change. Further, we strongly believe that research on both, the party manifestos analyzed in this paper and the following of the suggested lines of prospective research would enormously benefit from the implementation of a qualitative approach comparing the different behavior of parties with regards to the climate change. Such investigations could assess the degree of urgency presented in the quasi-sentences identified, as well as the sincerity of such claims and the extent to which they are reflected in the policy decisions and priorities of the respective parties. In any case, this research, whose scope does not encompass that aspect, represents a relevant step forward in the underexplored topic of parties' preferences on climate in multilevel settings.

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3 Party Preferences for Climate Policy and the Renewable Energy Transition in Spain's Multilevel Democracy

Research article^{*16}

Abstract

The growing influence of regional governments in shaping climate policy and driving the renewable energy transition in multilevel democracies, like Spain, provides incentives for parties in favor of decentralization to emphasize these issues. Recent research has shown that such parties act as climate pioneers at the regional tier of government, driven by their desire to assert stronger subnational authority. To investigate these dynamics at the national level, this article examines the manifestos of the parties that won seats in the 2016, 2019, and 2023 Spanish national elections. The empirical findings suggest that parties are more likely to prioritize climate change and the renewable energy transition if they are pro decentralization. By emphasizing how multilevel governance strengthens these priorities through party competition and the quest for regional autonomy, this article fills an important gap spanning decentralization and policy preferences related to the climate and renewable energy.

Keywords: Climate Policy, Renewable Energy Transition, Decentralization, Climate Federalism, Green Nationalism, Political Manifestos, Political Parties, Spain.

3.1 Introduction

In 2021, Spain enacted the Climate Change and Energy Transition Law (Law 7/2021 of 20 May), which consolidates the country's commitment to climate change and the energy transition for the coming decades. This emblematic law, which was two years in the making, is the culmination of Spain's extensive regulatory trajectory in these areas. This trajectory has been favored by the decentralized institutional framework established by the Spanish Constitution under the name of the 'State of Autonomies'. The evolution of this model has cemented the shared nature of competences in the areas of climate change and the energy transition between the central State and the regional governments, also known as Autonomous Communities (ACs)¹. As a result, the ACs have assumed an increasingly prominent role in these issues, participating in certain national initiatives and introducing their own policies². There are notable examples in several regions, such as the enactment of Law 16/2017 by Catalonia, the approval of Law 8/2018 by Andalusia or the adoption of Law 10/201 by the Balearic Islands³.

¹⁶ Published in npj Climate Action (2024), doi: 10.1038/s44168-024-00183-5

In this vein, extensive research on Climate Federalism has identified several benefits of decentralized political systems in addressing climate-related challenges^{4,5}, which can also catalyze the renewable energy transition (RET)^{6,7}. Significantly, the distributed responsibilities and decision-making inherent in devolved governance promote experimentation, mutual learning, and healthy competition among subnational entities^{8,9}. This is because decentralized systems provide multiple levels for developing and testing new climate and energy policies. The result is a higher likelihood of identifying successful strategies, which can then spread horizontally across regions or vertically to influence national plans^{10,11}.

Moreover, decentralized states create an opportunity structure in which constituent units can initiate their own climate action programs in the absence of central government action. This phenomenon, known as 'compensatory federalism,' was evident during periods of federal climate inaction in the United States and has parallels in Spain, where regional laws in Catalonia, the Balearic Islands, and Andalusia have paved the way for climate leadership^{3,12,13}. This mechanism is especially salient in the light of the potential benefits regions can gain regarding the deployment of renewable energy installations throughout their territories. Indeed, certain subnational governments may prioritize the transformation of regional energy economies using renewables that are available locally, hence fostering regional advantages¹⁴. In this way, the RET offers opportunities and incentives for subnational governments with adequate competencies to leverage their potential in developing their own energy strategies and policies independently from the central government¹⁵.

Additionally, decentralized governance enhances the capacity of regional parties to adapt policies to the context¹⁶. Devolving autonomy of climate policy to decentralized entities empowers them to integrate local knowledge, capacities, and resources when crafting solutions that fit unique conditions of the environment, society, and economy⁵. Put differently, regional authorities are better able to handle energy transitions when they have a say in the creation of broad-based renewable energy plants within the expanding decentralized energy grids accompanying the RET¹⁷. Empirical evidence supports such a view, showing that decentralized energy models not only improve electricity access in rural areas¹⁸ but also reduce CO2 emissions significantly¹⁹. This derives from their efficacy in meeting simultaneously the increasing demand for renewable energy sources and demands for land and protection of the environment²⁰.

In the same manner, decentralization brings policymaking processes closer to citizens, enhancing both public participation and the public acceptance of climate and energy policies^{5,9}. It thereby contributes to the establishment of 'energy democracy' systems with active citizens who are engaged with and take responsibility for energy production and consumption^{21,22}. Such systems foster greater societal commitment to shifting away from fossil fuel-based energy, promoting renewable energy generation, and potentially claiming ownership and management of energy infrastructure²³. In this context, the role of Renewable Energy Cooperatives (REC) stands out. These co-operatives serve as testbeds for adapting low-carbon energy technologies to local conditions and needs, thus playing a crucial role in the energy transition^{24,25}. The historic proliferation of RECs in countries such as the UK, Belgium, Denmark, and Germany has coincided with support schemes aimed at boosting RET²⁶. In addition, these organizations are increasingly involved in energy governance, particularly at the subnational level²⁷.

The academic evidence in favor of decentralizing climate change and RET responsibilities has been paralleled by an expansion of the role of subnational governments in these areas^{28,11,29,30,31}. This trend towards regional empowerment

encourages pro-decentralization parties, such as the non-state parties (NSWP), to prioritize these issues^{32,33,34}. In light of this, some scholars have examined how territorial politics influence climate and energy agendas, highlighting a form of nationalism centered on environmental issues that advocates for comprehensive climate policies³⁵. Some related studies suggest that the RET, with its low carbon attributes, can strengthen arguments and promote nationalist agendas within this evolving framework of sustainable nationalism³⁶.

This new concept, coined as Green Nationalism^{37,38,39}, is present, for example, in regions like the Vauban district, where researchers have observed a revitalization of national sentiments based on environmental defense⁴⁰. This resurgence is attributed to the pride the region takes in Germany's example of adapting to the challenges posed by the climate crisis. Likewise, the literature reveals that minority nationalist parties, such as We Make Corsica/For Corsica in Corsica^{41,35}, and the Galician National Bloc (BNG)³⁵, have been weaving together environmentalism and autonomy in their campaigns. They increasingly emphasize climate change as a phenomenon requiring locally adapted solutions.

Similarly, the British Greens and the Scottish Green Party are known to question the nation-state to which they belong and propose an original, regionalist project⁴². In the case of Scotland, these findings align with previous research linking the strength of substate climate ambitions with the substantial emphasis they place on regional governmental autonomy⁴³. This correlation is reinforced by the influence of strong sub-state nationalist parties, which actively work to maintain and reinforce regional divisions.

Some minority nationalist parties, such as the Scottish National Party and the Republican Left of Catalonia (ERC), are known to mix traditional, preservationist, nationalist ideals with contemporary policies on climate change. They do so through their assertions in manifestos, posters, policy briefs, and flyers, as well as through the promotion of green policies and bill proposals³⁹. In the Basque Country and Catalonia, recent studies have documented how nationalist parties strategically incorporate climate change concerns into their assertion of claims, narratives, and frameworks as integral parts of their nationalist endeavors^{35,44}. Regarding Catalonia, other research indicates that parties more aligned with decentralization tend to place greater emphasis on climate policy and adopt more pro-climate positions. They do this to compete for political authority, in addition to addressing environmental concerns⁴⁵.

Existing literature highlights the significant benefits of decentralized political systems in driving climate initiatives^{4,5} and the transition to renewable energy sources^{6,7}. It is therefore reasonable to expect parties advocating decentralization to take a pioneering role on these issues. Given the advantages of decentralization in addressing climate and energy challenges effectively, these issues align more naturally with the core objectives of parties that support the devolution of powers to lower levels of government. Additionally, in accordance with the principles of Green Nationalism, such actors may be incentivized to emphasize climate policy and the RET, as these areas enable subnational authorities to formulate and implement their own policies and strategies^{37,38,39}. Specifically, in the context of the RET, building new facilities for generating renewable energy (e.g., solar photovoltaic, wind turbines, hydroelectric power, biomass, or geothermal power plants) would create a landscape of decentralized production, which is particularly appealing to parties seeking greater regional autonomy. Thus, the potential of the RET for facilitating a shift toward regional energy independence would incentivize pro-decentralization parties, such as NSWPs, to advocate for this issue. In other words, pro-decentralization parties would be more likely to position themselves at the forefront

of these matters as a strategic move to challenge the central government and enhance subnational authority.

Building on the anticipated link between political parties' advocacy for decentralization and their focus on climate and RET issues, I propose two hypotheses:

Hypothesis 1: The salience of climate content in national party manifestos increases the more pro-decentralization the party is.

Hypothesis 2: The salience of renewable energy content in national party manifestos increases the more pro-decentralization the party is.

3.2 Results and Discussion

In June 2016, the manifestos of In Common We Can (ECP), Commitment (CMP), and In Tide (EM) featured well-developed, standalone sections on both climate change and the energy transition. Citizens (Cs), while having a shorter section, also included a well-articulated part on climate change with a subsection on sustainable energy. Together We Can (UP), Canarian Coalition – Nationalist Canary Party (CC-PNC), the Spanish Socialist Workers' Party (PSOE), and the People's Party (PP) also dedicated entire segments to energy issues. While UP included clearer measures on climate change within a broader section devoted to environmentally related topics, the PSOE, Cs, and the PP addressed these issues more sporadically, essentially within their energy sections. The ERC's manifesto showed a similar trend, approaching both topics in a more general context. The Democratic Convergence of Catalonia (CDC) and the Basque Nationalist Party (EAJ-PNV) addressed these topics within a general environmental section, whereas Unite the Basque Country (EHB) did not include any significant development of them.

In the November 2019 elections, More Country – Equo (MP-E) distinguished itself with a thorough approach to both climate change and the energy transition, addressing each explicitly in the first and second sections of its manifesto, and more generally in the final two sections. Similarly, both CMP and ECP allocated an independent section to each topic. EAJ-PNV, Canarian Coalition – New Canaries (CC-NC) and Together for Catalonia (JxC) also included sections exclusively focused on clean energy. EAJ-PNV and CC-NC used these sections to also cover climate change, while JxC developed this topic more thoroughly in a separate environmental section. In the same vein, UP, ERC, and BNG wrote in length on both issues within broader sections on environmental protection. The PSOE, Cs, and the PP did so to a far lesser degree of refinement. Manifestos from Candidacy of Popular Unity (CUP), EHB, the Regionalist Party of Cantabria (PRC), and Teruel Exists (TE) generally addressed related topics rather than focusing on climate and energy directly, which nonetheless stand out proportionally due to the brevity of these documents. Sum Navarre (NA+) made only scant mentions of these issues throughout their texts, and VOX did not address them at all.

By July 2023, Unite had included two distinct sections on climate change and the energy transition. BNG, the ERC, the PSOE, and the PP each dedicated a section to the second topic and addressed the first one within a broader environmental context. EAJ-PNV, JxC, and EHB also had similar sections on energy, with climate change mentioned transversally across their texts. Without specific sections on any of them, we find

mentions of both topics among the measures proposed by the Canarian Coalition (CC), and less often on renewable energy in those of Navarrese People's Union (UPN) and VOX. Based on the structural evolution of the manifestos studied, there is no discernible pattern in the overall emphasis they place on the analyzed issues. For instance, although political parties are more frequently addressing climate change within broader environmental sections, these areas have gradually become more extensive and comprehensive over time. Therefore, to more accurately assess the significance of climate change in the Spanish elections of June 2016, November 2019, and July 2023, I conducted a quantitative study based on the two variables designed specifically for this purpose.

Table 3.1 (and figures C.1, C.2, and C.3 in Appendix C) presents the percentage of content related to each category of the 'climate code' variable by political party. The results indicate a significant focus on 'pro-climate' content in the manifestos of the political parties studied, with higher figures observed in the 2019 elections. In 2016, CMP, UP, EM, and Cs stood out for assigning greater importance to this category in their manifestos. In 2019, the MP-E coalition dominated, thanks largely to the participation of EQUO, whose environmentalist stance is notable in a country where green policies have traditionally been non-existent at the central level (McFall 2012). Behind this alliance, CMP, EHB, TE, UP, and EAJ-PNV also stand out. Turning to the 2023 elections, parties such as Unite, which filled the ideological space left by UP in previous elections, EAJ-PNV, BNG, and the PSOE were the most vocal on 'pro-climate' issues. It is noteworthy that VOX and the PP occupy prominent positions in terms of 'anti-climate' content in their manifestos, although they are sometimes surpassed by the PRC and TE in 2019, or UPN in 2023.

Table 3. 1 Share of quasi-sentences delivered in party manifestos, by climate code and political party (%)

Climate Code	UP	Unite	MP-E	PSOE	Cs	PP	VOX	CUP*	ECP*	ERC*	CDC/JxC*	EHB*	EAJ-PNV*	EM/BNG*	CC-PNC/CC-NC/CC*	NA+/UPN	PRC*	TE*	CMP*
2016																			
Pro climate policy	12.5	-	-	6.5	8	5.1	-	-	12.6	6.4	7.6	2.6	8	9.5	5.2	-	-	-	21.2
Anti climate policy	0.7	-	-	0.3	1	3.5	-	-	0	0.6	1.2	1	0.8	0	6.3	-	-	-	0.1
2019																			
Pro climate policy	17.2	-	78.3	6.3	7.5	7.6	2.8	13.5	7.3	8	9.8	41.5	16.0	8.5	8.9	2.8	13.1	29.4	30.7
Anti climate policy	0	-	0	0.2	2.6	5.6	1.7	0	0.2	0.4	1.2	0	0.9	0	3.2	1	13.9	20.6	0.3
2023																			
Pro climate policy	-	21.7	-	13.9	-	6.2	3.2	-	-	12.3	10.8	7.8	18	14.9	12.4	10.5	-	-	-
Anti climate policy	-	0.2	-	1.3	-	2.8	8	-	-	0.1	0.9	0	0.7	1	3.7	6.3	-	-	-

*Non-Statewide Parties (NSWPs)

Source: Scores based on authors' own measurements (2024).

When it comes to the study of specific, 'pro-climate' policy subcategories, further variations exist (Table 3.2 and figures C.4, C.5, and C.6 in Appendix C). The results of the second, more detailed assessment of 'pro-climate' policy importance indicate that the political parties in question generally place greater emphasis on 'pro-environment' content in their manifestos, which is logical given that it is the most comprehensive category within the variable it belongs to, followed by 'pro-lower carbon transport', 'pro-renewable energy', and 'pro-carbon sinks'. In particular, CMP, UP, and Cs placed notable emphasis on the three aforementioned categories in 2016. Turning to 2019, UP shared this focus with MP-E, which also paid significant attention to these categories, whereas EHB, for instance, almost exclusively focused on 'waste' and 'agriculture and food'. In addition, it is worth noting the figures of other parties, such as CMP, which place special emphasis on 'pro-energy efficiency'. In 2023, the shift in ideological competition space from UP to Unite is reflected in Unites' greater emphasis on 'pro-climate' categories

similar to those previously advocated by UP. It is also worth highlighting the significant emphasis placed on ‘renewable energies’ by EAJ-PNV and BNG.

The most notable ‘anti-climate’ categories in 2019 include ‘pro-growth’, ‘pro-roads’, ‘pro-aviation and maritime transport’, and, to a lesser extent, ‘anti-taxes’, with ‘pro-intensive agriculture’ and ‘pro-fossil fuels’ gaining momentum from 2023 onwards. While in 2016 it was the PP that dominated this aspect due to its focus on ‘pro-growth’ issues, it shared its leadership in this category in 2019 with VOX, JxC, and EAJ-PNV. Interestingly, driven by the specific needs of the regions they represent, CC-NC and TE have begun to excel in their use of ‘pro-aviation and maritime transport’ and ‘pro-roads’, respectively. A similar trend persists in subsequent elections, with the most notable development being the increasing use of ‘pro-fossil fuels’ content by PP and VOX.

Table 3. 2 Share of quasi-sentences delivered in party manifestos, by pro-climate policy subcategory and political party (%)

Climate Code Subcategory	UP	Unite	MP-E	PSOE	Cs	PP	VOX	CUP*	ECP*	ERC*	CDC/JxC*	EHB*	EAJ PNV*	EM/BNG*	CC-PNC/CC-NC/CC*	NA+/UPN*	PRC*	TE*	CMP*
2016																			
Pro-climate categories																			
Pro-Environment	1.7	-	-	2.6	1.4	1.1	-	-	4.4	3.1	1.8	0	3	2.5	0.4	-	-	-	5.1
Pro-Renewable Energy	2.1	-	-	1	1.8	0.5	-	-	1.2	1	1	3.6	2.6	2	3	-	-	-	3.8
Pro-lower Carbon Transport	3.2	-	-	0.3	1.2	0.7	-	-	2	1	1.9	0	1.3	1.2	0.2	-	-	-	4
Pro-energy Efficiency	0.8	-	-	0.7	0.6	1.3	-	-	0.9	0.1	0.6	0	0.4	0.5	0.4	-	-	-	3.3
Pro-Carbon Sinks	3.1	-	-	0.6	1.3	0.6	-	-	0.8	0.3	1.3	0	0.4	1	0.2	-	-	-	1.3
Planning	0.6	-	-	0.5	0.5	0.2	-	-	0.3	0	0.2	0	0.2	0.5	0.1	-	-	-	0.4
Agriculture & Food	0.5	-	-	0.3	0.2	0.7	-	-	1	0.2	0.3	0	0	1.2	0.4	-	-	-	0.9
Waste	0.5	-	-	0.4	1	0.1	-	-	1.3	0.3	0.6	0	0	0.5	0.2	-	-	-	2.1
Anti-Growth	0	-	-	0.1	0	0	-	-	0.3	0.1	0	0	0	0	-	-	-	-	0
Anti-Climate Categories																			
Pro-roads	0.4	-	-	0	0	0.1	-	-	0	0.4	0.1	0	0	0	0	-	-	-	0
Pro-aviations & Shipp	0.1	-	-	0.1	0	0.1	-	-	0	0	0.1	0	0	0	4.4	-	-	-	0
Pro-fossil fuel	0.2	-	-	0	0	0.1	-	-	0	0	0	0	0	0	0	-	-	-	0
Pro-growth	0.1	-	-	0.2	0.6	1.4	-	-	0	0	0.4	0	0.8	0	0.4	-	-	-	0
Anti-taxes	0	-	-	0	0	0.4	-	-	0	0	0.1	0	0	0	0	-	-	-	0
Pro-tourism	0	-	-	0	0.4	0.9	-	-	0	0	0.1	0	0	0	1.2	-	-	-	0.1
Pro-global free trade	0	-	-	0	0	0	-	-	0	0.1	0.4	0	0	0	0	-	-	-	0
Pro-intensive Agriculture	0	-	-	0.1	0	0.5	-	-	0	0	0	0	0	0	0.2	-	-	-	0
Anti-regulation	0	-	-	0	0	0	-	-	0	0	0	0	0	0	0	-	-	-	0
Anti-climate (other)	0	-	-	0	0	0	-	-	0	0	0	0	0	0	0	-	-	-	0

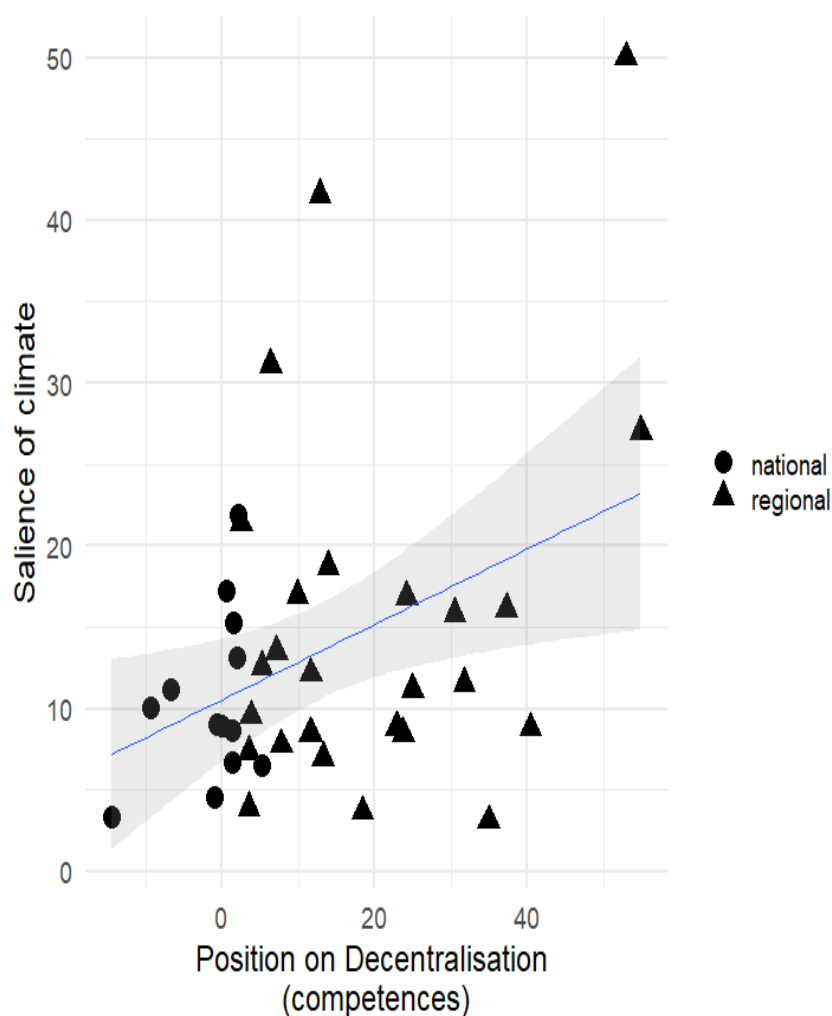
Anti-Climate Categories																			
Pro-roads	-	0	-	0.1	-	0	0.1	-	-	0	0.1	0	0	0.6	0	4.2	-	-	-
Pro-aviations & Shipp	-	0	-	0.2	-	0.1	0	-	-	0	0.3	0	0.1	0.2	3.7	0	-	-	-
Pro-fossil fuel	-	0	-	0	-	1.3	1.2	-	-	0	0	0	0	0	0	0	-	-	-
Pro-growth	-	0.1	-	0.8	-	1.3	0.4	-	-	0.1	0	0	0.6	0	0	0	-	-	-
Anti-taxes	-	0	-	0	-	0.5	1.4	-	-	0	0.4	0	0	0	0	1.1	-	-	-
Pro-tourism	-	0	-	0.3	-	0.8	0.3	-	-	0.1	0	0	0	0	0	0	-	-	-
Pro-global free trade	-	0	-	0	-	0	0	-	-	0	0	0	0	0	0	0	-	-	-
Pro-intensive Agriculture	-	0	-	0	-	0.2	1.5	-	-	0.1	0	0	0	0.2	0	1.1	-	-	-
Anti-regulation	-	0	-	0	-	0	0.6	-	-	0	0.1	0	0	0	0	0		-	-
Anti-climate (other)	-	0	-	0	-	0	2.5	-	-	0	0	0	0	0	0	0		-	-

*Non-Statewide Parties (NSWPs)

Source: Scores based on authors' own measurements (2024).

The percentages shown in Tables 3.1 and 3.2 provide initial support for hypotheses 1 and 2. While these figures highlight the increased emphasis on climate change among left-wing parties, we find notable exceptions, such as the center-right parties CDC/JxC in 2016 and 2019, as well as EAJ-PNV in 2019 and 2023. This indicates that although political ideology likely influences climate policy preferences, it is true that NSWPs—compared to most SWPs, including some left-leaning ones like the PSOE in 2016 and 2019—pay greater attention to climate issues. To confirm or reject the first hypothesis it is necessary to examine the link between decentralization and climate policy preferences (Figures 3.1, 3.2 and Table C.2 in Appendix C). The data indicate that parties exhibiting a stronger pro-decentralization stance along the center-periphery axis tend to place greater importance on climate content in their national election manifestos. Similarly, the results in both figures reveal that the NSWPs, which are the actors most in favor of decentralization, consistently exhibit the highest values regarding the importance of climate issues.

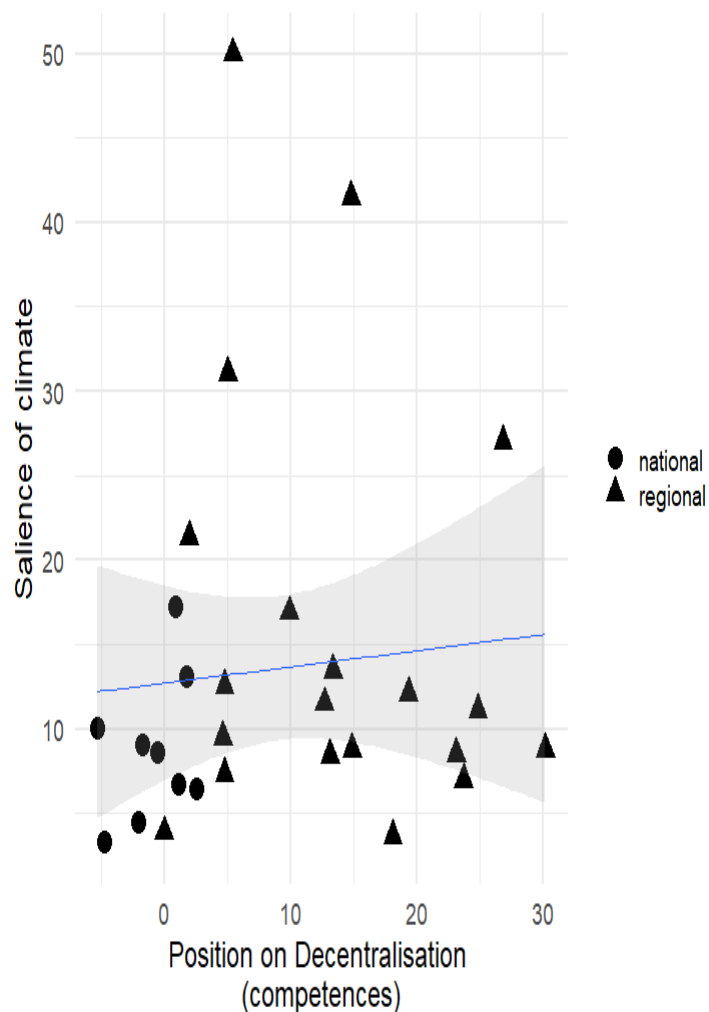
Figure 3. 1 Relationship between a party's position on decentralization and the salience of climate change in its manifesto



Source: The scores on the salience of climate are calculated from the data shown in Table 3.1. The scores on decentralization are based on Table C.1 in Appendix C.

Legend: The variable 'salience of climate' accounts for the total percentage of quasi-sentences each party manifesto dedicates to 'pro' and 'anti' climate content. 'Pro-climate' quasi-sentences refer to those that promote policies aimed at reducing GHG emissions or increasing GHG sinks, while 'anti-climate' quasi-sentences refer to those that advocate for policies leading to increased GHG emissions or reduced GHG sinks. The variable 'position on decentralization' reflects the difference between the percentage of quasi-sentences that support decentralization and those that oppose it in each party's manifesto. Parties represented by triangles belong to the Non-Statewide Party (NSWP) category, while parties represented by circles belong to the Statewide Party (SWP) category.

Figure 3. 2 Relationship between a party's position on decentralization based on MRG/CMP/MARPOR and the salience of climate change in its manifesto



Source: The scores on the salience of climate are calculated from the data shown in Table 3.1. The scores on decentralization are based on the Manifesto Data Collection (MRG/CMP/MARPOR)⁴⁶

Legend: The variable 'salience of climate' measures the percentage of quasi-sentences that each party manifesto dedicates to 'pro' and 'anti' climate content. 'Pro-climate' quasi-sentences refer to those that promote policies aimed at reducing GHG emissions or increasing GHG sinks, while 'anti-climate' quasi-sentences refer to those that advocate for policies leading to increased GHG emissions or reduced GHG sinks. The variable 'position on decentralization' reflects the difference between the 'Decentralization' and 'Centralization' variables from the MRG/CMP/MARPOR⁴⁶. Parties represented by triangles belong to the Non-Statewide party (NSWP) category, while parties represented by circles belong to the Statewide party (SWP) category.

This finding is reflected in the manifestos of notable pro-decentralization parties, which express the regions' desire to manage the resources and competences related to climate change:

*'Transfer the proceeds from the auction of emission rights to the Government of Catalonia for them to be allocated to the fight against climate change.'*⁴⁷

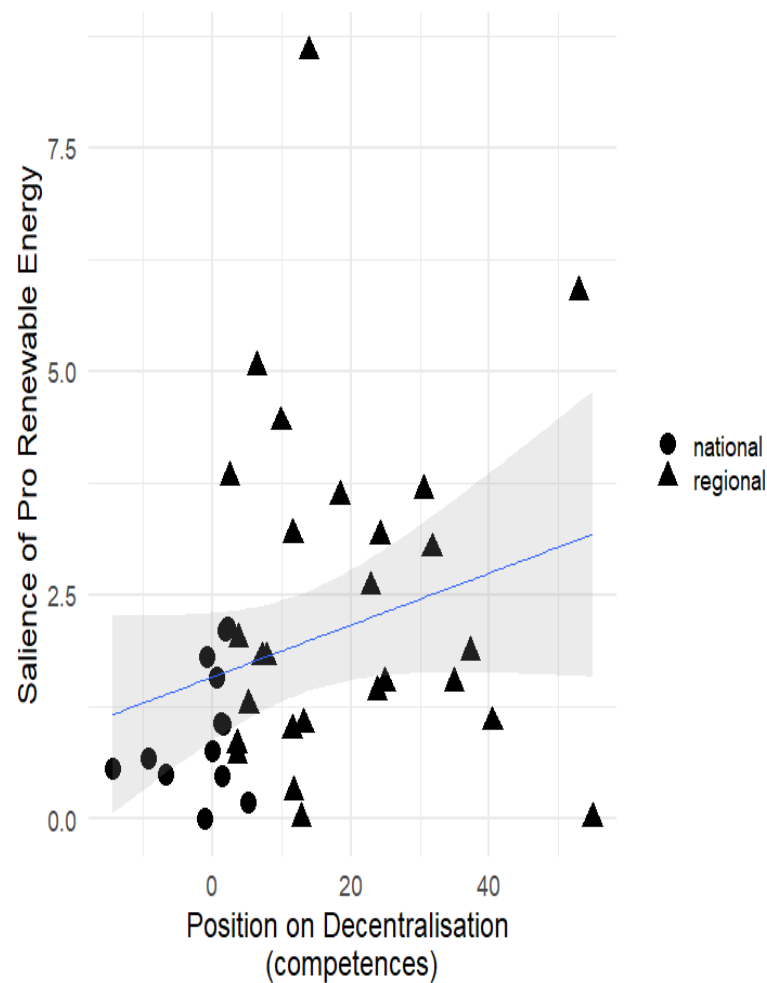
*'Demand for the resources allocated to research and the implementation of policies for mitigating and adapting to climate change to be distributed among the territories of the ACs.'*⁴⁸

*'In terms of jurisdiction, we advocate for the transfer of all environmental competencies to Galicia.'*⁴⁹

*'We will provide municipalities with the necessary resources for reducing greenhouse gas (GHG) emissions.'*⁵⁰

To test the second hypothesis, I analyze the association between the position on decentralization and the salience of 'pro-renewable energy' (Figures 3.3, 3.4 and Table C.2 in Appendix C). Especially noteworthy is the first figure, which is more comprehensive as it includes data from the 2023 elections; in particular, NSWPs like EAJ-PNV, BNG, and UPN dominated the last-mentioned category. This (more clearly) evinces the existence of a positive relationship between the two variables: Political parties that adopt a more pro-decentralization stance tend to place greater emphasis on pro-renewable energy in their national election manifestos. Again, the results in both figures reveal that the NSWPs generally exhibit the highest values concerning the importance of the RET.

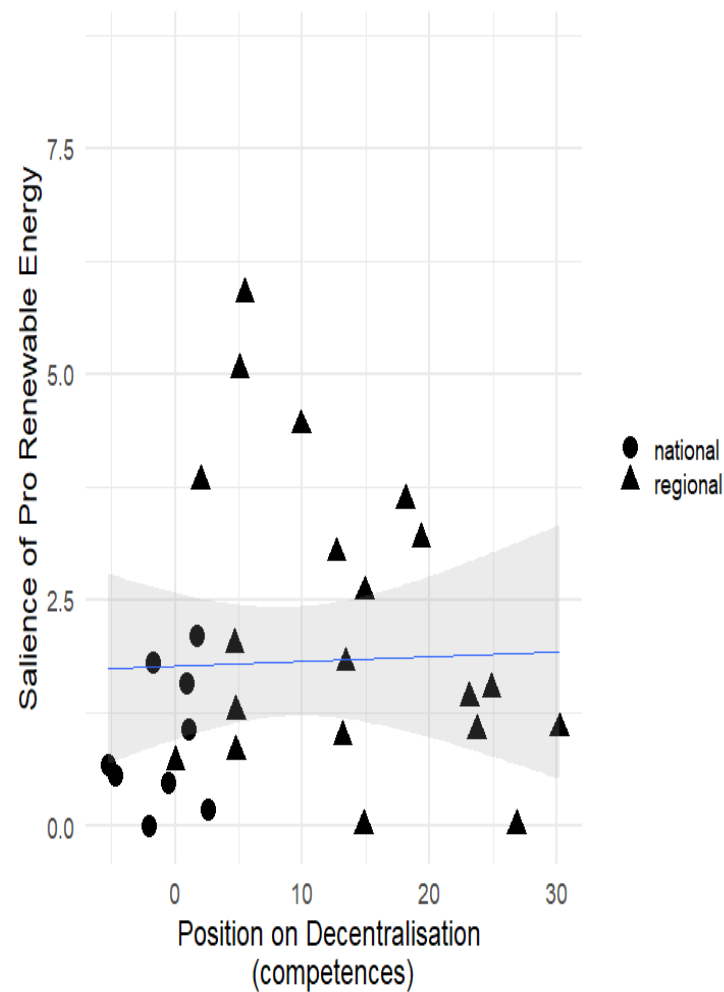
Figure 3. 3 Relationship between a party's position on decentralization and the salience of pro-renewable energy in its manifesto



Source: The scores on the salience of renewable energy are calculated from data shown in Table 3.2. The scores on decentralization are based on Table C.1 in Appendix C.

Legend: The variable 'salience of pro-renewable energy' measures the percentage of quasi-sentences that each party manifesto dedicates to advocating for the shift in the production, distribution, and consumption of electricity from conventional fossil fuel-based sources to sustainable and renewable energy sources. The variable 'position on decentralization' reflects the difference between the percentage of quasi-sentences that support decentralization and those that oppose it in each party's manifesto. Parties represented by triangles belong to the Non-Statewide party (NSWP) category, while parties represented by circles belong to the Statewide party (SWP) category.

Figure 3. 4 Relationship between a party's position on decentralization based on MRG/CMP/MARPOR and the salience of pro-renewable energy in its manifesto



Source: The scores on the salience of renewable energy are calculated from data shown in Table 3.2. The scores on decentralization are based on MRG/CMP/MARPOR⁴⁶

Legend: The variable 'salience of pro-renewable energy' measures the percentage of quasi-sentences that each party manifesto dedicates to advocating for the shift in the production, distribution, and consumption of electricity from conventional fossil fuel-based sources to sustainable and renewable energy sources. The variable 'position on decentralization' reflects the difference between the 'Decentralization' and 'Centralization' variables from the MRG/CMP/MARPOR⁴⁶. Parties represented by triangles belong to the Non-Statewide party (NSWP) category, while parties represented by circles belong to the Statewide party (SWP) category.

This aligns with the demands expressed through various quasi-sentences identified in the manifestos. In these, the NSWPs demonstrate awareness of their regions' potential for renewable energy generation and the opportunities it provides them:

*'The potential for renewable energy generation, thanks to the abundant resources (wind and sun), along with the high investor interest, should be leveraged to develop renewable installations that meet current electrical needs, future needs driven by the electrification of other types of consumption, and for the production of green hydrogen.'*⁵¹

*'The set of energy policies and climate change adaptation measures harbor significant employment opportunities and the capacity to stimulate the economy.'*⁵²

Similarly, they often emphasize the detrimental impact of the state's recentralizing and extractive role regarding this issue:

*'The actions of the central government regarding the energy sector in recent years have been characterized by a clear process of recentralizing some of the competencies granted to the ACs.'*⁵³

*'The BNG will advocate in all areas, and particularly in the Cortes, for overcoming a dependent and extractive model that has turned Galicia into a provider of raw materials and energy, with extremely high social and environmental costs.'*⁴⁹

*'The reform of the electricity sector driven by the State has negatively impacted electricity generation installations based on cogeneration, renewable energies, and waste. In Catalonia, 3866 installations have seen their premiums reduced from 732 million euros to 543 million euros, resulting in a loss of incentives amounting to 189 million euros and a reduction in remuneration of more than 25%.'*⁴⁸

Accordingly, the NSWPs consistently advocate for decentralized renewable generation:

*'It is necessary to defend our right to choose our own energy model, to contribute to the fight against the climate crisis, and to do so in a way whereby the productive role benefits the social and economic interests of Galicia while safeguarding the preservation of biodiversity.'*⁴⁹

*'In particular, the State will be urged to implement specific measures to accelerate the energy transition in the Canary Islands (considering that in isolated and insular territories such as the Canary Islands, it is more challenging to undertake the necessary changes for the new energy paradigm).'*⁵⁴

*'The energy transition towards a system where demand is predominantly met by renewable energies implies a progressive electrification of consumption and increasingly decentralized generation – one of smaller size and that is closer to consumption points.'*⁵¹

*'The energy transition towards a 100% renewable model must be based on the decentralized production and management of energy, which means that the role of local administrations—alongside citizens and the cooperative movement—is crucial in a self-production-based model.'*⁵⁰

*‘We must shift towards a decarbonized model without nuclear power plants – a decentralized one in which renewable energy is self-produced locally – to achieve the goal of zero GHG emissions by 2050.’*⁵⁵

The evidence gathered from the data confirms the two hypotheses of this study. Given the consistent positive correlations observed, it is reasonable to suggest that political parties with stronger pro-decentralization inclinations tend to prioritize climate change and the RET in Spanish national elections. The positive relationship between devolution and the advancement of climate policy and the RET supports a decentralized approach to both issues as decentralization raises the efficiency and legitimacy of climate management.

To this end, lower levels of government empowered within decentralized systems are best equipped to tailor their actions to local conditions, thereby leveraging local knowledge, skills, and resources to promote effective climate policies⁵. Such an approach also enhances the responsiveness and efficiency in addressing region-specific needs while balancing land use and environmental considerations of the RET^{14,18}. Moreover, decentralization plays a crucial legitimizing role by granting autonomy to regional entities in developing and implementing climate policies^{5,9}. It also promotes models of ‘energy democracy’, where active citizens engage in renewable energy production and consumption^{21,22}. Lastly, subnational governments can play a complementary or compensatory role in national climate action^{12,13,3}. Specifically, they can contribute to realizing the RET by decreasing their energy dependence on the central government and developing their own renewable energy strategies and policies when they possess the necessary jurisdictional capacity¹⁵.

On a different note, NSWPs may have additional, territorial motivations that partly explain the presented findings. While it would exceed this study’s scope to compare the specific roles of these parties versus Statewide parties (SWP)—some of which, in the Spanish context, sometimes adopt pronounced pro-decentralization positions due to the significance of this divide—NSWPs assert leadership in both areas. As highlighted in existing literature on Green Nationalism in regional elections⁴⁵, their leadership on climate and renewable energy issues at the central level would be motivated by a desire to challenge the institutional *status quo* of the State and enhance the autonomy of the regions they represent^{37,38,39}. Indeed, as shown by the quasi-sentences quoted above, NSWPs often invoke climate change to pursue greater economic and/or political autonomy at the substate level³.

In accordance with the above, the evidence in figures 3.3 and 3.4 shows that pro-decentralization parties are interested in acquiring higher autonomy with respect to energy-related issues. This interest would stem from the potential control that regions could wield over the growing network of renewable energy installations during the RET. In turn, the NSWPs could increase their political clout with regard to energy policy and at the same time decrease the dominant position of the state as the leading energy supplier.

This paper contributes to the theoretical development of Climate Federalism, as empirical evidence from the analysis illustrates that the underlying pro-decentralization orientations of political parties are likely to put greater emphasis on climate change and the RET, for which reason they often assume climate leadership in multilevel democracies. The findings also highlight the strategic role of subnational politics in shaping national climate agendas, reinforcing the notion of Green Nationalism as a critical framework for understanding climate leadership not only at the regional level but also at

the national one. This paper thus fills the gap between decentralization and climate policy preferences by informing academic debates on how the support of climate policy can be enhanced under multilevel governance systems through interparty competition by subnational actors seeking regional self-government.

3.3 Methods

The methodology employed in this article began with an initial qualitative analysis to assess the extent to which the issue of climate change is integrated in the structure of the electoral manifestos from the main political parties that competed in three significant Spanish general elections: June 2016, November 2019, and July 2023. For the June 2016 elections, the analysis covered the manifestos of the PP, PSOE, Cs, UP, EAJ-PNV, EHB, EM, ERC, CDC, ECP, CC-PNC, and CMP. For the November 2019 elections, the parties included were the PP, PSOE, Cs, UP, MP-E, VOX, CUP, JxC, ECP, ERC, EAJ-PNV, EHB, BNG, CC-NC, TE, PRC, NA+, CMP. For the July 2023 elections, the parties analyzed were the PP, PSOE, Unite, VOX, JxC, ECP, ERC, EAJ-PNV, EHB, BNG, CC, and UPN.

This selection of parties highlights Spain's two-dimensional national party system, characterized by prominent left-right and center-periphery cleavages. For instance, there are both SWPs and NSWPs, on the left and the right, which advocate for various degrees of regional autonomy from the Spanish State⁵⁶ (Table 3.3). The SWPs, such as the PP, PSOE, Unite, MP-E, Cs, and VOX, operate across the national territory and focus on policies for Spain as a whole. In contrast, the NSWPs, including EAJ-PNV, EHB, ERC, CDC, JxC, CUP, ECP, EM, BNG, CC-PNC, CC-NC, CC, NA+, UPN, TE, and CMP, represent specific regions and advocate for varying degrees of regional autonomy. While NSWPs often dominate the regional political landscape, either governing (e.g., EAJ-PNV) or leading the opposition (e.g., EHB), they typically play supportive roles at the national level, becoming key allies for minority governments⁵⁷⁵⁸.

Table 3. 3 Classification of NSWPs and SWPs in Spain by election (2016-2023)

	Statewide Parties	Non-Statewide Parties
June 2016	PP, PSOE, Cs, UP.	EAJ-PNV, EHB, CDC, ERC, EM, ECP, CC-PNC, CMP
November 2019	PP, PSOE, Cs, UP, MP-E, VOX.	EAJ-PNV, EHB, JxC, CUP, ERC, BNG, ECP, CC-NC, CMP, TE, PRC, NA+.
July 2023	PP, PSOE, Unite, VOX.	EAJ-PNV, EHB, JxC, ERC, BNG, CC, UPN.

Source: Own elaboration (2024).

Following the qualitative stage, I conducted a quantitative analysis using quasi-sentences as the unit of observation, in line with the method described by Schmitt and Wüst⁵⁹. This approach resulted in a hand-coded database containing a total of 49,816 quasi-sentences. This second phase of the study adopted a climate policy focus, in line with Carter et al.'s⁶⁰ meticulous conceptualization and operationalization of this concept (see Codebook A.1 in Appendix A). This approach addressed shortcomings in previous measurements, which predominantly concentrated on environmental protection (e.g., the Comparative Agendas Project or the Comparative Manifestos Project), by employing four categorical variables. One variable quantified the percentage of quasi-sentences in each political party's manifesto, categorizing them as 'pro-climate', 'anti-climate', 'neutral', or 'not sufficiently relevant' concerning net GHG emissions. 'Pro-climate' content advocated policies aimed at reducing GHG emissions or increasing GHG sinks, while 'anti-climate' content supported policies leading to increased GHG emissions or reduced GHG sinks. 'Neutral' content pertained to net GHG emissions and implied that emissions would remain unchanged. Content classed as 'not sufficiently relevant' lacked substantial relevance to net GHG emissions and thus did not fall into any of the other categories.

Subsequently, I devised another variable to offer additional insights into the 'pro' and 'anti' climate categories and to systematically diversify the content of the measures. This variable divided the 'pro-climate' category from the initial variable into more detailed subcategories: 'Pro-environment', 'Pro-climate policy', 'Pro-renewable energy', 'Pro-lower carbon transport', 'Pro-energy efficiency', 'Pro-carbon sinks', 'Planning', 'Agriculture and food', 'Waste', and 'Anti-growth'. Similarly, the 'anti-climate' quasi-sentences were encoded into additional fine-grained subcategories: 'Pro-roads', 'Pro-aviation and shipping', 'Pro-fossil fuel', 'Anti-environment', 'Anti-climate (other)', 'Pro-growth', 'Anti-environmental taxes', 'Pro-tourism', 'Pro-global free trade', 'Pro-intensive agriculture', and 'Anti-regulation'. Later, the proportions explained by the first variable were used as the dependent variable in a salience estimation that factored in the sum of 'pro-climate' and 'anti-climate' content per political party's manifesto. To gauge the content dedicated to the RET, this research focused on the 'pro-climate' subcategory 'pro-renewable energy'. It includes the percentage of quasi-sentences over the total of each party manifesto that speaks in favor of shifting the production, distribution, and consumption of electricity from conventional, fossil-fuel-based sources to sustainable and renewable energy sources. This category hence encompasses the content related to the electricity subsector within the energy transition.

When examining the independent variable, I analyzed center-periphery preferences using two distinct positional measures. Given that the main databases lacked approaches addressing this cleavage for the parties that competed in the 2023 Spanish general elections, I constructed the first measure by calculating the difference between the hand-coded quasi-sentences for and against decentralization in each party's manifesto. These measures were respectively inspired by the content captured by the 'Decentralization' and 'Centralization' variables from the MRG/CMP/MARPOR⁴⁶. The first of these variables captures the proportion of quasi-sentences advocating for federalism or the decentralization of political and/or economic power, while the second focuses on the proportion of quasi-sentences that oppose political decision-making at lower political levels, support a unitary government, or advocate for greater centralization in political and administrative processes. Additionally, despite only having data for the parties that competed in the June 2016 and November 2019 elections, I introduced a supplementary positional measure. This was based on the difference between the 'Decentralization' and 'Centralization' variables from the MRG/CMP/MARPOR⁴⁶, providing a contrasting

perspective. Finally, I included a variable to differentiate between SWPs and NSWPs, a distinction consistently represented in all graphs throughout the results section.

After obtaining all the measurements, the scores for each party were plotted and the correlation between the variables of interest analyzed descriptively. In the final phase of the analysis, I excluded the political party MP-E due to its unusually high values in climate salience, which deviate significantly from the overall data pattern and complicate the interpretation of the descriptive results and any underlying patterns. I also incorporated key quasi-sentences – identified through a qualitative analysis of the manifestos – to uncover deeper insights.

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4 Comparing Regional and National Climate Policy Preferences: An Analysis of Political Parties in the Basque Country and Catalonia

Research article^{*17}

Abstract

Recent research has uncovered positive connections between parties' center-periphery and climate policy preferences when they compete in regional elections, with pro-periphery parties using climate concerns to bolster their territorial claims. However, the particular significance of climate change at the regional level, due to its more direct impacts in this arena, raises questions about the extent to which these parties replicate similar behaviors in national elections. To address this gap, this article analyzes the manifestos of parties that secured representation during the 2016 and 2019 Spanish general elections, as well as in the regional elections held during overlapping periods in Catalonia (2017 and 2021) and the Basque Country (2016 and 2020). The empirical findings reveal that parties with stronger pro-decentralization and pro-independence stances allocate more content to climate change and adopt more favorable positions on this issue in their regional manifestos compared to their national counterparts.

Keywords: Climate Policy, Center-Periphery, Green Nationalism, Climate Federalism, Multilevel Governance.

4.1 Introduction

Though climate change is a global concern, its impacts are highly variable and often manifest at the subnational level (Alberton et al. 2022). Consequently, climate issues are becoming more prominent and politically significant at regional tiers of government. This is evident from the growing connections between the impacts of climate change and citizens' support for climate policies at this level (Baccini and Leemann 2021; Hazlett and Mildenberger 2020; Hoffmann et al. 2022; Lujala et al. 2015), as well as the increasing responsibilities of regional governments in addressing these matters (Galarraga et al. 2011; Tosun and Lang 2016; Jordaan et al. 2019; Vogel 2020; Berke et al. 2014; Cocciolo 2020).

This territorialization of climate change particularly drives pro-periphery parties, such as Non-Statewide Parties (NSWPs), to focus on climate issues within regions of multilevel democracies like Spain (Conversi and Hau 2021; Hau 2022; Kerr 2023). These parties have utilized climate concerns to underscore their demands for greater

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decentralization (McEwen and Bomberg 2014; Alonso et al. 2017) and, in some cases, to enhance recognition as independent states (Enguer and Navarrete 2023; McEwen and Bomberg 2014). Furthermore, the positive association between devolution and effective climate policy indicates that commitment to climate change aligns better with the potential proposals of parties advocating for the transfer of power from central to regional levels (Fenna et al. 2023; Alberton and Cocciolo 2023).

However, we still know little about how these parties replicate a similar behavior at the national level. In this regard, the literature suggests that the increasing territorialization of climate change incentivizes parties to prioritize this topic in their subnational agendas, particularly in regions like the Basque Country or Catalonia, where regionalist inclinations lead voters to prioritize level-specific issues over national concerns (Liñeira 2016; Johns 2011; Schakel and Romanova 2023). This would result into the development of more comprehensive and detailed climate programs during regional elections, allowing pro-periphery actors to more frequently integrate their demands for decentralization and secession into these agendas than in their national counterparts.

In view of these considerations, this article analyzes the association between the center-periphery divide and climate policy preferences beyond the exclusively subnational context, and to illuminate how this relationship differs between the regional and national levels. To do so, we apply an innovative climate policy coding scheme (Carter et al. 2018) to the manifestos of those parties that secured representation during the June 2016 and November 2019 Spanish national elections, as well as in the regional elections held during the overlapping periods in Catalonia (December 2017 and February 2021) and/or the Basque Country (September 2016 and July 2020). The article begins by clarifying the current understanding of political parties' climate preferences at the intersection of climate policy and the center-periphery divide. It then provides relevant background information on the two case regions before outlining the employed methodology. The following section discusses the findings, and the article concludes with a summary of the insights gained from this research.

4.2 Climate Policy and the Center-Periphery Divide in Multilevel Democracies

Climate change, while a global issue, is felt most acutely at local and regional levels (Vogel et al. 2020; Baker et al. 2012). In the light of this, climate issues are gaining increased prominence and political significance at these tiers of government (Enguer and Navarrete 2023). Thus, for example, research indicates that personal experiences with climate-related damage often lead individuals to perceive regional hazards as more severe compared to national or global threats (Lujala et al. 2015). Likewise, residents in areas affected by climate extremes are more likely to support climate policies (Baccini and Leemann 2021; Hazlett and Mildemberger 2020), display greater environmental awareness, and vote more frequently for Green Parties (Hoffmann et al. 2022).

In this context, regional governments have been increasingly committed to these matters in response to a latent demand for adequate preparation for climate-related impacts, such as natural disasters (Valenzuela 2014). Thus, they have progressively taken on a pivotal role in climate change adaptation and mitigation (Bernstein and Hoffmann 2018; Jörgensen et al. 2015), gaining growing competencies across various climate-

related sectors, including environmental regulation, transportation, energy management, fiscal measures, industrial strategies, urban planning, and research and education (Galarraga et al. 2011; Tosun and Lang 2016).

In exercising these competencies, regions have notably contributed to reducing greenhouse gas (GHG) emissions (Bulkeley 2011), even extending their influence beyond their own tier of government. This is evident in their interactions with municipal administrations, where they leverage climate adaptation planning (Vogel 2020) and encourage the adoption of more frequent and higher quality local plans for climate hazard mitigation (Berke et al. 2014; Berke 1996). Additionally, regions take the lead and provide compensation in instances of poor coordination (Galarraga et al. 2011) or inaction by the central government (Cocciolo 2020), while are increasingly recognized within the evolving framework of international climate policy over the past decade (Dröge 2016; Galarraga 2017).

This territorialization of climate change, particularly motivate pro-periphery parties, such as NSWPs, to emphasize on climate issues (Hopkin and Barbera 2009; Navarrete 2020; Hooghe and Marks 2010). One mechanism driving this process stems from the arguments in the Climate Federalism literature, which suggest that devolved political systems are more effective at advancing climate initiatives (Fenna et al. 2023; Alberton and Cocciolo 2023). Notably, the idea that multiple tiers of government can experiment with new solutions increases the likelihood of discovering successful policy ideas and instruments, which can then be shared among governments and serve as catalysts for improved national policies (Jørgensen et al. 2015). Additionally, the concept of 'compensatory federalism' underscores the potential for constituent units to implement their own climate action programs, even in the face of stagnation at the central government level (Rabe 2011; Derthick 2010).

Other studies have emphasized the advantages of decentralized entities having a better understanding of local particularities, enabling them to design climate solutions tailored to their specific conditions (Alberton and Cocciolo 2023). Likewise, decentralized policymaking also garners better acceptance and legitimacy by involving citizens more directly (Alberton and Cocciolo 2023; Millimet 2013). In this manner, given the benefits that decentralization offers for climate policy, supporting enhancements in climate performance—such as those provided by a decentralized approach—aligns more closely with the preferences of parties advocating for the transfer of decision-making, resources, and responsibilities from the central to the regional level.

A second mechanism relates with the rise of a new form of nationalism in territorial politics, known as Green Nationalism, which emphasizes sustainability (Conversi 2020; 2022; Conversi and Hau 2021). Along these lines, recent studies of political parties in subnational settings have demonstrated that nationalist parties in regions like the Basque Country and Catalonia strategically incorporate climate change concerns into their claims, narratives, and frameworks as essential components of their nationalist agendas (Hau 2022; Kerr 2023). Furthermore, recent empirical evidence from the 2017 and 2021 regional elections in Catalonia indicates that parties emphasizing decentralization and adopting a pro-periphery stance are more likely to prioritize climate policy (Enguer and Navarrete 2023). This approach allows them to assert the political significance of the sub-state level while seeking greater economic and political autonomy (McEwen and Bomberg 2014; Alonso et al. 2017).

Additional findings within the same literature have also indicated that parties emphasizing separatism in their regional manifestos tend to allocate a larger portion of

their text to climate issues (Enguer and Navarrete 2023). This inclination is consistent with findings that sub-state governments engage in international activities to gain greater recognition in the diplomatic arena (Cornago 2010). Accordingly, parties seeking state independence, such as the Scottish National Party, might use climate ambition to engage in 'paradiplomacy', thereby asserting their national autonomy and enhancing their international image as 'nation-states-in-waiting' (McEwen and Bomberg 2014; Cornago 2010).

Nevertheless, the localized nature of the evidence-based results presented in subnational contexts raises questions about how this behavior translates to other levels of government, such as the national one. These considerations primarily arise from the impact that the growing territorialization of climate change has, especially in regions with a significant number of voters with regionalist preferences (Cabeza 2018; Debus and Müller 2013). These voters, who are more engaged with and knowledgeable about regional politics, tend to prioritize subnational issues over national concerns when casting their votes (Liñeira 2016; Johns 2011; Schakel and Romanova 2023). Consequently, the incorporation of climate change as a region-specific issue becomes significantly important to the electorate in this context, prompting political parties to craft electoral strategies that deviate from national narratives and are more focused on this critical topic at the regional level.

This dynamic can be further intensified by institutional factors that reduce the regional levels' dependence on the national one, such as the degree of decentralization (Amat et al. 2020; León 2014). Regional leaders in more decentralized states face fewer opportunity costs when deviating from central party strategies due to their increased autonomy (Maddens and Libbrecht 2009) and the opportunity and attractiveness of advancing their political careers within the region (Cordero and Coller 2014). Additionally, the enhanced financial and decision-making authority of regional governments in devolved institutional settings incentive leaders to develop policy programs tailored to the specific needs of their regional electorates (Mazzoleni 2009).

Moreover, contextual factors related to the competition from strong NSWPs in regional elections also play a crucial role. These parties typically demand attention (Hopkin and Barbera 2009; Navarrete 2020) and offer policy alternatives tailored to regional interests (Hooghe and Marks 2010), compelling Statewide parties (SWP) to address these demands and focus on regional priorities in electoral competition (Meguid 2015). On a different note, the literature also indicates that holding several (or all) regional elections simultaneously within a state amplifies their dependence on the national tier by giving them collective nationwide reach and resonance (Schakel and Jeffery 2013).

Therefore, the influence of these factors would foster the widespread development of more extensive and detailed climate change agendas during regional elections, throughout which pro-periphery parties could more frequently integrate their territorial claims. In this context, we might observe potential differences between how these parties link their climate and pro-periphery propositions at the regional versus the national level. These dissimilarities would be particularly plausible in the connection between secessionism and climate change, given the still limited empirical findings in this area within territorial politics scholarship as well as the absence of supportive arguments linking the two notions within multilevel governance literature. Indeed, it is suggested that the political prioritization of secessionism at the national level, due to its potential impact in this arena (Greene and McMillan 2020; López and Sanjaume-Calvet 2020), may not only lack connections to climate change but could even overshadow it within parties' agendas.

Based on the reviewed research, it is initially suggested that parties' pro-decentralization and pro-independence inclinations are generally favorably associated with their pro-climate preferences. To examine the suggested expectation, this article presents four initial hypothesis that also allow to explore potential tensions between climate policy salience and stances:

H1a: Parties with stronger pro-decentralization stances increase the salience of climate change in their manifestos.

H1b: Parties with stronger pro-decentralization stances feature more pro-climate positions in their manifestos.

H2a: Parties with stronger pro-independence positions elevate the prominence of climate change in their manifestos.

H2b: Parties with stronger pro-independence positions adopt more pro-climate change stances in their manifestos.

Similarly, the assessed literature suggests that there are incentives for political parties to prioritize climate policies, especially in regional elections. Consequently, given the expectation that the correlation between parties' center-periphery and climate policy preferences will be more positive in regional elections than in national ones, this research aims to make its most unique and substantial contribution to the literature by proposing that:

H3a: The association of pro-decentralization positions with the salience of climate change in party manifestos is more positive in regional elections than in national elections.

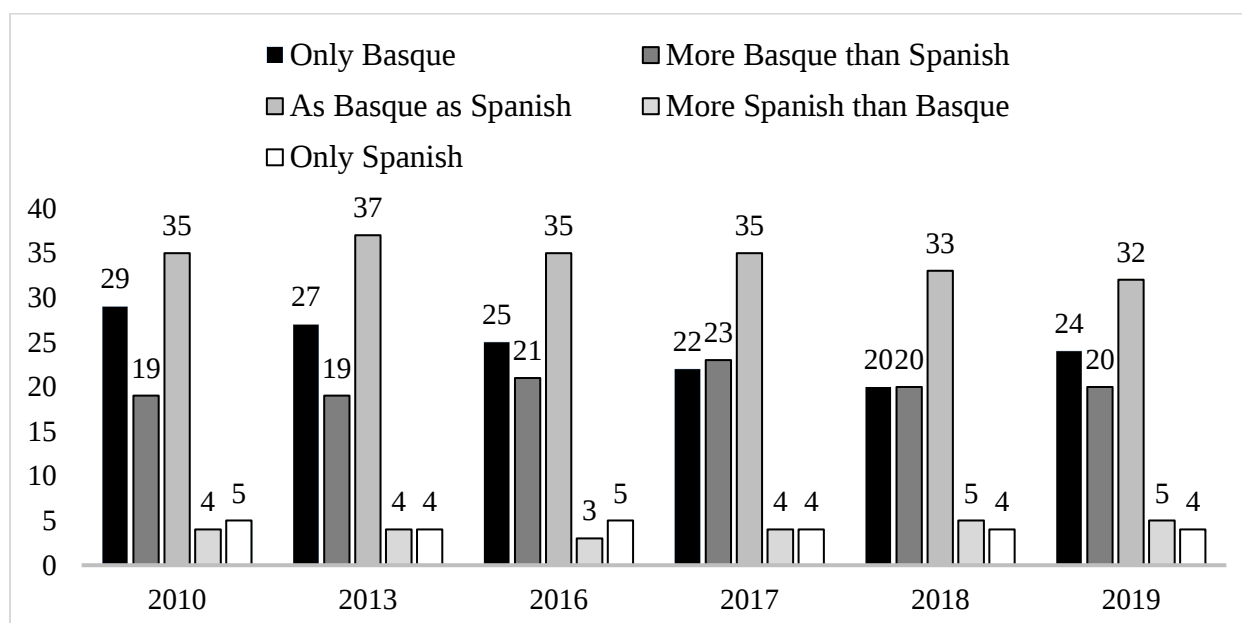
H3b: The relationship of pro-decentralization positions with stances on climate change in party manifestos is more positive in regional elections than in national elections.

H4a: The link between pro-independence positions and the prominence of climate change in party manifestos is more positive in regional elections compared to national elections.

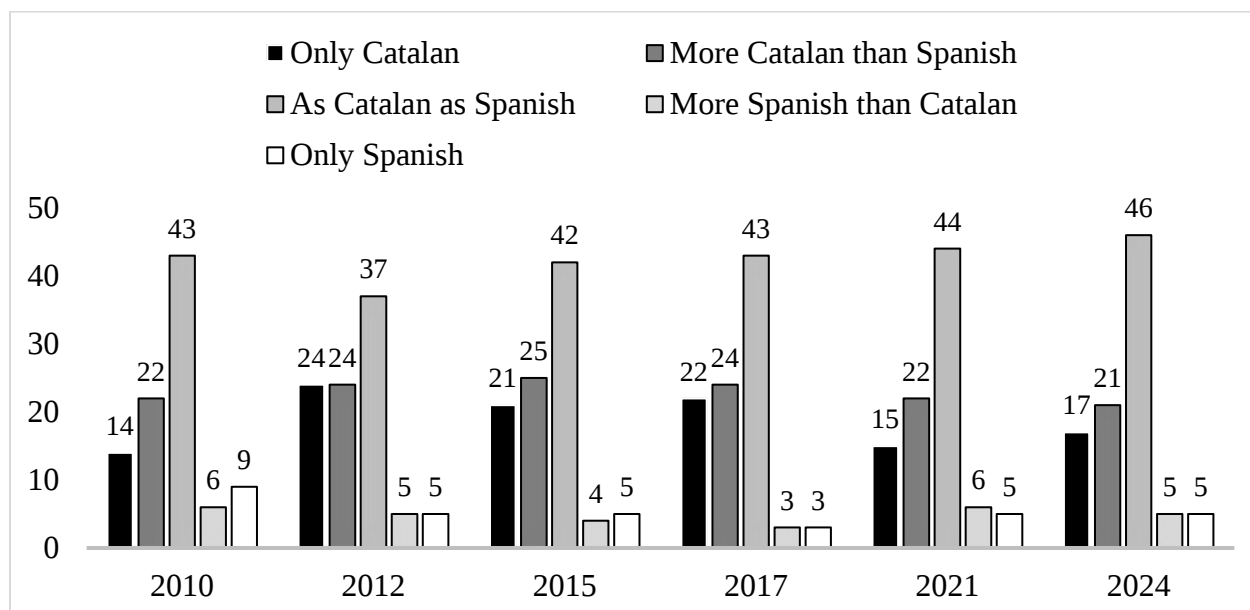
H4b: The relationship between pro-independence stances and positions on climate change in party manifestos is more positive in regional elections compared to national elections.

4.3 Case Selection

Spain is one of the most diverse societies in Europe, and its multinational character has traditionally been a topic of debate within some of its communities (Vieytez 2019). This is particularly the case of the Basque Country and Catalonia, where, despite several years of democracy and free elections, strong regionalist identities still persist (Molina and Quiroga 2017). Accordingly, although dual identities are prevalent, recent studies indicate relatively stable numbers of people who identify as 'only Basque/Catalan' or 'more Basque/Catalan than Spanish' in both Autonomous Communities (AC) over the last decades (Figures 4.1 and 4.2).

Figure 4. 1 National Identification in the Basque Country 2010–2024 (percent)

Source: Figures based on the Basque Sociometer 83 from the Basque Government. Note: <Percentages of the total sample of the interviewed population that identifies with each of the proposed options. The sample, targeting a population aged 18 and over, was distributed as follows: 730 people in Araba, 1315 in Bizkaia, and 985 in Gipuzkoa, which totals 3030 people interviewed in the Basque Country. Data was collected between March 15 and 20, 2024.> Figures have been rounded to nearest full percentage.

Figure 4. 2 National Identification in Catalonia 2010–2024 (percent)

Source: Figures based on the Study 3453: ‘Pre-election in Catalonia. Regional Elections 2024’ from the Center for Sociological Research. Note: <Percentages of the total sample of the interviewed population that identifies with each of the proposed options. The sample, targeting a population aged 18 and over, was distributed as follows: 4141 interviews in Barcelona, 1861 interviews in Gerona, 1906 interviews in Tarragona, and 1997 interviews in Lleida, which totals 8905 people interviewed in Catalonia. Data was collected between April 11 and 22, 2024> Figures have been rounded to nearest full percentage.

These identity preferences had one of their most immediate expressions following the return of democracy to Spain, in the design of a decentralized institutional infrastructure that recognized both regions among the group of so-called ‘historical nationalities’ (Hamann 1999). In this way, despite some formal asymmetries between Catalonia and the Basque Country, the so-called ‘State of the Autonomies’ has provided a generous common framework for both ACs (Liñeira and Cetrà 2015; Gunther et al. 2004). One of the key features of this regime is the shared competency over environmental matters, which not only empowers the State to enact ‘basic’ legislation in this domain but also acknowledges the role of the ACs in ‘completing or reinforcing the protection levels established in the basic legislation’ (Mora Ruiz 2023; Reid and Ruiz-Rico 2003).

Likewise, the politics of both regions are similarly structured along the left-right and center-periphery cleavages, with NSWPs playing a dominant role (Barrio et al. 2018; Leonisio 2012). In the Basque Country, the government has been almost uninterruptedly linked to the center-right NSWP known as Basque Nationalist Party (EAJ-PNV) (Leonisio 2012), which has been facing outstanding competition from the left-wing NSWP called Unite the Basque Country (EHB) since its creation in 2011 (Petithomme 2020). In Catalonia, the center-right NSWP Convergence and Union (CiU) traditionally

led the self-government institutions (Liñeira and Cetrà 2015). The evolution of its pro-independence faction, which after the split of CiU was represented by the Democratic Convergence of Catalonia (CDC) in 2015 and subsequently by Together for Catalonia (JxC) in 2017, has shared the main leadership of the AC with the leftist NSWP known as Republican Left of Catalonia (ERC) (Barrio et al. 2018; Martí-Danés and Anton-Merino 2023). Likewise, other far-left NSWPs, such as the Candidacy of Popular Unity (CUP) established in 2011 and In Common We Can (ECP) formed in 2015, have more recently achieved significant representation in the Catalan Parliament (Rodríguez-Teruel et al. 2016).

The advancing devolution processes have enabled the Spanish ACs to assume several climate-related competences, some of which are crucial for reducing the impacts associated with climate hazards (e.g., coastal planning, urban planning, ports, discharges into the sea, and others) (Olcina 2009; Losada et al. 2019). In interaction with the prominent role of NSWPs in Catalonia and the Basque Country, this has allowed their successive governments to address evolving public concerns related to climate change. These concerns include issues such as beach area reduction (Bombana et al. 2023) and water restrictions (Bombana et al. 2023; Torres-Bagur et al. 2019) in Catalonia, as well as water regulation, flood protection (Martínez-Juárez et al. 2019), or waste collection systems (Gainza and Montes-Nebreda 2023) in the Basque Country. As a result, this trajectory has positioned both of them as some of the most active subnational regions regarding climate matters on both the national and international stages (Happaerts et al. 2012; Olazábal et al. 2011).

4.4 Data and Methods

This article analyzed the election manifestos of the political parties that gained representation in the Spanish parliament following the national elections of June 2016¹⁸ and November 2019¹⁹ as well as in the regional elections held during the overlapping periods in Catalonia (December 2017²⁰ and February 2021²¹) and in the Basque Country (September 2016²² and July 2020²³). The coding unit in a given manifesto is the ‘quasi-sentence’, defined as the verbal expression of one political idea or issue (Schmitt and Wüst 2012). Likewise, the quantity of content allocated to a particular topic was employed as a measure of salience, indicating the importance of this issue for political

¹⁸ Spanish Socialist Workers’ Party (PSOE), Peoples’ Party (PP), Together We Can (UP), Democratic Convergence of Catalonia (CDC), Citizens (Cs), Republican Left of Catalonia (ERC), In Common We Can (ECP), Basque Nationalist Party (EAJ-PNV), and Unite the Basque Country (EHB).

¹⁹ Spanish Socialist Workers’ Party (PSOE), Peoples’ Party (PP), VOX, In Common We Can (ECP), Together for Catalonia (JxC), Republican Left of Catalonia (ERC), Citizens (Cs), Popular Unity Candidacy (CUP), Together We Can (UP), Unite the Basque Country (EHB) and the Basque Nationalist Party (EAJ-PNV).

²⁰ Socialists’ Party of Catalonia (PSC), Peoples’ Party (PP), In Common We Can (ECP), Together for Catalonia (JxC), Republican Left of Catalonia (ERC), Citizens (Cs), and Popular Unity Candidacy (CUP).

²¹ Socialists’ Party of Catalonia (PSC), Peoples’ Party (PP), VOX, In Common We Can (ECP), Together for Catalonia (JxC), Republican Left of Catalonia (ERC), Citizens (Cs), and Popular Unity Candidacy (CUP).

²² Socialists’ Party of Euskadi – Basque Left (PSE-EE), People’s Party (PP), Together We Can – United Left-Greens (EP-EB), Unite the Basque Country (EHB), and the Basque Nationalist Party (EAJ-PNV).

²³ Socialists’ Party of Euskadi – Basque Left (PSE-EE), People’s Party - Citizens (PP-Cs), VOX, Together We Can – United Left-Greens (EP-EB), Unite the Basque Country (EHB), and the Basque Nationalist Party (EAJ-PNV).

parties. Meanwhile, the contrast in the number of quasi-sentences assigned to two opposing stances regarding a topic was utilized as a positional indicator, reflecting the positioning of parties within it. The initial hand-coded database resulting from this process had a total of 25413 quasi-sentences.

The methodology focused on climate policy, following Carter et al.'s (2018) precise conceptualization and operationalization, addressing issues with previous measurements that primarily emphasized environmental protection (e.g., Comparative Agendas Project or Comparative Manifestos Project) (see Codebook A.1 in Appendix A). It used four categorical variables to classify the percentage of quasi-sentences in each political party's manifesto as 'pro-climate', 'anti-climate', 'neutral', or 'not sufficiently relevant' regarding net GHG emissions. 'Pro-climate' content supports reducing GHG emissions or increasing GHG sinks, while 'anti-climate' content supports increasing GHG emissions or reducing GHG sinks. 'Neutral' content implies emissions remain at current levels, and 'not sufficiently relevant' content doesn't pertain enough to net GHG emissions to be coded in the other categories. These proportions were later used as the dependent variable in both a salience estimation, which considered the sum of 'pro-climate' and 'anti-climate' content per political party's manifesto, and a positional estimation, which considered the difference between 'pro-climate' and 'anti-climate' content per manifesto.

After explaining how the dependent variable was measured, the article now focuses on describing the operationalization of the independent ones. Given the lack of a unified database that analyzes manifestos of political parties competing in national and regional elections, parties' decentralization positions were initially calculated from the difference between hand-coded quasi-sentences that favored and those that opposed decentralization in each party's manifesto. These measures were respectively inspired by the content captured by the 'Decentralization' and 'Centralization' variables from the Manifesto Data Collection (MRG/CMP/MARPOR) (Lehmann et al. 2024).

As a supplementary measure of contrast, decentralization inclinations were also gauged through a variable that combines the differences between the values of the variables 'Periphery_competences'²⁴ and 'Centre_competences'²⁵ attributed by the Regional Manifestos Project (RMP) database (Gómez et al. 2022; Alonso et al. 2013) to regional election manifestos, and the differences between the values of 'Decentralization'²⁶ and 'Centralization'²⁷ that the MRG/CMP/MARPOR attributes to national election manifestos. This combination is accurate considering that the approach of the RMP builds on the methodology originally developed by the MRG/CMP/MARPOR, and accordingly, the content captured by the two variables of the former essentially corresponds to that contained in the two variables of the latter respectively.

²⁴ Share of quasi-sentences dedicated to demands for more competences at the regional level to implement policies related to the regional national construction process, use of competences in the hands of the regional government to implement national construction policies at this level, and generally in favor of decentralization at the regional level.

²⁵ Share of quasi-sentences dedicated to demands for more authority or competences for the state to implement state-level national construction policies, use of competences available to the central government to implement state-level national construction policies, and generally against territorial decentralization, or in favor of centralization.

²⁶ Share of quasi-sentences allocated to demands for support for federalism or decentralization of political and/or economic power.

²⁷ Share of quasi-sentences allocated to opposition to political decision-making at lower political levels, support for unitary government, and for more centralization in political and administrative procedures.

Finally, a last positional variable was produced to measure the difference between the share of quasi-sentences over the total of each party manifesto devoted exclusively to pro-independence content and the share of quasi-sentences over the total of each party manifesto allocated against it (Elias et al. 2015).

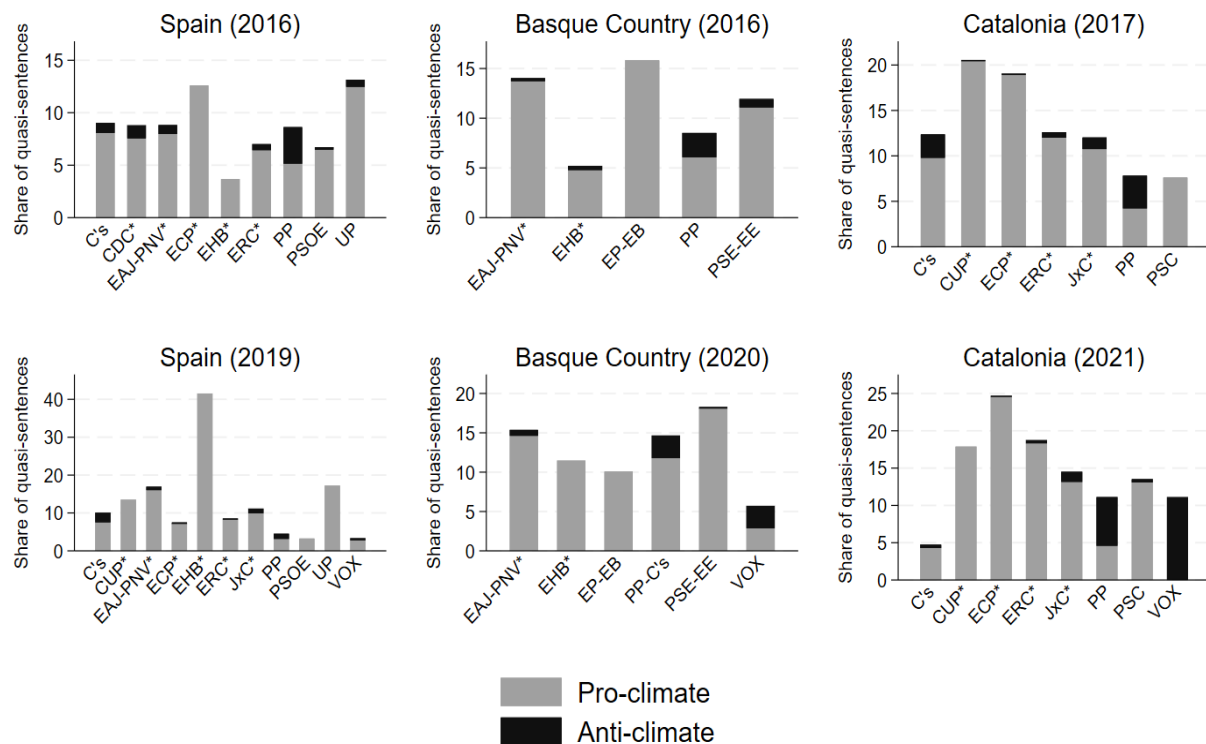
Once all measurements were collected, the scores for each party were plotted and the correlation between the variables of interest descriptively analyzed. Likewise, the entire analysis involved a transversal qualitative study of key quasi-sentences and structural characteristics of election manifestos, as well as cross-level differences in the role that parties play in promoting climate-related laws.

4.5 Results

To analyze parties' climate policy preferences, Figure 4.3 (and Table D.1 in Appendix D) initially presents the percentage of content related to the 'pro' and 'anti' climate categories within the 'climate code' variable for each political party. In the first electoral cycle, which includes elections that took place earlier (Spain 2016, Basque Country 2016, and Catalonia 2017), we can already observe a notable dominance of 'pro-climate' content among NSWPs, as reflected in the ECP figures at the national level, EAJ-PNV in the Basque Country, and both CUP and ECP in Catalonia. Although this trend is not yet fully defined during this period due to the strong leadership of a SWP like Together We Can (UP) in the Spanish elections and the outstanding performance of Together We Can – United Left-Greens (EP-EB) in the Basque Country, it becomes more pronounced in the subsequent electoral cycle (Spain 2019, Basque Country 2020, and Catalonia 2021). In this phase, EHB emerges as the leader at the national level, while ECP takes the lead in Catalonia, followed by CUP and ERC, with the exception of EAJ-PNV's shared prominence with the Socialists' Party of Euskadi – Basque Left (PSE-EE) in the Basque Country.

Interestingly, in terms of 'anti-climate' content, we observe a general increase in these percentages during the second electoral cycle, primarily driven by the emergence of VOX, particularly in the 2020 Basque and 2021 Catalan elections. Consequently, this party positions itself as a key player in this domain, alongside the already established leadership of People's Party and Citizens.

Figure 4. 3 Share of quasi-sentences Delivered in Party Manifestos, by Climate Code and Political Party (percent)



*Non-Statewide Parties (NSWPs)

Source: Scores based on data shown in Table D.1 in the Appendix D.

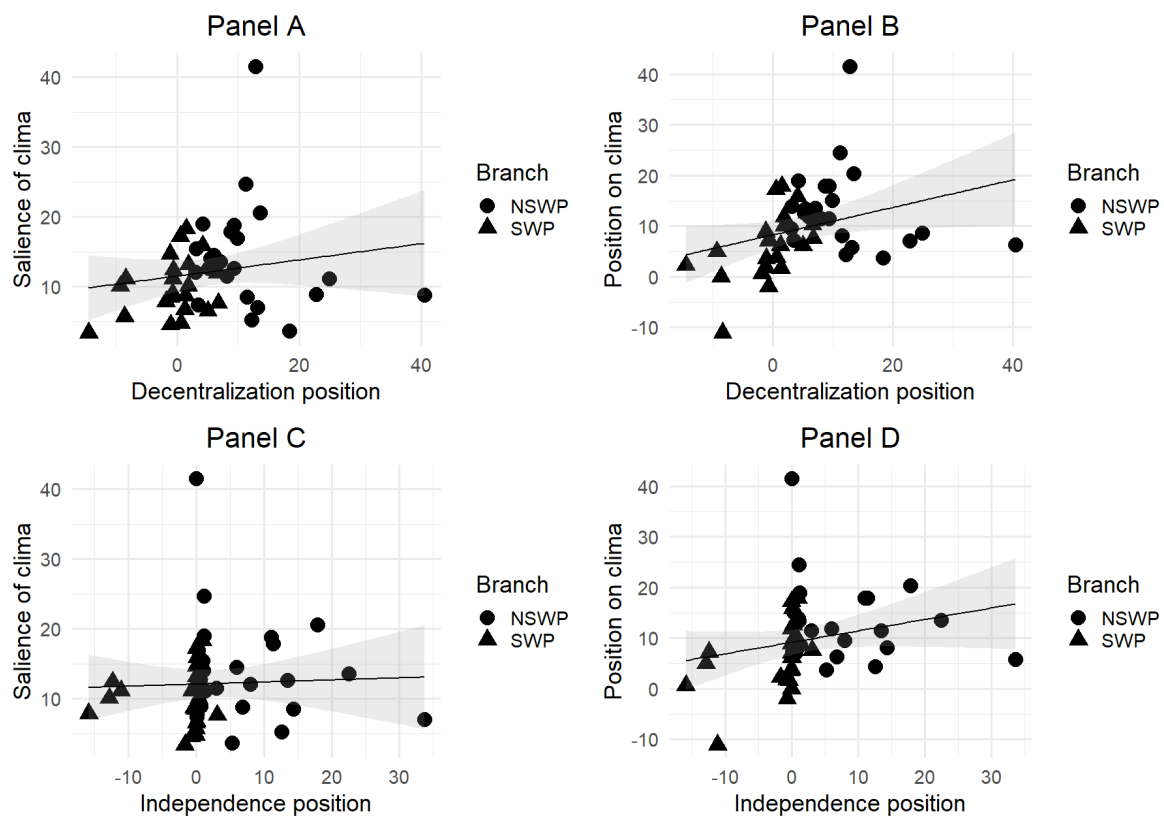
Based on the percentages shown in Figure 4.3, it can be inferred that 'pro-climate' content is generally more prominent in the manifestos of parties with pro-peripheral orientations, while 'anti-climate' content is more prevalent among those with pro-central tendencies. To draw more definitive conclusions regarding the implications of these shares for the initial hypotheses of this study, we first examine the association between positions on decentralization and both the salience and stance on climate change. Next, the relationship between parties' positions on independence and the same dependent variables mentioned earlier is analyzed.

The results illustrated indicate that as parties adopt more pro-decentralization positions, their salience and positions on climate change tend to be more positive (Panels A and B of Figure 4.4, Panels A and B of Figure D.1 in the Appendix D, and Table D.4 in Appendix D). Similarly, they show that the more pro-independence parties are in their manifestos, the more content they allocate to climate issues (Panel C of Figure 4.4 and Table D.4 in Appendix D) and the more favorable positions they adopt regarding climate change (Panel D of Figure 4.4 and Table D.4 in Appendix D). More specifically, the overall positioning of NSWPs in the Figures indicates that they emphasize climate issues

more and adopt increasingly pro-climate positions as their pro-decentralization and pro-independence views intensify.

These findings also reveal that the independent variables have a stronger relationship with the stance measures than with the salience ones of the dependent variables. This suggests that while the prominence of climate change is a widely shared concern, the specific positions on climate change are more closely tied to the political agendas of these parties concerning decentralization and independence.

Figure 4. 4 Relationships Between Political Positioning on Decentralization and Independence and Climate Policy Salience and Position



Source: Scores on decentralization taken from data shown in Table C.2 in the Appendix D. Scores on independence taken from data shown in Table D.3 in the Appendix D. Scores on climate salience and position calculated from data shown in Table D.1 in the Appendix D.

The observed trend is reflected in the discursive evidence found in the manifestos of NSWPs that illustrate how pro-peripheral demands are framed within the context of combating climate change. This is evident both through direct references to climate change and by highlighting climate-related measures likely to reduce GHG emissions or

enhance carbon sinks (Carter et al. 2018). Accordingly, in relation to decentralization, the manifestos contain provisions such as:

“Demand respect for the mechanisms and carbon footprint registers that the Autonomous Communities have implemented with the aim of raising awareness, reducing emissions, increasing absorption projects, and ultimately combating climate change.” (Together for Catalonia 2017)²⁸

“We will provide Catalonia with legislative and fiscal instruments in all economic sectors to reduce energy demand and CO2 emissions and promote renewable energies at the national, supramunicipal, and municipal levels, surpassing the minimum values of European Directives and establishing the legal and temporal mechanisms for the municipalization of energy systems.” (Candidacy of Popular Unity 2021)²⁹

“Final closure of the Garoña [nuclear power plant] and complete transfers [of competencies] regarding the environment and energy.” (Unite the Basque Country 2016)³⁰

“Promote the creation of an energy transition fund managed by the Autonomous Communities, which would arise from green taxation.” (Basque Nationalist Party 2019)³¹

Likewise, certain quasi-sentences also reflect how these NSWPs enhance ‘state-like’ considerations of the regions to which they belong by addressing climate change:

“Becoming a leading country in the research and application of new technologies that contribute to both the mitigation and reduction of Catalonia's energy dependence on external energy resources, to decarbonization, and to denuclearization until achieving energy sovereignty.” (Republican Left of Catalonia 2021)³²

“Therefore, we advocate for a model of energy sovereignty that is democratic, popular, decentralized, renewable, self-sufficient, and without nuclear power for the entirety of the Catalan Countries.” (Candidacy of Popular Unity 2021)³³

²⁸ Original text: “Exigir respecte pels mecanismes i registres de petjada de carboni, que les comunitats autònomes hagin implementat amb l’objectiu de sensibilitzar, de reduir les emissions, d’augmentar els projectes d’absorció i, en definitiva, de lluitar contra el canvi climàtic”.

²⁹ Original text: “Dotarem Catalunya d’instruments legislatius i fiscals en tots els sectors econòmics per tal de reduir la demanda energètica i les emissions de CO2 i fomentar les energies renovables a escala nacional, supramunicipal i municipal superant els valors mínims de les Directives Europees i establint els mecanismes legals i temporals per a la remunicipalització dels sistemes energètics”.

³⁰ Original text: “Cierre definitivo de Garoña y transferencias completas sobre medio ambiente y energía”.

³¹ Original text: “Impulsar la creación de un fondo de transición energética gestionado por las Comunidades Autónomas que surgiría de la fiscalidad verde”.

³² Original text: “Esdevenir un país capdavanter en la investigació i l’aplicació de noves tecnologies que contribueixin a la mitigació i també a la reducció de la dependència energètica de Catalunya envers recursos energètics externs, a la descarbonització i a la desnuclearització fins a assolir la sobirania energètica”.

³³ Original text: “Per això apostem per un model de sobirania energètica que sigui democràtic, popular, descentralitzat, renovable, autosuficient i sense nuclears per al conjunt dels Països Catalans”

“Promote collaboration between universities and/or environmental studies training centers to encourage the development of technologies that allow us to adapt to the challenges related to waste management that we face as a country.” (Unite the Basque Country 2019)³⁴

The findings presented so far support the initial four hypotheses of this article, with especially robust evidence for H1b and H2b, which involve positional dependent variables. These results resonate with the empirical evidence in the expanding literature on Green Nationalism (Conversi 2020; 2022; Conversi and Hau 2021). More concretely, they imply that NSWPs emphasize climate issues and maintain favorable positions on climate change as a means to challenge the institutional *status quo* of the state and bolster their economic and political autonomy (Alonso et al. 2017; McEwen and Bomberg 2014), while also striving to enhance their status as ‘nation-states-in-waiting’ (McEwen and Bomberg 2014; Enguer and Navarrete 2023).

In addition, the comparatively stronger relationship observed between pro-decentralization stances and the dependent variables highlights the potentially beneficial role of arguments rooted in Climate Federalism (Fenna et al. 2023; Alberton and Cocciolo 2023). Given the positive correlation between devolution and the advancement of climate policy, advocating for a decentralized approach to enhance climate performance aligns more closely with the original preferences of parties that favor transferring power from central to regional levels.

Further, the percentages in Figure 4.3 (and Table D.1 in Appendix D) also reveal that political parties dedicate more quasi-sentences to the ‘pro-climate’ category in regional elections compared to the national ones in both electoral cycles. On top of that, beyond relative differences in the proportion of content per party manifesto, the overall dissimilarities in absolute amount of text dedicated to the topic further favor the manifestos presented for regional elections. Indeed, a qualitative study of these documents reveals that NSWPs especially dedicate significantly more and detailed total space to climate change in regional elections compared to national ones.

For example, the program with which EAJ-PNV ran in the 2016 general elections has only a short general section on the environment, while its manifesto for the regional elections of the same year contains a larger number of subsections on climate-related topics, occupying considerably more space. Similarly, this party’s manifesto for the 2020 regional elections is much more extensive than that for the 2019 general elections, with more space dedicated to climate change both through a specific section and through other related topics such as clean energy and the circular economy.

In the same way, while the national manifesto of CDC addresses the issue within an environmental subsection in 2016, its successor for the 2017 Catalan elections (JxC) does so more extensively across several subsections. The case of ERC is even more striking, given that their manifesto for the 2016 general elections does not dedicate any section to the issue, while their regional manifesto in 2017 includes a subsection on climate change. ECP, for its part, has a long and well-developed section dedicated to various related topics in both elections, with an additional specific sub-section on climate change for the 2017

³⁴ Original text: “Fomentar la colaboración entre las universidades y/o centros de formación de estudios ambientales para impulsar el desarrollo de tecnologías que permitan adaptarnos a los retos en torno a la gestión de nuestros residuos que como país tenemos”

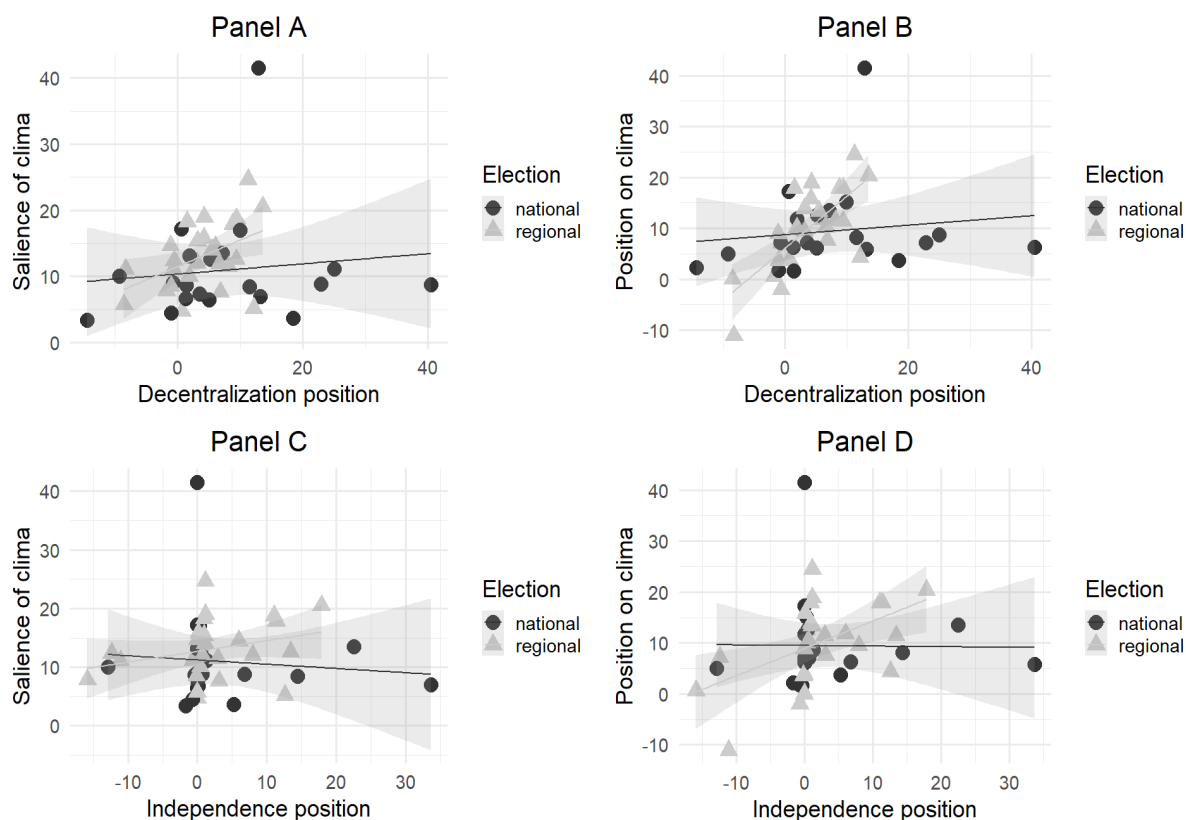
regional elections. In like manner, the manifestos of JxC and ERC treat the issue transversally within sections related to environmental topics in the 2019 general elections. This approach is expanded in the 2021 regional elections, where they dedicate even more extensive sections to these topics along with an exclusive section on climate change.

As a result, while Figure 4.3 indicates that parties allocate higher shares of content to 'pro-climate' messaging in regional elections, subsequent qualitative observations unveil that this text is also more comprehensive, enabling pro-periphery parties to more often address specific territorial claims through those segments. To test the potential trend suggested by these observations, the Figures previously presented are plotted with a distinction made between the two election levels under study.

The general correlation found at the regional level, which is more positive than the national one, indicates that political parties with higher pro-decentralization positions also tend to place more emphasis (Panel A of Figure 4.5, Panel A of Figure D.2 in Appendix D, and Table D.5 in Appendix D) and adopt more favorable stances on climate (Panel B of Figure 4.5, Panel B of Figure D.2 in Appendix D, and Table D.5 in Appendix D) at this tier than at the national one. Likewise, the results reached suggest that political entities with stronger pro-independence positions are more likely to prioritize (Panel C of Figure 4.5 and Table D.5 in Appendix D) and adopt proactive stances on climate change (Panel D of Figure 4.5 and Table D.5 in Appendix D) in regional elections compared to general ones.

Interestingly, while the link between the position on decentralization and the dependent variables remains positive in national elections, the stance on independence holds a negative link with them at the central level. Moreover, the relationship between both independent variables and the position on climate in regional elections is stronger compared to their relationship with the salience of climate. This suggests that parties, especially at the regional level, are more committed to taking concrete stances on climate issues rather than merely discussing or highlighting them.

Figure 4. 5 Relationships Between Political Positioning on Decentralization and Independence and Climate Policy Saliency and Position, by Election Level



Source: Scores on decentralization taken from data shown in Table D.2 in the Appendix D. Scores on independence taken from data shown in Table D.3 in the Appendix D. Scores on climate saliency calculated from data shown in Table D.1 in the Appendix D.

4.6 Discussion

These results align with evidence on cross-level differences in the function that key periphery parties play regarding the approval of climate measures. On one hand, consistent with their position as supporters in governance at the national level (Barbera and Barrio 2016; Elias and Mees 2017), the NSWPs have primarily focused on backing initiatives led by other parties that have a more prominent role in this arena. This is evident in the case of the recently enacted Climate Change and Energy Transition Law, which was promoted by SWPs like the Spanish Socialist Workers' Party and UP to establish the regulatory framework and general objectives on these issues at the state level from 2021 (Planelles 2021).

On the other hand, in their usual functions of governing or serving as the main opposition force at the regional level (Barbera and Barrio 2016; Elias and Mees 2017), the NSWPs have played a key role in adopting the most significant milestones of the climate regulatory trajectory in their ACs. For instance, in the Basque Country, the regional government led by EAJ-PNV promoted the Public Administration Energy Sustainability Law, which was approved in 2019 with support from PSE-EE and EP-EB (El Periódico de la Energía 2018). This legislation has subsequently been improved upon in the 2024 Law of Energy Transition and Climate Change, which received support from EAJ-PNV, EHB, and the PSE-EE (iustel 2024).

In Catalonia, the first mention of a Climate Change Law was under a CiU government in 2012. This initiative was later revived and proposed to the Catalan Parliament by the government led by the transversal NSWP Together for Yes in February 2017. Its approval made Catalonia the first AC with a climate change framework law following the Paris Agreement (De la Varga 2018; Europa Press 2017). Similarly, the law's subsequent strengthening was proposed by the JxC government and approved in 2019 with support from ERC, ECP, and Socialists' Party of Catalonia (Cerrillo 2019).

In light of the results, hypotheses H3a, H3b, H4a, and H4b are confirmed. This outcome highlights the solidification of climate change as a regional issue in the Basque Country and Catalonia, evidenced by the subnational public concern (Bombana et al. 2023; Torres-Bagur et al. 2019; Martínez-Juárez et al. 2019; Gainza and Montes-Nebreda 2023) and the expanding role of regional governments in addressing this issue in both ACs (Happaerts et al. 2012; Rodríguez-Beas 2019; Galarraga et al. 2011; Olazábal et al. 2011).

This phenomenon, combined with the prioritization of level-specific issues by voters in the Basque Country and Catalonia (Vieitez 2019; Molina and Quiroga 2017), prompts political parties competing in these ACs to develop electoral strategies that diverge from national narratives and place a greater emphasis on climate change. This trend is further reinforced by factors such as the significant degree of decentralization enjoyed by both ACs (Liñeira and Cetrà 2015; Gunther et al. 2004), the prominent role that NSWPs play in their party systems (Barrio et al. 2018; Leonisio 2012), or the mismatch between Catalan and Basque regional election dates and those of the Spanish central government (Schakel and Jeffery 2013; Jeffery and Hough 2003).

As a result, parties are likely developing electoral programs with more extensive sections on climate change that are better tailored to the specific needs of the Basque Country and Catalonia in the regional arena compared to the national level. In this manner, pro-peripheral parties have better opportunities to channel their demands for decentralization and independence more often through climate-related proposals in regional manifestos than in national ones.

However, these parties still show a similar, albeit less intense, approach to decentralization at the state level, which vanishes entirely when it comes to independence. The more limited validity of Green Nationalism's dynamics in this regard, along with the lack of arguments for secession to promote climate action in Climate Federalism discussions, aligns with the disconnection of these topics within national party manifestos. Hence, the heightened emphasis on independence—especially during significant contextual events that affect the national landscape (Greene and McMillan 2020; López and Sanjaume-Calvet 2020)—could constrain the space available in party manifestos for addressing climate change in this arena.

4.7 Conclusion

This article aimed to uncover the association between parties' climate policy and center-periphery preferences in multilevel democracies, as well as to explore how this relationship varies between regional and national levels. In order to achieve this, an innovative coding scheme (Carter et al. 2018) was utilized to analyze the manifestos of political parties that gained representation during the June 2016 and November 2019 Spanish general elections, as well as the regional elections held during the overlapping periods in Catalonia (December 2017 and February 2021) and the Basque Country (September 2016 and July 2020).

The initial results indicate that as parties adopt more pro-decentralization positions in their manifestos, they dedicate more content to climate change and feature more pro-climate stances. Similarly, it has been found that parties with stronger pro-independence positions allocate more content and adopt more favorable stances on climate change in their manifestos. This phenomenon can be attributed to pro-periphery parties' tendency to leverage climate change as a means to enhance territorial economic and political autonomy (Alonso et al. 2017; McEwen and Bomberg 2014) while also striving to enhance regions' status as 'nation-states-in-waiting' (McEwen and Bomberg 2014; Enguer and Navarrete 2023). Additionally, these parties' stronger commitment to climate change is driven by the greater alignment of decentralized management proposals with their original agenda of preferences.

Furthermore, this article demonstrates that the relationship between the previously discussed variables is more positive at the regional level than at the national one. These findings underscore the solidification of climate change as a regional issue in the Basque Country and Catalonia, where the prioritization of level-specific concerns by regionalist voters (Vieytez 2019; Molina and Quiroga 2017) leads political parties to develop electoral strategies that place greater emphasis on this topic. As a result, parties are likely crafting electoral programs with more extensive and detailed sections on climate change at the regional level, allowing pro-peripheral parties to express their demands for decentralization and independence more frequently through these agendas compared to their national counterparts.

As this article provides an in-depth analysis of the manifestos of the parties competing in the last two national and regional elections in Spain, Catalonia, and the Basque Country, its conclusions are based on a limited number of party manifestos. Future research could enhance this contribution by examining party manifestos from more recent elections in the same regions or from elections in other ACs within Spain or other multilevel countries. This would enable researchers to assess the generalizability of the findings presented here by further exploring in higher detail the behavior of NSWPs versus SWPs across the various levels of government studied. Additionally, it would enable a more nuanced differentiation between parties advocating for greater autonomy and those supporting independence. Moreover, future studies could broaden the scope of this research by examining the substance of the frames and normative arguments related to climate change in political texts other than party manifestos. This methodology would allow, for example, a better investigation into, among other aspects of particular interest identified in this study, the motivations and the way in which EHB has articulated the particularly high attention dedicated to the pro-climate categories in the general elections of 2019.

In any case, this research is a relevant step in the underexplored topic of parties' climate preferences in multilevel settings. By providing insights into how center-periphery dynamics influence party competition on climate issues, it demonstrates that climate policy can serve as a critical arena for expressing broader political and territorial demands. In this regard, the analysis of the Basque and Catalan cases offers a detailed understanding of how political actors in regions with distinct identities and political aspirations frame climate change within their communication strategies. Furthermore, the localized differences between the regional and national levels reflect that the articulation of these strategies is closely related to the tier in which the parties compete. Therefore, analyses of party competition on climate issues must consider multilevel governance structures.

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5 Local Preferences for the Adoption and Modification of Climate Policy Instruments under a Radical Left Government: Unveiling the Impact and Legacy of Barcelona in Common

*Research article written with Simon Schaub**³⁵

Abstract

This study aims to uncover how shifting toward a radical left ideology affects a city's climate policy. Using semi-structured interviews with stakeholders and an analysis of local action plans and laws enacted in Barcelona between 1984 and May 2023, we find that the period of local government led by the radical left, embodied by Barcelona in Common, saw a significant increase in the adoption of climate-related policy instruments, with a preference for 'soft' over 'hard' measures. Likewise, this administration more actively raised the ambition of preexisting policy instruments, though evidence suggests that this trend is driven by other, non-ideological factors. The results further show that 'hard' policy instruments especially were more prone to changes, both in terms of raising or reducing policy ambition. Overall, these findings enhance our understanding of local climate policymaking and how it is affected by partisan politics.

Keywords: climate policy; policy instruments; political parties; radical left; cities

5.1 Introduction

The establishment of a new government headed by the Socialist Party of Catalonia (PSC) following the local elections in May 2023 marked the end of Barcelona in Common (BC)'s radical left leadership in the city. During its two terms, BC showed a robust commitment to sustainability, prioritizing environmentally friendly transportation solutions and advocating for the use of renewable energy sources (Cid and Gomà 2016). The instatement of the PSC has already had notable impacts, including the dismantling of tactical urbanism projects aimed at reducing traffic in the city center (Márquez Daniel 2023).

In line with this, recent research has revealed not only the crucial role assigned to cities in the global effort to reduce greenhouse gas (GHG) emissions, but also the various political obstacles that municipalities encounter while implementing effective climate policies (Pasquini et al. 2013). Among these factors, party politics has been recognized as a pivotal element in climate governance, with the ability to both hinder and support

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initiatives related to climate action (Burch 2010; Pasquini and Shearing 2014; Tosun 2022). Furthermore, there is evidence that parties' left-right ideological orientation influences their climate policy preferences (Farstad 2018; Carter and Little 2021): Leftwing parties have a stronger motivation to favor climate policy (Spoon et al. 2014; McCright et al. 2016; Abou-Chadi 2016; Ladrech and Little 2019), especially Radical Left Parties (RLP) (Wang and Keith 2020; Chazel and Dain 2023; Oswald 2002; Zilliacus 2001). However, empirical evidence remains divided in this regard. Moreover, the impact of RLPs on climate policy has not yet been fully explored, particularly against the backdrop of the adopted policy instruments' degree of authoritative force. It is largely unknown whether RLPs on the local level favor 'hard' instruments (such as regulations or taxes) over 'soft' instruments (such as information campaigns or voluntary agreements) and whether they make climate policy instruments stricter when they modify them.

Our study builds on a number of notable academic contributions to the field of climate policymaking. However, most of these operate at the broader level of policies and thereby ignore the specificities that arise from the study of the concrete tools used by policymakers (Schulze 2021), such as the nuanced differences between 'hard' and 'soft' instruments (Steinebach and Knill 2017).

By conducting semi-structured interviews with influential stakeholders and analyzing the adoption of new climate-related policy instruments and their modification between 1984 and May 2023, the present article aims to uncover the extent to which the political leadership by a RLP like BC has translated empirically into both the expansion of climate policy instruments (adoption of new instruments and in terms of modifying existing ones) and the selection of 'harder' policy instruments. Generally, climate policy instruments have been expanded globally, and the dismantling of policy instruments, which refers to down-scaling them (Jordan et al. 2013; Bauer and Knill 2014), has occurred less frequently (Schaub et al. 2022). Nevertheless, dismantling has been observed and it is important to better understand the underlying reasons. Thus, we also study modifications of existing policy instruments and whether RLPs have promoted their expansion or dismantling in Barcelona.

In the remainder of this article, we provide an overview of the literature on climate-policymaking in cities and the association between partisan politics and climate policymaking. Then we formulate the hypotheses that guide this investigation. Before presenting the empirical findings, we explain our research strategy, giving our reasons for the case selection, clarifying the data collection and measurements, and describing the methods employed for data analysis. The final section discusses the findings vis-à-vis the empirical hypotheses and concludes by providing suggestions for further research.

5.2 Climate policymaking in cities

Cities, which house more than half of the world's population and are responsible for three-quarters of global energy consumption and GHG emissions (Gouldson et al. 2015), play a pivotal role in the transition to a low-carbon future (Mi et al. 2019). They are increasingly equipped with tools and resources to tackle challenges arising from climate change (Rosenzweig et al. 2010), and several studies emphasize their importance in fostering a low-carbon economy (Gouldson et al. 2015). Numerous cities have

implemented measures to achieve this, such as reducing emissions in everyday practices (Larsen and Hertwich 2009), adopting new energy efficiency standards for buildings (St-Louis and Millard-Ball 2016), investing in alternative transportation systems and infrastructure (Nakamura and Hayashi 2013), and implementing advanced waste management practices (Weitz et al. 2002).

Moreover, cities are taking the lead in climate change mitigation efforts, with many joining global frameworks for reducing GHG emissions (Mi et al. 2019). Notable examples include the International Council for Local Environmental Initiatives – Local Governments for Sustainability (ICLEI), a global network of over 1500 cities in 86 countries committed to building a sustainable and low-carbon future, influencing more than 20% of the world's urban population. The C40 Cities Climate Leadership Group (C40) connects over 80 megacities worldwide, representing more than 600 million people and 25% of the global economy, to address climate change and implement urban actions that reduce emissions and climate risks. Additionally, the Covenant of Mayors (CoM) comprises over 10,000 cities and local governments, representing over 800 million people as it strives to meet the goals of the Paris Climate Agreement. In Spain, for instance, the Ministry of Environment established the Network of Cities for Climate Protection (RECC) in 2004, with many member cities setting ambitious targets for emissions reduction within strict timeframes.

Notwithstanding, scholars have also pinpointed various obstacles – such as regulatory hindrances, barriers related to knowledge and comprehension, limitations in capacity, and others – that municipalities encounter while enacting efficient climate policies (Baker et al. 2012; Burch 2010; Fuhr et al. 2011). One relatively unexplored aspect is the impact of political factors on the functioning and effectiveness of local governments (Pasquini et al. 2013). Thanks to a growing literature, we already have some understanding of the challenges posed by the short-term cycles of elected officials (Bauer 2012) and the role of various other elements, such as political champions/leaders and relevant networks that work closely with local governments (Pasquini et al. 2013); ward committees (Piper and Deacon 2008); clientelism (Bawa 2011; Benit-Gbaffou et al. 2013); governance structures, political dynamics, and the outcomes of decision-making processes (Boamah et al. 2012); and changes in political regimes (Pasquini and Shearing 2014). Despite these and additional advances, the relationship between party and climate politics, especially at the local level, remains to be fully explored.

5.3 Political orientation and climate policy transformation

The nascent literature on the party politics of climate change has revealed that traditional left-right policy orientations are associated with environmental and climate policy preferences (Carter and Little 2021; Farstad 2018). The primary motives underlying these preferences stem from the nature of vote-seeking, which, according to the spatial theories of party competition, characterizes the behavior of mainstream political parties (Meguid 2005). This logic leads these actors to adapt their course of action on climate change in response to shifts in public opinion (Schwörer 2024).

First, considering that the current climate emergency requires substantial state-led intervention, the predilection that the leftwing electorate shows toward increased state intervention in the economy generates higher incentives for parties of this ideology to

commit to the cause with greater dedication than those on the right (Ladrech and Little 2019). Second, studies show that the preferences of this electorate are fairly well aligned with a higher degree of affinity toward adopting measures to address climate change (McCright et al. 2016), which again incentivizes leftwing parties to show climate policy activity.

Third, political parties must consider the impact of 'niche' competitors, such as the so-called green parties. Given the tendency of parties to attract votes from closer parties (Adams and Somer-Topcu 2009) and the greater ideological closeness that green parties generally show toward the left, they pose a greater electoral threat to the latter than to rightwing political forces (Fagerholm 2016). Thus, leftwing parties would typically place especial emphasis on green issues when facing the electoral gains of a green party (Spoon et al. 2014), while rightwing parties would further de-prioritize it (Abou-Chadi 2016).

Fourth, although in the aftermath of the collapse of the Soviet Union and the fall of the communist regimes in Eastern and Central Europe some parties preferred to maintain their 'Communist' identity, others opted for transformation (March 2008). In this context, some new political issues, such as environmentalism, have become a recurrent aid for these refunded RLPs to position themselves in the political space to the left of social democracy (Zilliacus 2001; Oswald 2002). This tendency, combined with their general inclination to blame capitalism for environmental exploitation (SDS 2011), establishes a potential link between RLPs and environmental and climate advocacy.

However, beyond this reasoning, empirical evidence can still be considered divided regarding the connection between partisan preferences and climate policy. On the one hand, some studies link left-leaning governments with the adoption of more ambitious climate policies in general (Tobin 2017), more climate taxes and regulations (Schulze 2021), and the achievement of more effective GHG reductions (Jahn 2022). Similarly, other studies show that most rightwing populist parties tend to deny the existence of climate change or reject the need for critical action (Schaller and Carius 2019), while RLPs tend to have a greener political profile than social democratic or rightwing parties (Wang and Keith 2020). *La France Insoumise*, for instance, has not only promoted an ambitious green agenda since its inception in 2016; it has also developed a nexus between anti-elitism and people-centrism to blame the environmental crisis on the 'oligarchy', a stance defined as 'green populism' (Chazel and Dain 2023).

On the other hand, pertinent studies point out that moderate conservative parties generally remain committed to climate-mitigation policy, renewable energy and energy efficiency policies in their election campaigns (Hess and Renner 2019). They tend to support climate measures in their manifestos, for example, even in the form of state interventions in the market economy (Båtstrand 2015). Furthermore, researchers have identified that between 2015 and 2022, the Conservatives in United Kingdom had a mixed record on climate policy, combining genuine progress, notably on their commitment to net zero and a ratcheting-up of emission reduction targets, with inadequate policy delivery (Carter and Pearson 2024).

Although the prevailing divide in the various existing studies still precludes reaching definitive conclusions about how climate policy preferences cut across the left-right spectrum of partisan politics, the dominant reasoning underlying academic contributions on the subject leads one to expect:

Hypothesis 1: *The introduction of climate policy instruments in cities to be likelier under radical left governments than under less left-leaning ones.*

Hypothesis 2: *The expansion of established climate policy instruments in cities to be likelier under radical left governments than under less left-leaning ones, whereas the likelihood of their dismantling increases for less left-leaning governments.*

5.4 Explaining the choice of climate policy instruments

Climate policies generally combine the identification of a goal, in this case climate mitigation, with appropriate instruments to achieve it. Based on their degree of authoritative force, which often corresponds to the visibility of the costs they produce, policy instruments can be classified into two categories: ‘hard’ or ‘soft’ (Schaffrin et al. 2015; Schulze 2021; Steurer 2011).

‘Hard’ climate policy instruments encompass regulations and prohibitions, alongside specific economic instruments such as carbon taxes and tradable permit schemes. These mechanisms are designed to exert control over the actions of both citizens and businesses by restricting their choices (Schaffrin et al. 2015). ‘Soft’ climate policy instruments, conversely, impose less overt costs on voters and interest groups. This category includes informative tools that strive to impart sufficient knowledge to encourage desired behaviors; voluntary agreements between industries and governments; institutions and strategies that support policy implementation; and lenient economic instruments that highlight positive financial incentives which reward eco-friendly actions (Steurer 2011).

In general, ‘hard’ policies are likelier to face significant resistance from influential, well-organized entities responsible for substantial GHG gas emissions, whereas the characteristics of ‘soft’ policies typically involve less contentious policy processes or result in diffuse costs that mitigate strong opposition (Madden 2014). Consequently, ‘soft’ policies are expected to outnumber ‘hard’ policies, as policymakers representing different viewpoints aim to demonstrate their dedication to climate preservation and allocate specific benefits while minimizing electoral risks. Indeed, new studies show that ‘soft’ policies, such as information campaigns and subsidies, are introduced in greater numbers than ‘hard’ policies, such as standards and taxes under all types of partisan government (Schulze 2021).

In light of this, our overarching argument posits that left-leaning governments have a stronger electoral motivation to adopt climate policies. Therefore, left-leaning governments may prioritize the enactment of ‘hard’ policy instruments (Schulze 2021). This emphasis on ‘hard’ policy instruments stems from their enhanced visibility, serving as potent signals to voters who hold deep concerns about climate change. Additionally, the inclination of left-leaning parties toward increased state intervention aligns well with the tenets of ‘hard’ climate policy instruments, setting them apart from other political factions (Båtstrand 2014).

As a result, we expect left-leaning governments to exhibit a greater willingness than other governments to impose higher costs on voters and to adopt ‘hard’ policy instruments or expand preexisting ‘hard’ policy instruments rather than dismantle them. Our subsequent hypotheses therefore read:

Hypothesis 3: *The introduction of ‘hard’ climate policy instruments in cities becomes more likely under radical left governments than under less left-leaning ones.*

Hypothesis 4: *The expansion of established ‘hard’ climate policy instruments in cities becomes more likely under radical left governments than under less left-leaning ones, whereas the likelihood of them being dismantled increases for less left-leaning governments.*

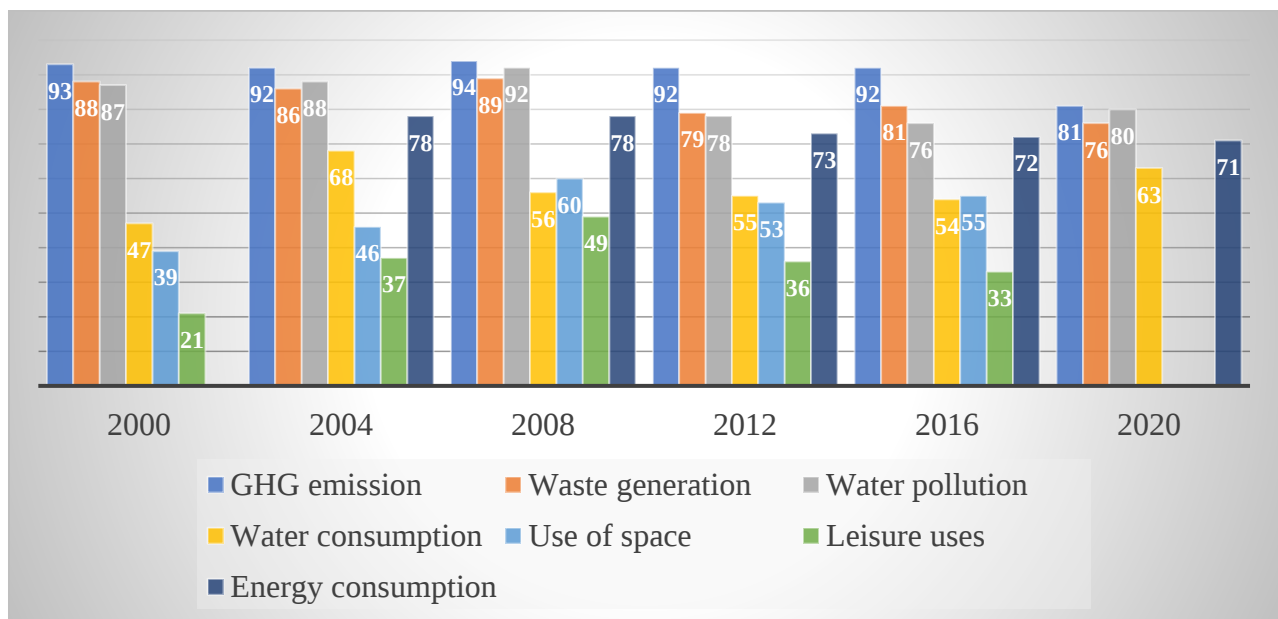
5.5 Research strategy

To explore the hypotheses outlined above, we opted for a case study focused on climate policymaking and policy change in Barcelona. This selection seemed suitable given the potential valuable and transferable insights that could be derived from an in-depth exploration of the interactions between RLPs and climate policy, particularly in the context of this city.

5.5.1 Case selection

We chose Barcelona for the following reasons. First, climate change is a relevant issue for the city due to its relatively high climate vulnerability and its pioneering role in enacting climate policy. This global city is projected to experience an increased risk of water scarcity, droughts, heatwaves, floods, and rising sea levels by 2100 ('Estudi Dels Impactes Del Canvi Climatic a Barcelona' 2017). This risky situation is evident in the public opinion of the city's residents, who for decades have consistently rated the city's environmental impact as significant, not only in terms of GHG emissions but also in related areas such as waste generation, water pollution, and energy consumption (Figure 5.1).

Figure 5. 1 Opinions on a ‘very negative’ Impact of the City of Barcelona on the Environment (%)



Source: Based on the Survey of Environmental Habits and Values of 2020 (Departament d'Estudis d'Opinió et al. 2021).

Given these circumstances, and in light of its competencies^{36,37}, Barcelona has implemented several climate protection laws and action plans, especially since the mid-1990s (Satorras et al. 2020). For example, in 2002, its local government passed the first comprehensive plan to promote energy efficiency and renewable energies³⁸. This was followed by a second local energy plan in 2011 to better incorporate climate concerns raised by international commitments³⁹. Following the signing of the Paris Agreement in 2015⁴⁰, other more recent initiatives stand out, such as the adoption of the Climate Action Plan 2018-2030, which for the first time integrated mitigation and adaptation strategies while also addressing social inequalities linked to climate change (Satorras et al. 2020). Along these lines, the city joined and accomplished the commitments of different international climate change networks, such as C40 (2005), CoM (2008), Climate Alliance (2010), and ICLEI (2017) in addition to national ones, such as RECC (2006). Likewise, the influential social movement ‘Fridays For Future’ (FFF) has been active in the city since February 2019 and has substantially raised the prominence of climate change on the political agenda through sustained weekly school strikes (Terren and Soler-i-Martí 2021).

³⁶ Catalan Statute of Autonomy, Barcelona (2016). <https://www.parlament.cat/document/cataleg/48146.pdf>

³⁷ Law 7/1985, of April 2, on the Bases of Local Government (1985).

<https://www.boe.es/buscar/act.php?id=BOE-A-1985-5392>

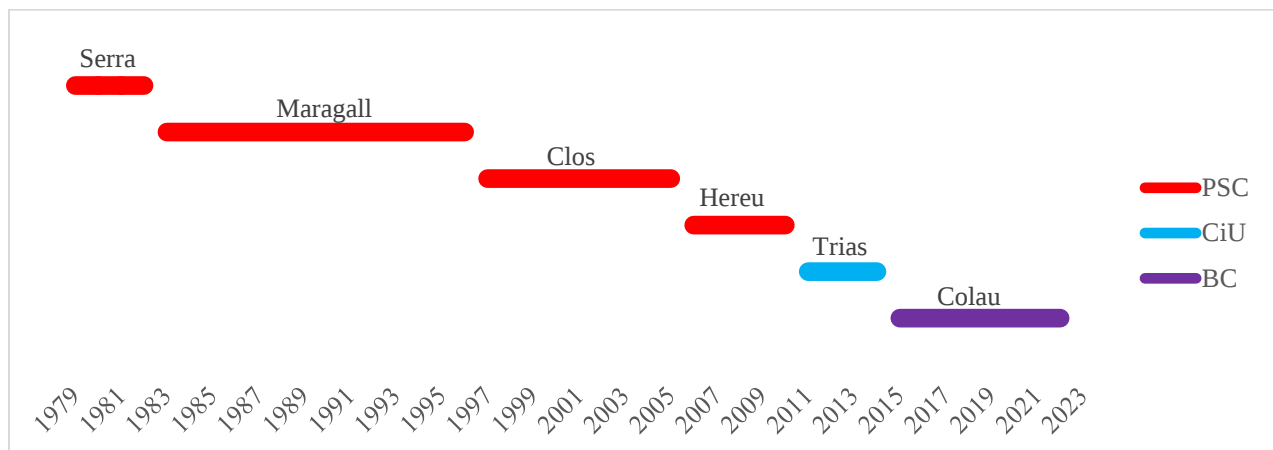
³⁸ Barcelona Energy Improvement Plan (2002). <http://hdl.handle.net/11703/101739>

³⁹ Regulation of citizen participation (2011). <http://hdl.handle.net/11703/109131>

⁴⁰ United Nations Paris Agreement on Climate Change (2015). <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>

Second, Barcelona has been governed by different parties since the restoration of democracy, giving place to different governance styles and orientations in climate-related policy areas (Blanco 2009) (Figure 5.2).

Figure 5. 2 Mayors of Barcelona by party and year



Source: Own elaboration based on Statistics and Data Dissemination of the BCC⁴¹ (2024).

In general, the city has undergone a pronounced process of neoliberalization since the 1990s, with the public agenda increasingly focusing on granting significant influence to the private sector in local governance (Martí-Costa and Tomàs 2017). These dynamics, which emerged during the 30-year period (1982-2011) when the center-left PSC held municipal leadership, were generally countered by comprehensive social policies and a complex system of citizen engagement in public affairs (Blakeley 2005; Blanco 2015). Notably, between 1987 and 2011, the PSC formed a coalition government with the ecosocialist party Initiative for Catalonia (ICV), whose prominent members led the city council's environmental action during this period (3Cat 2008). They initiated significant strategies such as a new waste collection and cleaning system, a biomass power plant that reduced the city's emissions by thousands of tons annually, and the Barcelona's Agenda 21⁴², which aimed to promote sustainable development and efficient use of natural resources (La Xarxa 2011; Lladó 2004).

The 2011 elections awarded the city's mayoralty to Xavier Trias, leader of the Convergence and Union (CiU) party. The literature predominantly describes the CiU as a socially conservative center-right party, as it is known for supporting business pressure groups and free-market policies (Giordano and Roller 2002). This characterization aligns

⁴¹ Statistics and Data Dissemination of the Barcelona City Council (2023).

https://ajuntament.barcelona.cat/estadistica/castella/Estadistiques_per_temes/Eleccions/Eleccions_locales/localc/localc.htm

⁴² Agenda 21 of Barcelona: A Participatory Process for Change (2003).

https://www.miteco.gob.es/content/dam/miteco/es/ceneam/articulos-de-opinion/2003_04castiella_tcm30-163562.pdf

with the intensification of the aforementioned neoliberalizing trend during the period when this party led the Barcelona City Council (BCC) (Cano et al. 2016; Martí-Costa and Tomàs 2017). Along these lines, the term was marked by a strong pro-tourism agenda, exemplified by the 2013 Terrace Ordinance⁴³, which led to a significant increase in licenses for bars and restaurants (Mansilla 2020).

The CiU's urban and environmental agenda was characterized by a business-friendly perspective. For example, it built on a minimally developed Smart City proposal (Orozco Fernandez 2018), where the environment was primarily viewed as a means to attract capital and business (March and Ribera-Fumaz 2016). To this end, the Department of the Environment was dissolved as a formally separate entity and merged with the departments of infrastructure, urban planning, housing, and 'Information Communication and Technology' (ICT), creating the new Urban Habitat area (La Vanguardia 2011). Additionally, this government scaled down the plan to establish Spain's first self-sufficient eco-neighborhood, initially presented by the PSC in 2008 (March and Ribera-Fumaz 2016), and promoted the so-called superblocks project as a business-oriented mobility intervention that, in addition to pursuing sustainable objectives, prioritized attracting high-end residents and developers by providing for electric vehicles and for continued routes for private cars (Zografos et al. 2020). All in all, during the CiU's political term, environmental awareness maintained some significance but was essentially subordinated to its capability for attracting investment and new business models. This represents a profit-driven selection of environmental targets, which can result in the neglect of a plethora of other important topics that are economically unattractive, such as ecosystem services in particular (Yigitcanlar et al. 2018).

The results of the local elections in May 2015 signaled a significant political change in Barcelona. The victory of BC marked the first time in the city's history since the Spanish transition to democracy in 1978 that a non-traditional, grassroots-oriented RLP led by a female leader had secured victory. This political shift was closely tied to BC's origins, as it emerged from the protest camps that began on May 15, 2011, in major cities like Barcelona, known as the 15-M movement (Russo and Scarnato 2018). This movement not only revived Barcelona's activist tradition but also, in the years following its dissolution, gave rise to a constellation of local political movements, including the Platform For People Affected by Mortgages. Its leader, Ada Colau, formed a 'steering group' that brought together prominent members of 15-M, key figures from the ICV (which eventually decided to dissolve into the new formation), legendary former activists from the 1970s, prestigious academics and researchers, renowned environmental and gender activists, and some figures from the growing Catalan independence movement to build the municipal candidacy known as BC (Russo and Scarnato 2018).

The heterogeneous ideology of the party was rooted in a common progressive profile that aimed to connect anarchist, Marxist, and social-democratic traditions with the fresh impetus of the new left, shaped by the Occupy movement, the Arab Spring, Globa Fora, and progressive Latin American governments (Russo and Scarnato 2018). These principles guided the party to challenge real estate speculation, business-centric decisions, and the city's focus on a commercial, growth-driven model (Zografos et al. 2020). Thus, the formation of a new radical left government altered BCC's priorities, with one of its core principles becoming the advancement of a sustainable livability agenda through the promotion of environmentally friendlier transportation and the reinforcement of Barcelona's commitment to renewable energy (Cid and Gomà 2016).

⁴³ Municipal Terrace Ordinance (2013). [022013032523 \(diba.cat\)](https://diba.cat/022013032523)

In practice, this manifested in various measures, such as the implementation of the Climate Action Plan 2018-2030 as well as the even more recent and ambitious Plan of Action for the Climate Emergency 2030⁴⁴. Additionally, this government was responsible for adopting policies like the Social Procurement Guide⁴⁵, which was designed to establish new criteria encompassing environmental aspects in the awarding of public service contracts (Blanco et al. 2020). Another notable initiative reactivated in 2016 is the Superblocks urban transformation strategy, which aims to reclaim public space for the people, reduce motorized transport, promote sustainable mobility and active lifestyles, provide urban greening, and mitigate climate change (Mueller et al. 2020). The project focuses on creating traffic-regulated zones of city blocks that are closed to private motorized vehicles and prioritizing pedestrians first and foremost, followed by bicycles and then public transportation (López et al. 2020). Having risen significantly in popularity, especially since 2020 due to the pandemic and lockdowns, Barcelona currently has 31 Superblocks in development, with the districts of Sant-Antoni, Poblenou, and Horta leading the way in Superblock adoption (Amati et al. 2024). Along these lines, Barcelona upheld its obligation as a participant in the C40 by reducing its emissions that contribute to worldwide temperature rise. Likewise, the city embraced the directives put forth by the United Nations (including the Paris Agreement, Agenda 2030, and the New Urban Agenda) and by the European Union (such as the European Green Pact, Next Generation, and the New Leipzig Charter) (Delgado-Ruiz 2023).

Overall, Barcelona has witnessed markedly different responses from policymakers to climate change, even though public concern about climate-related issues has remained consistently high (see Figure 4.1). This suggests that variation in climate policy mostly hinges on changes in local government. Consequently, we investigate whether political parties, specifically BC as an RLP, matter for climate policymaking in Barcelona. Although our focus is on local governance, we are aware that other factors, such as the adoption of the Paris Agreement or the rise of FFF, may well have had an influence on Barcelona's climate policy, too.

5.5.2 Data collection and measurements

To explore our hypotheses, we focus on climate policy instruments, which are the tools enacted by the different laws and action plans adopted by the city of Barcelona to mitigate climate change. We chose this approach because its focus on specific, discrete tools allows us to categorize more precisely the approach of political parties to mitigating climate change and to capture more accurately the expansion and dismantling of climate policy in Barcelona. In this sense, we study the adoption of (a) policy instruments and (b) modifications to pre-existing instruments within the climate-related laws and action plans that have been in effect since January 1984, which marked the beginning of open access to local outputs in the Official Information and Documentation Searcher (CIDO) and in the BCNROC Open Knowledge Repository of the Barcelona City Council, until the end of the BC government on May 28, 2023. The climate-related laws and action plans under study include those adopted by the three local institutions with climate-related competencies, namely the BCC, the Provincial Deputation of Barcelona (PDB), and the

⁴⁴ Plan of Action for the Climate Emergency 2030 (2021). <http://hdl.handle.net/11703/127356>

⁴⁵ The social procurement guide (2016). https://bcnroc.ajuntament.barcelona.cat/jspui/bitstream/11703/99016/1/Guia%20contractaci%C3%B3%20p%C3%ABlica_eng.pdf

AMB. We chose to include the latter two because they are largely shaped and dependent on the outcomes of the municipal elections of the BCC⁴⁶⁴⁷, and as a result, the partisan composition of these bodies and their presidency closely resembles that of the BCC.

Our coding of climate policy instruments relies on a broad conceptualization of climate policy that encompasses diverse topics, as reflected in the Climate Policy Database (CPD), which is published by the NewClimate Institute (2022) and has been used in relevant literature on the subject (Carter et al. 2018; Schulze 2021; Steinebach and Knill 2017) (see Codebook A.2 in Appendix A). In total, our database includes 2102 newly adopted climate policy instruments (see Table E.1 in the Appendix E) identified within 136 different laws and action plans (see Table E.2 in the Appendix E), as well as 90 instances of modifications to already established climate policy instruments (see Tables E.3 and E.4 in the Appendix E) found within 23 amending laws and action plans (see Table E.5 in the Appendix E).

Climate policy instrument expansion is measured through *climate policy density*, which we calculate by adding up the individual policy instruments identified within the text of each climate-related protection law and action plan. This approach aligns with established policy literature (Schaffrin et al. 2015; Schulze 2021; Steurer 2011). According to their degree of authoritative force, the instruments were then classified either as ‘hard’, – which include regulatory and economic instruments with negative incentives, or ‘soft’, which include public investments, organization, informational and voluntary instruments, and economic instruments focusing on positive incentives (see Table E.6 from the Appendix E).

Modifications of existing policy instruments were measured through changes in the *intensity of policy instruments*, which we capture according to changes to two specific settings of a policy instrument (Hall 1993): the scope (target groups addressed by the instrument) and the level (the degree to which an instrument puts pressure on target groups to change their behavior, e.g. the price level of a carbon tax) of an instrument. Instruments are expanded if their scope and/or level are increased, whereas reductions in these two settings indicate policy instrument dismantling. This approach has been applied in established literature in the field (Steinebach and Knill 2017; Knill et al. 2012)

In addition to providing a quantitative picture of the adoption and modification of climate policy in Barcelona, we conducted semi-structured interviews with four civil servants from the BCC, a civil servant from the Metropolitan Area of Barcelona (AMB), and a member of the advisory body known as the Climate Emergency Expert Group (GEECB), which was created by the BCC to obtain advice and support in the field of climate emergency (see Table 5.1 for an overview). These interviews addressed whether views on climate change have remained unchanged or undergone alterations over time, which is a necessary criterium for understanding the influence of government shifts on the preference for certain types of policy instruments and the direction of their modifications.

Our focus on one city implies that our results are not representative in a probabilistic sense and therefore cannot be directly generalized to other cases. Instead, the advantage

⁴⁶ Organic Law 5/1985, of June 19, on the General Electoral System (1985). [Ley Orgánica 5/1985, de 19 de junio, del Régimen Electoral General desde 25/06/2019 hasta 06/07/2021. CAPÍTULO III \(juntaelectoralcentral.es\)](https://www.boe.es/boe-l/1985/06/19/ley-5-1985-de-19-de-junio-del-regimen-electoral-general-desde-25-06-2019-hasta-06-07-2021-capitulo-iii-juntaelectoralcentral.es)

⁴⁷ Law 31/2010, of August 3rd, of the Metropolitan Area of Barcelona (2010). [BOE-A-2010-14562 Ley 31/2010, de 3 de agosto, del Área Metropolitana de Barcelona.](https://www.boe.es/boe-l/2010/08/03/ley-31-2010-de-3-de-agosto-del-area-metropolitana-de-barcelona)

of the specific focus of this qualitative study lies in the richness and depth of the information collected.

Table 5.1 City personnel interviewed with office and code.

Office	Code
Climate Change and Sustainability Office of the BCC	I1
Directorate of Energy Services and Environmental Quality of the BCC	I2
Urban Ecology Agency of the BCC	I3
Environmental and Urban Services Area of the BCC	I4
Ecology Department of the AMB	I5
GEECB of the BCC	I6

Source: Own elaboration (2024).

5.5.3 Data analysis

In the first part, we explored the density of policy instruments across three distinct periods, namely those in which three different parties dominated the BCC: PSC (January 20, 1984 – May 22, 2011), CiU (May 23, 2011 – May 24, 2015), and BC (May 25, 2015 – May 28, 2023). In a second part, we studied the intensity of modifications to policy instruments – that is, whether they were expanded or dismantled – in the same three periods. We report descriptive statistics in our analysis of newly adopted and modified policy instruments.

A qualitative thematic analysis (Sung et al. 2019) of the data obtained from the interviews complements our quantitative analysis of instrument adoption and modification. In a first step, we transcribed and read the recorded interviews sentence by sentence. We then open-coded descriptive content related to the adoption and modification of climate policy instruments. The coded statements were then grouped into two overarching themes: the impact of political parties governing at the local level on a) the adoption of new climate policy instruments, determined by their level of authoritative force, and b) the expansive modification or dismantling of established climate policy instruments, also dependent on their level of authoritative force. Once these themes had been defined and named, compelling excerpts were selected for quotation in the results section and analyzed in greater detail in relation to the study's hypotheses.

5.6 Empirical findings on the impact of party ideology on Barcelona's climate policy

5.6.1 Adoption of new climate policy instruments

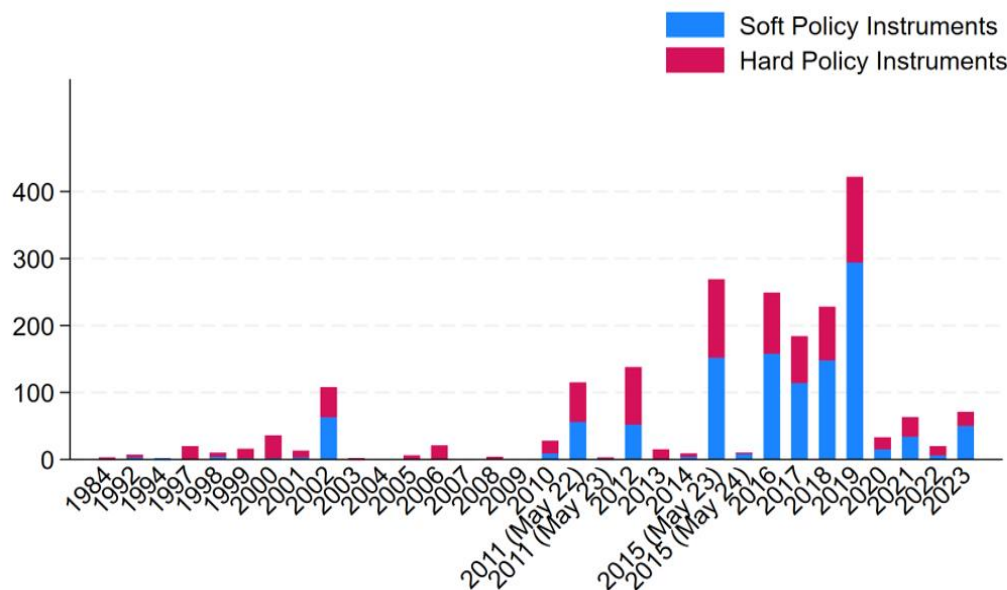
Table 5.2 and Figure 5.3 reveal that during the PSC's political dominance, the city of Barcelona adopted a total of 388 climate policy instruments, comprising 243 'hard' ones and 145 'soft' ones. During the CiU's tenure, an additional 434 climate policy instruments were adopted, of which 224 were 'hard' and 210 were 'soft'. In the BC era, Barcelona introduced an additional 1198 climate policy instruments: 453 of these were 'hard' and 745 were 'soft'. This strong increase under BC indicates that changes in government influence the evolution of climate action taken by local institutions.

Table 5. 2 Adoption of climate policy instruments by period

	Time in government	Policies overall		'Hard'		'Soft'	
	<i>Years</i>	<i>Absolute</i>	<i>Average</i>	<i>Absolute</i>	<i>Average</i>	<i>Absolute</i>	<i>Average</i>
PSC	28	388	13,85	243	8,67	145	5,15
CiU	4	434	108,5	224	56	210	52,5
BC	8	1198	149,75	453	56,62	745	93,12

Source: Based on authors' own data shown in Table E.1 from the Appendix E (2024).

Figure 5. 3 Yearly adoption of climate policy instruments by degree of authoritative force



Source: Based on authors' own data shown in Table E.1 from the Appendix E (2024).

It is especially interesting to compare the last two periods given their shared context of growing political climate commitment in Barcelona and their similar temporal durations. The yearly rate of policy instrument adoption was higher in the BC era: 149,75 (56,62 'hard' and 93,12 'soft') compared to 108,5 (56 'hard' and 52,5 'soft') in the CiU era. Therefore, climate policy activity was significantly higher under the radical left government than under the conservative CiU government. Along these lines, all the interviewees confirmed the especially noticeable impact that the change of government in May 2015 had on local climate ambition. For instance, interviewee I1 said:

'During the CiU's period (...) technological innovations were much more important [to the BCC], as well as making the city "smart" (...). That political term was quite unproductive.' (I1)

They continued:

'BC was the opposite. They even wanted to undertake such ambitious climate initiatives that [the civil servants] had to inform them about the impossibility of these endeavors.' (I1)

In this respect, I4 gave some examples:

'The CiU intended to privatize the Department of Parks and Gardens of the BCC⁴⁸ (...). Since they could not do this because of its large number of employees, they ultimately ceased investing in or caring for it (...). When BC arrived, they declared it an essential service (...).' (I4)

'[Barcelona] had been violating the EU emissions directive for more than 10 years (...). Previous governments were aware of this and "proactively" preferred to ignore the problem. BC raised social awareness about this matter through educative campaigns (...) while they also advocated more for public transport, bike lanes, and created a low-emissions zone (...).' (I4)

As a conclusion to this question, the interviewee added:

'Until someone [ideologically] to the left of the PSC arrived, these initiatives were not intensified enough (...).' (I4)

In a similar vein, I5 commented on the climate action of the AMB:

'It has been very ideologically influenced, especially in areas such as energy and climate change (...). When I started [2016], the Energy and Climate Department was composed of three people, while from 2016 to 2023, this amount increased by around 80% (...).' (I5)

It is noteworthy that the BCC adopted about the same average annual number of 'hard' climate policy instruments in the BC and the CiU eras. Despite these numbers, I2 emphasized the radical leftwing government's greater commitment to adopt 'hard' measures:

'In the case of BC, despite knowing that they would implement unpopular measures, such as restricting car access to certain areas, they proceeded with them.' (I1)

While on the other hand, the interviewees agreed that, in general, politicians prefer to avoid the potential costs of implementing 'hard' measures:

'(...) In-depth studies are usually developed to minimize the coercive content of climate plans (...). Even during the BC government, "hard" measures were adopted only when

⁴⁸ Public entity responsible for the planning, design, maintenance, and management of public parks, gardens, and green spaces in the city.

“soft” measures were not sufficient to achieve the necessary emissions reduction goals.’ (I4)

In this sense, for instance, I6 mentioned the lack of intensity in the ‘hard’ measures implemented and the absence of certain, more effective regulations even during the BC government:

‘The BCC showed a preference for the provision of public services, such as public transport and bicycle infrastructure (...). Regarding ‘hard’ regulation, it is mainly about restricting traffic in certain roads or zones, while more effective policies, such as broader citywide traffic restrictions or limits on car ownership, have not been implemented. I also miss an effective regulation of insulation to limit the heating of buildings.’ (I6)

This is a trend that the BCC did not manage to change despite the good intentions expressed in the creation of the GEECB in 2021, as the political interventionism on its functioning had a counterproductive effect:

‘[The GEECB] was never asked to meet independently or to write a report with advice on desirable urban climate policy. Instead, all meetings were chaired and dominated in terms of agenda-setting by political representatives of the BCC, who, moreover, were so numerous and spoke so much that there was little time left for us, the experts, to speak. Moreover, we had few meetings over the course of two years.’ (I6)

Consequently, these findings support our first hypothesis on higher climate policy activity under RLPs. The evidence on our third hypothesis is mixed: While the BCC in the BC era did not adopt more ‘hard’ climate policy instruments if we look at average adoption over time, the qualitative insights through our interviews indicate greater commitment by BC to adopt ‘hard’ instruments, which supports hypothesis 3.

5.6.2 Modifications to established climate policy instruments

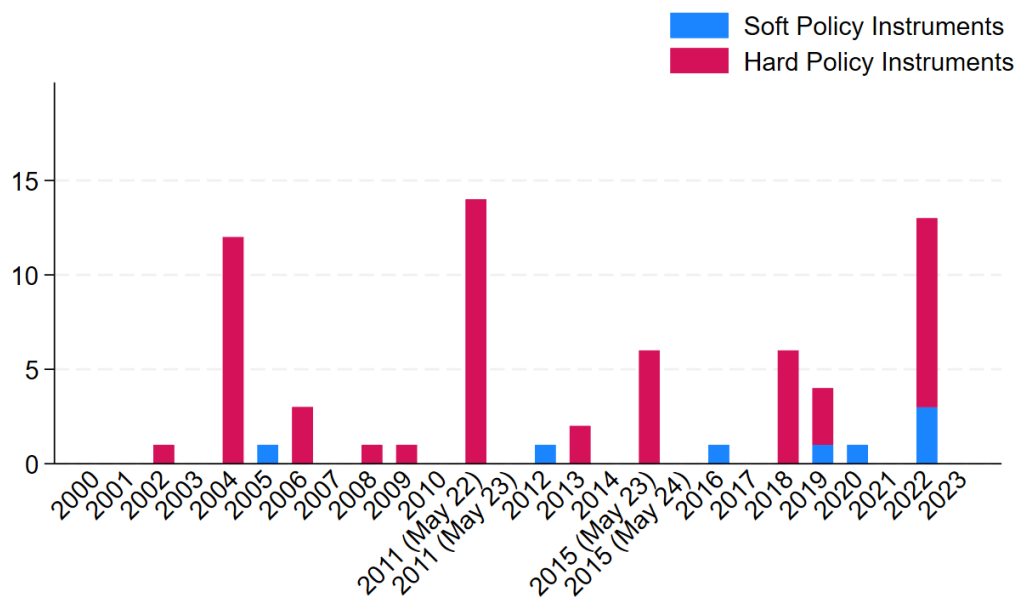
Turning to modifications of climate policy instruments, we observe significantly more instances of expansion (66) than dismantling (25), as reported by Figures 5.4 and 5.5.

This generally more expansive trend in policy instrument modification was confirmed by I2:

‘Continuity takes precedence over dismantling at the local level as, unlike other government settings, it directly responds to citizens and needs to favor practical implementation.’ (I2)

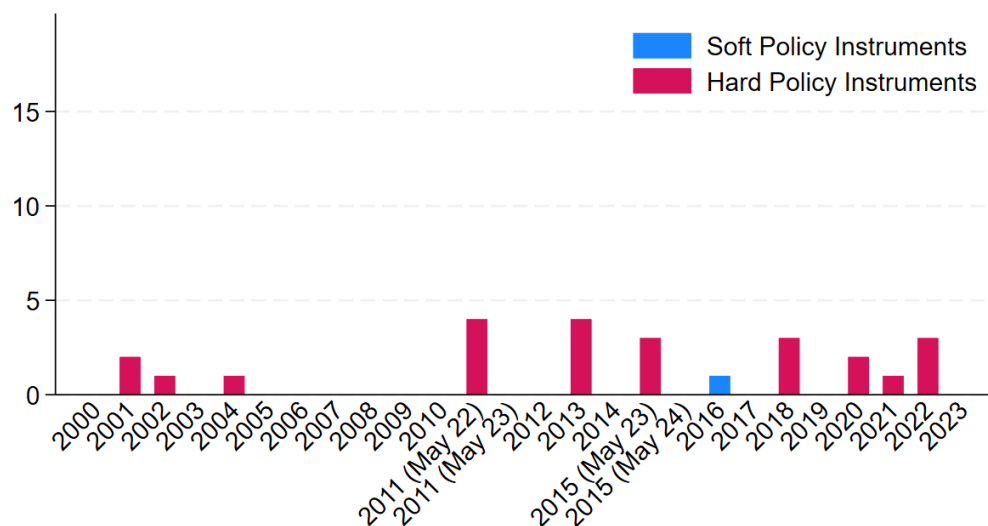
In line with this, Tables 5.3 and 5.4 as well as Figures 5.4 and 5.5 show that 33 policy instruments were expanded (32 ‘hard’ and one ‘soft’ policy instrument) and eight instruments were dismantled (eight ‘hard’ instruments) under the PSC. During CiU’s tenure, nine policy instruments were expanded (eight ‘hard’ and one ‘soft’ instrument) and seven dismantled (seven ‘hard’ instruments), while BC expanded twenty-four policy instruments (eighteen ‘hard’ and six ‘soft’ instruments) and dismantled ten (nine ‘hard’ and one ‘soft’ instrument). Refocusing on the last two periods of governance, we observe that the annual rate of policy expansion was higher during BC’s tenure: 3 (2,25 ‘hard’ and 0,75 ‘soft’) compared to 2,25 (2 ‘hard’ and 0,25 ‘soft’) than during the CiU’s. While the differences in policy dismantling are not very pronounced, it is noteworthy that the CiU used a higher share of ‘hard’ policy instruments (1,75) than BC did (1,12).

Figure 5. 4 Yearly adoption of events of policy expansion by degree of authoritative force



Source: Based on authors’ own data shown in Table E.3 from the Appendix E (2024).

Figure 5. 5 Yearly adoption of events of policy dismantling by degree of authoritative force



Source: Based on authors' own data shown in Table E.4 from the Appendix E (2024).

Table 5. 3 Modification of expanding climate policy instruments by period

	Time in government	Policies overall		'Hard'		'Soft'	
	Years	Absolute	Average	Absolute	Average	Absolute	Average
PSC	28	33	1,17	32	1,14	1	0,03
CiU	4	9	2,25	8	2	1	0,25
BC	8	24	3	18	2,25	6	0,75

Source: Based on authors' own data shown in Table E.3 from the Appendix E (2024).

Table 5. 4 Modification of dismantling climate policy instruments by period

	Time in government	Policies overall		‘Hard’		‘Soft’	
	Years	Absolute	Average	Absolute	Average	Absolute	Average
PSC	28	9	0,32	9	-	0	-
CiU	4	7	1,75	7	1,75	0	-
BC	8	10	1,25	9	1,12	1	0,12

Source: Based on authors’ own data shown in Table E.4 from the Appendix E (2024).

Furthermore, it is mostly ‘hard’ policy instruments that were modified. To understand what drove this, it is important to know that climate action plans have a ‘softer’ nature:

‘Conceptually, climate action plans are a rather ‘soft’ climate policy of a more inspirational nature, whose cyclical revision allows for their strengthening.’ (I3)

This characteristic, evident in these plans’ widespread adoption of ‘soft’ instruments, becomes particularly significant in explaining the observed finding, as climate action plans seldom change due to political reasons. As I2 pointed out:

‘(...) no one wants to face the unpopularity of withdrawing a climate action plan (...). Government activity in this regard is also constrained by the pressure of opposition political parties.’ (I1)

Indeed, when plans do change, this often occurs through the adoption of brand-new plans that replace previous ones:

‘Most politicians like to showcase what they have done themselves (...) that’s why they tend to implement new plans, even if the content of these is very similar to the preexisting ones.’ (I1)

‘The new government of the PSC now prioritizes their “Endreça Plan”. They will not explicitly state that the previous climate plan is no longer important (...), but from now on, it seems that anything not linked to their new Plan will not be a priority.’ (I1)

Conversely, climate protection laws, which tend to include more 'hard' measures, usually undergo changes that impact different instruments through successive updates of the same regulation.

Therefore, as confirmed by our interviewees, the predilections of political parties do not seem to influence their decisions to modify 'hard' or 'soft' policy instruments. Rather, any modifications, whether expansive or dismantling, tend to be based on more technical reasons, such as those stemming from the context arising from the COVID-19 pandemic⁴⁹⁵⁰⁵¹ or demands for adaptation to changes in regulations at other administrative levels. In this sense, I1 stated:

'Modifications to municipal ordinances are usually due to technical requests, changes in higher regulations, or even strong social demand (...).' (I1)

This logic was corroborated by I5, who went into greater detail:

'Sometimes, it is the introduction of new state regulations that drives the change in existing local norms (...) as happened, for example, due to the simplification of administrative procedures, the promotion of the use of online channels, etc. (...) which had to be implemented after the approval of State Law 39/2015.' (I5)

In light of this, our findings suggest that modifications to climate policy instruments on the local level are not directly related to party affiliation. They are rather induced by changes in regulations at higher administrative levels. Therefore, our empirical observations do not support our second and our fourth hypotheses on the positive influence of RLP governance on the expansion of existing climate policy instruments.

5.7 Discussion and conclusion

This article aimed to answer the question of how the entry of a radical left party like BC into a city government affects a city's climate policy. More precisely, it investigated to what degree this leads to the adoption of 'harder' or 'softer' climate policy instruments or to modifications that enhanced or reduced the ambition of already established instruments. To achieve this, we studied climate action plans and climate protection laws

⁴⁹ Modification of 18/03/2020 of the ordinance relating to the restriction of the circulation of certain vehicles in the city of Barcelona with the aim of preserving and improving air quality (2020).
<https://w123.bcn.cat/APPS/egaseta/cercaAvancada.do?reqCode=downloadFile&publicacionsId=19512>

⁵⁰ Modification of 18/11/2020 of the ordinance relating to the restriction of the circulation of certain vehicles in the city of Barcelona with the aim of preserving and improving air quality (2020).
<https://bop.diba.cat/anuncis/antic/022020018411>

⁵¹ Modification of 30/06/2021 of the ordinance relating to the restriction of the circulation of certain vehicles in the city of Barcelona with the aim of preserving and improving air quality (2021).
<https://bop.diba.cat/anuncis/antic/022020018411>

adopted in the city of Barcelona between 1984 and May 2023 and conducted semi-structured interviews with influential stakeholders.

Our review of the policies implemented reveals that during the PSC's dominance, Barcelona put into action 243 'hard' and 145 'soft' policy instruments. Under the CiU's governance, the city introduced 224 'hard' and 210 'soft' ones. Subsequently, during the BC period, 453 'hard' 745 'soft' policy instruments were enacted. Additionally, our study reveals that the first period witnessed 33 expansive modifications (32 'hard' and one 'soft' instrument) and nine dismantling ones (all of them 'hard' policy instruments). In the second phase, there were nine expansions (eight 'hard' and one 'soft' instrument) and seven dismantling modifications ('hard' policy instruments only). In the last cycle, there were 24 policy expanding modifications (18 to 'hard' and six to 'soft') and 10 dismantling ones (nine to 'hard' and one to 'soft').

These data, combined with additional information obtained through the various interviews we conducted, mostly support our first and third hypotheses on the adoption of new climate policy instruments under RLPs. But the modification of local climate policy instruments can be better explained by changes in regulations at higher administrative levels rather than by party affiliation. Consequently, our empirical observations do not support our second and fourth hypotheses on the influence of RLPs on instrument modification.

Overall, this suggests that RLPs primarily adopt new climate policy instruments to raise climate policy ambition. This aligns with existing literature showing that leftwing parties usually exhibit higher commitment levels to the fight against climate change. The various reasons for this include electoral incentives, since the leftwing electorate tends to favor both the adoption of measures to address climate change (McCright et al. 2016) and state intervention and regulation (Ladrech and Little 2019). Likewise, our findings are in line with the literature on the use of new political issues that RLPs employ to redefine their identity to the left of social democracy, as is the case with climate change (Zilliacus 2001; Oswald 2002). This issue remarkably provides an opportunity to strengthen these parties' opposition to a 'traditional enemy,' such as capitalism, by holding this system accountable for the climate crisis.

Our findings also confirm our third hypothesis: Parties with ideologies closer to the left show a greater tendency toward the promotion of 'hard' policy instruments (Schulze 2021). This is motivated both by the better fit of the characteristics of 'hard' policy instruments with the predilection of leftwing parties for state intervention (Båtstrand 2014), and by the opportunity that the adoption of this same type of instrument offers these parties to increase the visibility of their commitment to climate change. On the other hand, the findings of this study also demonstrate that the increased proactivity of radical left parties is proportionally manifested in their preference for 'soft' over 'hard' climate policy instruments. This insight suggests that, notwithstanding their ideological preferences, the potentially lower electoral costs of 'soft' policy instruments would motivate parties to favor them over 'hard' ones.

Likewise, our empirical findings on modifications suggest that policy modifications seem to be more guided by technical criteria within the administrations than by the ideology of the governing parties. Similarly, changes to established policy instruments affect 'hard' policy instruments to a greater extent. This can be explained by the fact that this type of instrument is generally adopted through climate protection laws, which tend to experience greater modifications in subsequent legislation. In contrast, 'soft'

instruments are predominantly enacted through climate action plans, which are more likely to be replaced by new plans than modified.

While this case study has the benefit of explaining one case in great detail, the findings cannot directly be generalized to other cities. Thus, future research could compare the relationship between party ideology and climate policy across various cities. This approach would allow for a more generalizable comparison of the role that RLPs play at the local level in addressing climate change, such as 'Now Madrid' and 'Commitment' in the Spanish cities of Madrid and Valencia, respectively, or the '5 Stars Movement' in the Italian city of Turin. Similarly, these studies could help to identify whether there is an ideological profile common to the parties governing cities with comparable characteristics that are recognized as exemplary in combating climate change, such as Copenhagen, Amsterdam, Berlin, or London. On a different note, researchers could also investigate the extent to which factors beyond ideology may be influencing the proactivity of local governments, such as interactions with other levels of government like regional, state, or EU authorities (Tosun and Peters 2021).

This investigation is further limited to a certain period. For instance, studying the new PSC government and its impact on Barcelona's climate policy would provide valuable insights into the differences between social democratic and radical left forces for climate policy. This line of research would also enable an exploration of how sustained pro-climate leadership might lead to electoral backlashes. This is potentially reflected, for example, in the public aversion to lower carbon transport policies, such as the low emission zones in cities like Barcelona and Madrid (Arroyo Vargas 2023), or in the fear that these improvements might encourage gentrification or the displacement of residents, as seen in Barcelona and London (Aldred and Goodman 2021; Anguelovski et al. 2023).

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Supplementary materials

Appendix A to Introduction

A.1 Codebook for Articles 1-3

1- Summary and coverage

Units of analysis	Political parties in regional/autonomic and national elections.
Unit of observation	Quasi-sentences within party manifestos.
Time period	2016-2023
Countries	Spain
Number of regions	3 (Catalonia, the Basque Country, and Spain)
Source of data	Content analysis of party manifestos based on Carter et al. (2018), the Framing Territorial Demands (FraTerr) dataset (Elias et al., 2021), the Manifesto Data Collection (MRG/CMP/MARPOR) (Lehmann et al. 2023), and the Regional Manifestos Project (RMP) (Gómez et al., 2022).

2. Variables of identification

Year	Year	2016 2017 2019 2020 2021
Political Party	Name of the political party	ERC ECP CDC/JxC PSOE/PSC/PSE-EE VOX PP UP/EP-EB Cs CUP

		EAJ-PNV EHB MP-E Unite TE PRC NA+/UPN EM/BNG CMP CC-PNC/CC-NC/CC
Quasi-sentence code	Code to identify each quasi-sentence (Political party + sequential numbers)	ERC + 1, 2, 3, ... ECP + 1, 2, 3, ... CDC/JxC + 1, 2, 3, ... PSOE/PSC/PSE-EE + 1, 2, 3 VOX + 1, 2, 3, ... PP + 1, 2, 3, ... UP/EP-EB Cs + 1, 2, 3, ... CUP + 1, 2, 3, ... EAJ-PNV + 1, 2, 3, ... EHB + 1, 2, 3, ... MP-E + 1, 2, 3, ... Unite + 1, 2, 3, ... TE + 1, 2, 3, ... PRC + 1, 2, 3, ... NA+/UPN + 1, 2, 3, ... EM/BNG + 1, 2, 3, ... CMP + 1, 2, 3, ... CC-PNC/CC-NC/CC + 1, 2, 3, ...
Quasi-sentence text	Text of the quasi-sentence	

2. Rest of variables

Variables on climate change

Salience of climate	Sum of the total percentage of quasi-sentences over the total of each party manifesto assigned to pro climate content and the total percentage of quasi-sentences over the total of each party manifesto assigned to anti climate content. The pro climate content includes support for policies that, if implemented, would reduce net	
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	greenhouse gas emissions or increase carbon sinks. The anti climate content includes support for policies that, if implemented, would increase net greenhouse gas emissions or reduce carbon sinks (Carter et al. 2018).	
Position on climate	Difference between the total percentage of quasi-sentences over the total of each party manifesto assigned to pro climate content and the total percentage of quasi-sentences over the total of each party manifesto assigned to anti climate content. The pro climate content includes support for policies that, if implemented, would reduce net greenhouse gas emissions or increase carbon sinks. The anti climate content includes support for policies that, if implemented, would increase net greenhouse gas emissions or reduce carbon sinks (Carter et al. 2018).	
Pro climate	Percentage of quasi-sentences over the total of each party manifesto that indicate support for policies that, if implemented, would reduce net greenhouse gas emissions or increase carbon sinks. These quasi-sentences may be general statements that acknowledge climate change as a policy problem, that are in favour of policies that would reduce emissions, or they may form part of specific proposals for policies that would reduce net greenhouse gas (GHG) emissions (Carter et al. 2018).	Examples: <i>"We must contribute in solidarity to the European Union's goal of reducing greenhouse gas emissions by 55% by 2030 compared to 1990."</i> (JxC, 2021) <i>"We need an energy model that transitions towards an energetically sovereign Catalonia, progressively replacing fossil fuels with renewable energies, setting a target of 32% by 2030 and 100% by 2050 in accordance with the EU."</i> (JxC, 2021) <i>"The transition from a linear economy to a circular economy has become an unavoidable</i>

		<i>condition for future sustainability." (JxC, 2021)</i> <i>"We will develop new technologies applied to agriculture, such as a true 'Smart Rural' that allows for increasingly efficient production in the use of water, energy, nutrients, conservation, and improvement of agricultural soil, etc." (JxC, 2021)</i>
Anti climate	Percentage of quasi-sentences over the total of each party manifesto that indicate support for policies that, if implemented, would increase net greenhouse gas emissions or reduce carbon sinks. These quasi-sentences may be statements that deny that climate change is a problem, general statements against policies that would reduce emissions or (more commonly) they will be policy proposals that would increase net GHG emissions (Compston and Bailey, 2013: 147). These proposals may include the reversal of climate policies. They may also include a wide range of policies that have increased emissions as a side-effect (Carter et al. 2018).	<i>"We will abolish emission taxes for nitrogen oxides into the atmosphere produced by commercial aviation and for the emission of gases and particles into the atmosphere produced by industry, the tax on packaged sugary drinks, the tax on non-productive assets of legal entities, and the tax on carbon dioxide emissions from mechanically powered vehicles." (PP, 2021)</i> <i>"We will maintain Barcelona's predominant position as the leading cruise port in Europe." (JxC, 2021)</i> <i>"We will promote the capture of international investment funds to invest in Catalonia, through the presentation of the Catalonia 2030 dossier, which demonstrates economic possibilities and profitability for the coming years." (JxC, 2021)</i> <i>"We will work towards a Common Agricultural Policy (CAP) for 2021-2027 aimed at</i>

		<i>professionals, using the genuine farmer figure with redistributive payments per agro-region."</i> (PSC, 2021)
Not sufficiently relevant	Percentage of quasi-sentences over the total of each party manifesto that are not sufficiently relevant to net greenhouse gas emissions to be coded as 1, 2 or 3 (Carter et al. 2018).	(...)
Pro Environment	Percentage of quasi-sentences over the total of each party manifesto that potentially includes climate policy. Includes general statements in favour of environmental protection that may include the climate, pro-environmentalism, pro-sustainable development, pro-green growth, general criticisms of the government's environment policy that potentially include but are not specific to climate policy, pro-general environmental EU action that potentially includes climate change, pro-use of environmental indicators, pro-foreign environmental aid, pro-environmental taxation, sustainable tourism (Carter et al. 2018).	Example: " <i>On the other hand, this tax must also serve to levy this new type of commerce that contributes decisively to generating more congestion due to the high number of home deliveries and the negative externalities for the territory and the environment, the cost of which is not assumed by these types of companies.</i> " (ERC, 2021)
Pro-lower carbon energy / Pro-renewable energy Source: Carter et al. (2018)	Percentage of quasi-sentences over the total of each party manifesto that speaks in favor of renewables and cleaner energy. Includes nuclear and includes gas distribution where this would be an improvement on the status quo in terms of GHG emissions. The coding scheme is typically indifferent on privatization of the energy sector unless there is evidence that it would contribute to reduced GHG emissions. Inclusion of content in favour of international interconnections depends on context. It includes proposals on clean coal in the few instances where they occur, giving parties the benefit of the doubt regarding its feasibility and impact (Carter et al. 2018).	Example: " <i>Strengthen the biomass strategy of Catalonia within the government's renewable energy plan.</i> " (ERC, 2021)

Pro-energy efficiency	Percentage of quasi-sentences over the total of each party manifesto in favor of buildings' energy efficiency. Includes smart grids and efficiency in transmission and generation. Includes measures to prevent water wastage during distribution or consumption (Carter et al. 2018).	Example: " <i>Achieve high levels of savings and energy efficiency</i> " (ERC, 2021)
Pro-lower carbon transport	Percentage of quasi-sentences over the total of each party manifesto in favor of public transport, cycling and pedestrians, cleaner vehicles, road-pricing. Includes general mentions of 'sustainable transport', pro-road pricing. Includes high-speed rail where there is evidence that it would reduce emissions. Safety (e.g., rail safety) is not included. Establishment of transport regulators or chiefs not generally included unless specifically aimed at improved lower carbon transport. Anti-road congestion measures are not included. Rural transport schemes are included if they mainly imply public transport supports. Includes bus links to airports. Includes teleworking (Carter et al. 2018).	Example: " <i>Implementing the tax on carbon dioxide emissions from mechanically propelled vehicles, with a dedicated purpose to support the Climate Fund and the Natural Heritage Fund.</i> " (ECP, 2021)
Pro-carbon sinks	Percentage of quasi-sentences over the total of each party manifesto in favor of forestry, wetlands, protection of green areas. Includes promotion of brownfield development instead of greenfield development (Carter et al. 2018).	Example: " <i>Promote the creation during this legislature of the Agency for Natural Heritage and Biodiversity, responsible for the planning, management, restoration, improvement, and study of the natural environment of Catalonia both on land and in the sea, with the aim of conserving its natural heritage, biodiversity, and geodiversity, and ensuring environmental services and positive economic externalities of ecosystems, with criteria of integrity, sustainability, persistence, and efficiency.</i> " (ECP, 2017)

Waste	Percentage of quasi-sentences over the total of each party manifesto promoting any or various stages of the waste cycle. Includes all related content that indicates support for waste policies that would reduce GHG emissions or increase sinks (Carter et al. 2018).	Example: <i>"Prevention and reduction of waste can generate employment in the repair and recycling sector of products, enable public expenditure reduction, and move towards a low-carbon economy"</i> (CUP, 2021)
Planning	Percentage of quasi-sentences over the total of each party manifesto in favor of spatial planning, pro-urban living measures (Carter et al. 2018).	Example: <i>"Promote the rehabilitation of housing, public spaces, and neighborhoods with criteria of social cohesion and environmental and social sustainability."</i> (ECP, 2021)
Agriculture & Food	Percentage of quasi-sentences over the total of each party manifesto in favor of environmental protection measures in agriculture, aquaculture and forestry that include (or that may include) emissions-relevant measures. Opposition to subsidies for GHG-intensive agriculture (including pro-CAP reform statements). Pro-domestic consumption of local and national food. Includes policies for better provenance labelling but do not include international trade promotion of local produce. Does not include organic farming (Carter et al. 2018).	Example: <i>"Make food sovereignty a strategic objective of the new Republic, understood as a model of the agro-livestock sector based on proximity, which preserves agro-biodiversity and strengthens cooperative development networks, far from the productivist models of industrial agriculture linked to the use of transgenics and petroleum-derived products."</i> (CUP, 2017)
Anti-growth	Percentage of quasi-sentences over the total of each party manifesto with explicit anti-economic growth statements. Also includes general growth-decreasement measures (e.g., general stimulus packages) and explicit pro-consumption mentions (Carter et al. 2018).	Example: <i>"Neoliberal deregulation has led to uncontrolled growth of financial assets that is at the root of the periodic crises we are experiencing."</i> (ECP, 2017)
Pro-aviation and shipping	Percentage of quasi-sentences over the total of each party manifesto in favor of the aerospace industry. Pro-shipping content is included where this does not clearly displace higher-carbon transport (Carter et al. 2018).	Example: <i>"We will maintain Barcelona's predominant position as the leading cruise port in Europe."</i> (JxC, 2021)
Pro-roads	Percentage of quasi-sentences over the total of each party manifesto in favor of road-building. Support for buying cars and for the car industry.	Example: <i>"Negotiate with the State Government a payment schedule for land expropriations for the</i>

	Road safety is not included (Carter et al. 2018).	<i>construction of roads and other infrastructure.</i> " (PSC, 2021)
Pro-fossil fuels	Percentage of quasi-sentences over the total of each party manifesto in favor of fossil fuel extraction and in favour of consumption where these are not 'cleaner' (Carter et al. 2018).	Example: -
Pro-intensive Agriculture	Percentage of quasi-sentences over the total of each party manifesto in favor of in favour of GHG-intensive agriculture. Includes content in favour of the CAP and other subsidies for GHG-intensive farming. We code this conservatively; only explicit supports for GHG-intensive farming are coded (Carter et al. 2018).	Example: " <i>We will also recover support from the CAP in this generational renewal.</i> " (JxC, 2021)
Pro-growth	Percentage of quasi-sentences over the total of each party manifesto in favor of economic growth. Only explicit positive mentions of 'economic growth'. Also includes general growth-stimulus measures and explicit pro-consumption mentions. Does not include economic growth in the context of least-developed countries (Carter et al. 2018).	Example: " <i>Economic growth, employment, and the generation of opportunities are our hallmarks of identity.</i> " (PP, 2017)
Anti-environmental taxes	Percentage of quasi-sentences over the total of each party manifesto in favor of fewer or lower climate related taxes (e.g., anti-environmental taxes, anti-carbon tax, anti-fuel tax, and pro-lower carbon tax) and of not climate related taxes if they are statements that could include opposition to a carbon tax (e.g., "we promise no new taxes" in a context where there is no carbon tax, or general statements such as "we will reduce taxes" that potentially encompass carbon related levies as they do not specify any concrete type of tax that would be affected) (Carter et al. 2018).	Example: " <i>We will carry out a reduction of tax burdens on companies to make Catalonia an attractive region for businesses again.</i> " (PP, 2017)
Pro-tourism	Percentage of quasi-sentences over the total of each party manifesto in	Example: " <i>We will recover Catalonia as a top-level</i>

	favor of tourism. Does not include measures directed explicitly at domestic tourism. Does not include 'sustainable tourism', which is coded as pro-climate (Carter et al. 2018).	<i>international tourist destination."</i> (Cs, 2017)
Pro-global free trade	Percentage of quasi-sentences over the total of each party manifesto in favor of global free trade regimes. Does not include specific pro-export or pro-trade content. International regime level: content that is simply in favour of national exports is not included. Global scope: EU single-market not included (Carter et al. 2018).	Example: " <i>We will strengthen our global leadership in events, fairs, and congresses related to new technologies and production processes, such as the Mobile World Congress, Smart City Expo, ISE, or 4YFN, to continue positioning ourselves as an open economy where investment is welcome at the international level.</i> " (JxC, 2021)
Anti-climate (other)	Additional anti-climate content that has not been included in named categories above (Carter et al. 2018).	

Variables on centre-periphery preferences

Center-periphery salience	Sum of the total percentage of quasi-sentences over the total of each party manifesto assigned to pro-periphery demands and the total percentage of quasi-sentences over the total of each party manifesto assigned to pro-centre content (Gómez et al., 2022). The 'pro-periphery' (regional) content includes the following identarian demands: a) More competencies to be devolved to the regional level in order for the regional administration to engage in regional nation-building policies (nationalism, promotion of vernacular language, cultural links with diaspora and cultural assimilation). b) Use the competencies already devolved to the regional administration in order to promote (regional) nation-building policies at this level. c) Statements against nationalism as promoted by the state or against the existing nation-state.
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	And also, the following competency demands: a) All policy preference categories demanding more competencies for the peripheral/regional territory, except the identitarian ones, which belong to the identitarian dimension. b) All policy preference categories that come demand fewer competencies for the central state, except the identitarian ones, which belong to the identitarian dimension. c) General statements in favour of decentralization at the regional level. The ‘pro-center’ (national) content includes the following identitarian demands: a) The state should have more authority/competencies in order to engage in [state] nation-building policies. c) Use the competencies at the disposal of the state administration in order to promote [state] nation-building policies at this level. c) Statements against minority nationalism / regionalism. And also, the following competency demands: a) All policy preference categories that demand more competencies for the state level, except the identitarian ones. b) All policy preference categories demand fewer competencies for the peripheral territory, except the identitarian ones. c) General/abstract statements against decentralization, in favour of centralization or re-centralization at the state level.
Center-periphery position	Difference between the total percentage of quasi-sentences over the total of each party manifesto assigned to pro-periphery demands and the total percentage of quasi-sentences over the total of each party manifesto assigned to pro-center content, measuring the position along the center-periphery scale from -100 (for a manifesto exclusively dedicated to pro-center categories) to 100 (for a manifesto totally devoted to pro-periphery categories) (Gómez et al., 2022). The ‘pro-periphery’ (regional) content includes the following identitarian demands: a) More competencies to be devolved to the regional level in order for the regional administration to engage in regional nation-building policies (nationalism, promotion of vernacular language, cultural links with diaspora and cultural assimilation). b) Use the competencies already devolved to the regional administration in order to promote (regional) nation-building policies at this level.

	c) Statements against nationalism as promoted by the state or against the existing nation-state. And also, the following competency demands: a) All policy preference categories demanding more competencies for the peripheral/regional territory, except the identitarian ones, which belong to the identitarian dimension. b) All policy preference categories that come demand fewer competencies for the central state, except the identitarian ones, which belong to the identitarian dimension. c) General statements in favor of decentralization at the regional level. The ‘pro-center’ (national) content includes the following identitarian demands: a) The state should have more authority/competencies in order to engage in [state] nation-building policies. c) Use the competencies at the disposal of the state administration in order to promote [state] nation-building policies at this level. c) Statements against minority nationalism / regionalism. And also, the following competency demands: a) All policy preference categories that demand more competencies for the state level, except the identitarian ones. b) All policy preference categories demand fewer competencies for the peripheral territory, except the identitarian ones. c) General/abstract statements against decentralization, in favor of centralization or re-centralization at the state level.
Salience of pro-decentralisation	Percentage of quasi-sentences over the total of each party manifesto allocated to demands for support for federalism or decentralization of political and/or economic power (Lehmann et al. 2023).
Salience of pro-independence	Percentage of quasi-sentences over the total of each party manifesto in favour of independence (Elias et al., 2021)
Position on decentralisation	Difference between the percentage of quasi-sentences over the total of each party manifesto allocated to demands for support for federalism or decentralization of political and/or economic power, and the percentage of quasi-sentences over the total of each party manifesto allocated to opposition to political decision-making at lower political levels, support for unitary government, and for more centralization in political and administrative procedures (Lehmann et al. 2023).
Position on independence	Difference between the percentage of quasi-sentences over the total of each party manifesto in favour of independence

	and the percentage of quasi-sentences over the total of each manifesto against independence (Elias et al., 2021).
National branch	Distinguish between Non-State-wide parties (NSWPs) that only compete in regional elections and Statewide parties (SWPs).
Election level	Distinguish between elections held on the national level and the regional level.

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A.2 Codebook for Article 4

1- Summary and coverage

Unit of analysis	Political parties in local government.
Unit of observation	Climate policy instruments adopted or modified through climate laws and action plans at the local level.
Time period	1984-2023 (May, 28)
Countries	Spain
Number of cities	1 (Barcelona)
Source of data	Content analysis of climate action plans and protection laws essentially based on the Climate Policy Database (CPD) published by the NewClimate Institute (2022) and in relevant specialized literature (Steinebach and Knill et al. 2017)

2- Variables of identification

Policy_title	This variable contains the name of each law and action plan to which the different climate policy instruments and modifications collected in the database belong.	Example: Pla clima 2018-2030.
Policy_instrument_id	This variable identifies each newly adopted climate policy instrument in the database. The policy instrument ID includes both an identifier ('AD') and a sequential number (1, 2, 3...).	Examples: AD1, AD2, AD3, etc.
Policy_instrument_content	This variable contains the content of each climate policy instrument as it appears in the original text of the protection law or action plan to which it belongs.	(...)
Policy_instrument_start	This variable indicates the year in which a climate policy instrument came into effect.	Examples: 2002, 2004, 2020, etc.
Policy_instrument_end	This variable indicates the year in which a climate policy instrument expires. If it never expires, it is coded as 'in force'.	Examples: 2005, 2019, 2021, 'in force'
Policy_modification_id	This variable identifies each modification made to previously existing climate policy instruments. The policy modification ID	Example: MOD1, MOD2, MOD3, etc.

	includes both an identifier ('MOD') and a sequential number (1, 2, 3...).	
Policy_modification_content	This variable contains the content of each modification made to previously existing climate policy instruments, as it appears in the original text of the protection law or action plan to which it belongs.	(...)
Policy_modification_start	This variable indicates the year in which a climate policy modification came into effect.	Examples: 2002, 2004, 2020, etc.
Policy_modification_end	This variable indicates the year in which a modified climate policy instrument expires. If it never expires, it is coded as 'in force'.	Examples: 2005, 2019, 2021, etc. 'in force'

3. Main variables

Variables on policy instruments adoption

Informational instruments		
Advice or aid in implementation	Assistance programs for actors engaging in mitigation-related activities.	Example: “Support and dynamization for the creation of Energy Communities. Objective: Support and dynamization based on the realization of technical studies, promotion, awareness and dissemination that encourage citizens to carry out actions and investments in the form of an energy community Budget: 108.900 € Successive tenders can be proposed until they reach objective, or even raise direct subsidies to citizens and companies in order to expand the impact of the action. Expected results: Creation of energy communities and specific results in 4 different areas: multi-family buildings, single-family buildings, industrial estates and charging of shared electric vehicles.” (Energy and Climate

		Action Framework Program 2020-2023)
Information provision	Schemes aimed at increasing access to information with potential positive mitigation outcomes, such as energy savings potentials or existing mitigation incentive policies.	Example: "Create and maintain a dedicated space for Low Emission Vehicles within the Metropolitan Area of Barcelona (AMB) web portal. Include information and activities related to these vehicles and sustainable mobility, and disseminate best practices for promoting green logistics by giving visibility to logistics companies with environmental certification." (Metropolitan Urban Mobility Plan 2019-2024)
Endorsement label	Consumer-oriented labelling schemes which inform that a certain good or product adapts to pre-defined minimum standards related to mitigation outcomes (Grolleau et al. 2015).	Example: "Energy certification of buildings. Provide the tools and organizations to certify that constructed or remodeled buildings meet the standards for the Energy Eco-label. Using control and verification teams, it must be ensured that new buildings have adopted the measures outlined in the project once construction is completed. A project is proposed to certify the energy efficiency of buildings, whether residential or service buildings. This certification will be granted by the official body through a team of individuals who will carry out field work for energy control and verification to certify if newly constructed or fully renovated buildings (once built/renovated) incorporate the energy-saving measures proposed in the project. This team will also be responsible for certifying buildings that wish to obtain the Energy Eco-label for older buildings (a project included in this Plan). Energy certification must be a prerequisite to obtaining the Energy Eco-label, which will guarantee to the public and other organizations that the building is

		energy efficient. Having the Energy Eco-label for buildings could result in tax benefits and/or eligibility for certain grants, once its feasibility is studied. Existing studies and processes, such as IDAE studies on residential building certification, can be used as a starting point and extended to sectors such as offices, shops, hotels, etc." (Barcelona Energy Improvement Plan)
Professional training and qualification	Training programs for activities associated directly or indirectly with mitigation outcomes.	Example: "Promotion of training in energy efficiency and management for professionals. Develop content and create tools and programs to educate professionals related to the energy sector about new design concepts, tools, technologies, and energy use and management. Promote the dissemination and use of new computer tools and new design and energy management concepts among various professional groups: architects, engineers, installers, etc. With the collaboration of professional associations, guilds, universities, vocational training institutions, etc." (Barcelona Energy Improvement Plan)
Research & Development and Deployment		
Demonstration project	Support for the implementation of pre-operational technologies or new uses of existing technologies (Bossink 2017).	Example: "Pilot test of traffic management with traffic light control and environmental criteria. Determine the effectiveness of environmental traffic management. It is proposed to initiate a pilot test in a specific area of the city that is significant enough to verify the effects on emission reduction and congestion decrease through traffic management. Future immission modeling indicates that the area requiring the most surveillance

		and control regarding air quality is the area where the XVPCA station in Eixample is located. Therefore, it is proposed, if this trend continues, to start the pilot test in this area." (Barcelona Energy, Climate Change, and Air Quality Plan 2011-2020)
Research program	Incentive schemes to promote research on near-to-market technologies with mitigation potential development (Sánchez-Sellero & Bataineh 2021).	Example: "Search for and test new plant species in collaboration with institutions and research centers to conserve urban greenery and biodiversity in the context of the transformation process that climate change is causing in the environment." (Barcelona Green and Biodiversity Plan 2020)
Regulatory instruments		
Auditing	Inspection schemes to enforce compliance of specific actors with established rules and standards.	Example: "Conducting energy audits: Energy diagnosis. The first step to understanding the real potential for energy savings in municipal facilities is through conducting energy audits. Carrying out an energy audit in a facility can result in savings of over 5.0% due to the improvements identified in the study. Additionally, the results of the audits provide the necessary information to define future policies on energy efficiency and renewable energy, with a more thorough understanding of the energy consumption profile of municipal facilities." (Plan for Energy Savings and Improvement in Municipal Buildings)
Environmental permit	An environmental permit is a main instrument where governments influence private actors (including publicly owned firms), as are emission taxes, e.g., SO ₂ taxes creating a market incentive for reducing SO ₂ emissions (Huppes 2001)	Example: Example: "Introduction of environmental requirements for the truck fleet operating at the Port of Barcelona. Reduce emissions associated with the truck fleet operating at the Port of Barcelona.

		In the port area, there are 19,760 daily truck trips, of which 25% are container traffic. The Port of Barcelona has a P+ authorization for container transport, which facilitates the entry and exit of trucks in the port area of Barcelona. To control emissions from these vehicles (containers), the Port Authority of Barcelona will establish environmental criteria in the requirements and incentives needed to obtain this authorization. The environmental requirements regarding NOx and PM emissions are: - Vehicles that are not compliant with the Euro II standard or later will not be able to obtain this type of license starting in 2007. - Vehicles that are not compliant with the Euro III standard or later will not be able to obtain this type of license starting in 2010. - Vehicles manufactured according to earlier standards can obtain the P+ license exclusively if they implement measures to correct emissions. Note: This project is associated with the Generalitat de Catalunya's Action Plan related to the declaration of Special Protection Zones for the Atmospheric Environment." (Barcelona Energy, Climate Change, and Air Quality Plan 2011-2020)
Building standards and conditions	Mandatory energy efficiency standards for new or renovated buildings (Laustsen, 2008).	Example: "Energy improvements in municipal public buildings. Objectives: Actions that improve the energy performance of municipal equipment buildings, reducing demand and decreasing consumption levels. These investments are essential in order to achieve the objective of the City Councils 100% Renewable 2030, through the reduction of municipal

		energy consumption by 50% compared to 2018 levels Budget: €15M, subject to budget availability (2021-23) Expected results: To achieve the part corresponding to the period of validity of this Framework Programme, of the objective of reducing 50% of municipal consumption of the 100% Renewable City Councils project 2030. The actions may include audits or previous diagnoses that allow to endow the actions to be carried out, but also the same actions (for example: actions in the thermal enclosure (insulation, enclosures, solar protections, etc.), improvement of thermal and air conditioning installations (sectorization, greater efficiency, elimination of fossil fuels, etc.), change to efficient lighting systems, installation of systems of energy monitoring and control flexibility and aggregation infrastructure, introduction of hydrogen production and supply systems.” (Energy and Climate Action Framework Program 2020-2023)
Product standards and conditions	Mandatory standards for specific products to limit their energy or emissions intensity or their environmental impact in general (Sachs, 2012).	Example: "General Criteria for Urban Elements. All urban elements must comply with the following general criteria: (...) - Sustainability: social and environmental. (...) Documentary accreditation will be required through certifications of the materials used, the manufacturing or production conditions, and quality, in accordance with the relevant standards. Suppliers must provide the corresponding valid certifications of fair production and sustainable management.

		Special emphasis will be placed on issues related to the ecological footprint of the element, such as the sustainable extraction of raw materials (wood, granite, etc.), energy savings throughout the production process and the useful life of the element, minimization of pollutant emissions, and the recyclability of the materials used, both before production and at the end of the element's useful life." (Instruction on Urban Elements in the City of Barcelona)
Sectoral standards and conditions	Sector-wide mandatory standards with mitigation purposes (Baron et al., 2007).	Example: "Advancing Sustainable Tourism in Harmony with the Territory. Promote sustainable tourism that balances with the territory and benefits the local community. Achieve the shared responsibility of institutions, the tourism industry, and visitors in the efficient use of natural resources, maintenance of environmental quality, and preservation of tangible and intangible natural heritage." (Citizen Commitment to Sustainability 2012-2022)
Vehicle fuel economy and emission standards and conditions	Mandatory standards for the maximum emission of GHGs and minimum fuel-efficiency for new vehicles (Kodjak, 2015).	Example: "Sustainable and safe vehicles. 5.3.1. Promotion of efficient vehicles that reduce the externalities of private vehicle mobility (noise, pollution, accidents). Encourage the use of electric vehicles and other fuels such as LPG, CNG, Biogas, and Hydrogen. The use of alternative fuels (electric mobility, LPG, CNG, biogas, hydrogen...) can contribute to reducing CO2 emissions, decreasing energy dependence, and improving efficiency. Cities can become laboratories to extend these new technologies to citizens

		and become key environments for the industry around these new fuels. Nearly 30% of the automotive industry in Spain is concentrated around the Metropolitan Area of Barcelona, which is one of the European hubs of the sector. Supporting its development is vital for the global competitiveness of the automotive sector, but also and especially for the environmental improvement and quality of life in our city. The city's participation in projects promoting electric vehicles, such as the LIVE Barcelona Project – Logistics for the Implementation of the Electric Vehicle, makes the city a strategic testing ground for promoting this leap in urban mobility that the use of electric vehicles will bring. Projects must be foreseen to contribute to the development of knowledge and communication mechanisms, the development of a regulatory framework, the implementation of fleets and test banks, as well as infrastructure, and the promotion of industrial transformation and innovation, both for electric vehicles and those using alternative fuels. Objectives - Facilitate the increase of trips using electric vehicles and other fuels such as LPG, CNG, biogas, and hydrogen in the city. - Promote the use of electric vehicles and alternative fuels among citizens. - Reduce emissions in the city (pollution and noise)." (Barcelona Urban Mobility Plan 2013-2018)
Monitoring	Continuous and systematic collection of data to supervise specific activities for evaluation and enforcement purposes.	Example: "Monitoring. The person responsible for monitoring the application of

		environmental criteria in exhibitions must be the same technician responsible for the contract, who will supervise compliance with and execution of the clauses established in this document. For this purpose, the responsible technician must request, whenever necessary, the relevant verifications or certifications from the contracted company or the justificatory reports indicated in section 4.2 of this technical instruction. The managers of the 'More Sustainable City Council' program may request the contracting authority to provide information related to the monitoring of this instruction, in accordance with the Control List for the application of sustainability criteria in exhibitions, attached to this instruction." (Technical Instruction for the Application of Sustainability Criteria in Exhibitions)
Obligation schemes	Mandatory requirement to comply with regular quotas for mitigation-related outcomes, such as yearly energy efficiency improvements for businesses (European Commission, 2012).	Example: "Article 4. Obligations of the Activity Holder. 1. Holders of new activities included within the scope of this Ordinance are required to prepare an individual action plan for episodes of high atmospheric pollution by NO₂ and PM₁₀ and submit it to the City Council within six months from the start of the activity. This obligation is considered fulfilled when the activity holders have signed a collaboration agreement with the Department of Territory and Sustainability of the Generalitat de Catalunya, which establishes actions in the event of a preventive notice or environmental pollution episode to reduce NO₂ and PM₁₀ emissions,

		as long as the mentioned agreement is in force. 2. The individual action plan must be reviewed whenever there is a modification of the activity that substantially affects its emissions. Additionally, the individual action plan must be kept updated at all times. To this effect, the activity holder is responsible for systematically updating any data in the plan that may have changed. If the individual action plan is modified, an updated copy must be submitted to the City Council within three months. 3. In the event of cessation of the activity or modification of the activity such that it no longer falls within the scope of this Ordinance, the activity holder must notify the City Council within three months. 4. In the event of the transfer of the administrative title in environmental and/or activity matters, both the new and the former holders of the activity must notify the City Council within three months. If the transfer occurs without the corresponding notification, both the former and the new holders will be jointly liable for all responsibilities and obligations derived from this Ordinance." (Model Ordinance Regulating Protection Against Atmospheric Pollution by NO₂ and PM₁₀ from Industrial Activities)
Other mandatory requirements	This category includes any mitigation-related obligations not covered by previous instruments.	Example: "Incorporation of mandatory technical prescriptions in tenders and other criteria related to the reduction of emissions during the provision of services. Objective: Reduce GHG emissions among companies and concessionaires providing

		metropolitan services through the progressive integration of low-carbon clauses in the specifications of tenders. This reduction relies on the implementation of mandatory technical prescriptions. Possible extensions: The reduction objective could be expanded with other criteria such as circular economy, energy efficiency, waste reduction, etc., which are directly linked to the reduction and avoidance of emissions. Expected results: Establishment of quantified GHG emission reduction objectives, integrated into the business plan of each manager." (Energy and Climate Action Framework Program 2020-2023)
Prohibition mechanisms	Regulatory tools used by governments to reduce GHG emissions by banning or restricting certain behaviors, activities, or substances.	Example: "Article 10. Traffic Restriction Measure. 1. To improve air quality and mitigate greenhouse gas emissions, as well as to mitigate the impacts of climate change and protect public health, access and circulation of the most polluting vehicles in the Barcelona Low Emission Zone (LEZ) are prohibited. 2. The measure established in section 1 applies from Monday to Friday, during the hours of 07:00 to 20:00. 3. In accordance with the revised text of the Local Tax Regulation Law, approved by Royal Legislative Decree 2/2004, of March 5, access and circulation of vehicles in the LEZ may be subject to a fee as established by the corresponding fiscal ordinance." (Ordinance Establishing Access, Circulation, and Parking Criteria

		for Vehicles in the Low Emission Zone of Barcelona and Promoting Emission-Free Mobility)
Economic instruments		
Funds to sub-national governments	Direct transfer of funds from national to subnational governments for activities that have a potential to reduce the region's GHG emissions.	Example: "Local plans to adapt to climate change in metropolitan municipalities (PLACC). Objective: Define adaptation plans to climate change in metropolitan municipalities to increase their resilience to the impacts of climate change. This action, in addition to being included in the Climate and Energy Plan 2030 and being part of the pact with the Covenant of Mayors of the EU, to which the Metropolitan Area of Barcelona (AMB) is a signatory, also involves established commitments and coordination with the Deputation of Barcelona for its achievement. Budget €235,950: Technical assistance for drafting 15 PLACCS (Local Climate Change Adaptation Plans) until 2030. Possible extensions: Monitoring and updating of adaptation actions proposed by the city councils and evaluation of their degree of achievement. Informative material to disseminate adaptation actions carried out by metropolitan municipalities in synergy with metropolitan actions. Expected results: All metropolitan municipalities will have a plan to adapt to climate change in line with the AMB's Climate and Energy Plan 2030, which includes the Metropolitan Adaptation Plan. (Energy and Climate Action Framework Program 2020-2023)
Infrastructure investments	Direct funding for infrastructure projects with a mitigation component (Qureshi, 2016).	Example: "ESCO Photovoltaic in municipal public buildings

		Objective: Execution of photovoltaic solar installations on roofs of public buildings through an ESCO financing model Budget: € 5M of mobilized investment Possible extensions: it is possible to consider the extension of this action through successive tenders, in case of success of the same Expected results: Execution of 5Mmp of photovoltaic solar installations in municipal buildings without increasing any budgetary or Metropolitan Area of Barcelona (AMB) or City Councils (financing from savings generated)” (Energy and Climate Action Framework Program 2020-2023)
Procurement rules	Government public procurement policies aimed towards increasing sustainability and reducing the emissions intensity of goods and services purchased (van Asselt et al., 2006)	Example: "7. Draft and disseminate a technical instruction guide or templates to all municipalities to facilitate the selection and drafting of criteria in the specifications for contracting services that use Low Emission Vehicles (LEV) in their fleet or include the purchase of LEVs in service contracts and/or others." (Metropolitan Urban Mobility Plan 2019-2024)
RD&D funding	Direct government funding for green R&D programs or projects (Arnold, 2012)	Example: “Metropolitan renewable hydrogen strategy. Objective: Support a coordinated and promoted strategy from the Metropolitan Area of Barcelona (AMB) Presidency Area in coordination with other local administrations, the Generalitat and the State, research centers, and entities such as TMB. Hydrogen is one of the European Commission's top priorities (together with energy communities) in addressing the climate emergency in the next decade. The AMB must play a key role due to its geostrategic position and existing infrastructures.

		Budget: €8M (2021-23) according to budget availability. Possible extensions according to the evolution of energy. Expected results: Promote a Centre of Excellence for R&D for the optimization and generation of hydrogen from renewable sources (green hydrogen). Develop hydrogen generation and supply projects for bus fleets, waste collection vehicles, and other uses related to transport and industry (hydrogen)." (Energy and Climate Action Framework Program 2020-2023)
Energy and other taxes	Tax on energy or goods and services that are carbon-intensive. This instrument includes several forms of environmental taxation that reduce total emissions or emissions intensity (Center for Climate and Energy Solutions, 2021).	Example: "Article 8. Subject to Fees Regulated by the Fiscal Ordinance Regulating the Fee for Metropolitan Management of Low Emission Zones 1. The application for registration of a vehicle in the Metropolitan Register, as well as the effective use of the corresponding authorization, is subject to the fees regulated by the fiscal ordinance for the management of metropolitan low emission zones. The applicant must pay the fees in accordance with the provisions of the fiscal ordinance to use the Metropolitan Register. 2. In any case, the fees regulated by the fiscal ordinance must have been paid at the time of applying for registration or communicating the effective use of the corresponding authorization in the Metropolitan Register, following the relevant specifications according to the payment method used." (Regulation of the Metropolitan Register of Foreign Vehicles and Other Vehicles Authorized in Low Emission Zones)

Grants and subsidies	Government support for mitigation activities through non-repayable funding specific purposes (grants) or reduced prices of specific goods and services (subsidies).	Example: "Action 8. Program Assistance for the Acquisition of Less Polluting Vehicles. Continue and expand support for the environmental improvement of the private vehicle fleet in the metropolitan area, including electric bicycles. - Metropolitan Area of Barcelona (AMB) subsidy aimed at individuals and private entities for the purchase of electric bicycles: continuation and/or expansion of the annual call for the fixed subsidy of €250 for the purchase of an electric bicycle. - Provision of electric bicycles to workplaces (industrial areas, facilities, office centers, companies, etc.) under requirements defined by the AMB. - Promote the purchase of clean vehicles by facilitating access to clean vehicle purchases and exploring the possibility of creating a purchasing center for coordinated clean vehicle purchases, establishing synergies with potential clients (public or private) and suppliers. Objectives - Reduce the impacts associated with vehicle traffic." (Metropolitan Program of Measures Against Atmospheric Pollution)
Tax relief	Rebate or elimination of specific taxes for selected activities or actors with the purpose of incentivizing mitigation activities (Haas et al., 2004).	Example: "Tax Incentives (IBI, ICIO, etc.). - Determine subsidies and/or incentives (IBI – Property Tax, ICIO – Tax on Construction, Installations and Works, IAE – Economic Activities Tax, etc.) to offer to private third parties interested in installing renewable energy generation systems." (Government Measure: Program to

		Promote Solar Energy Generation in Barcelona)
User charges	Policies that foster changes in user behavior, for example reduction of available parking places.	Example: "4. Establish a system to adjust parking fees based on the pollution level of heavy vehicles A differentiated parking price is proposed based on the DGT environmental labeling of the vehicles, benefiting cleaner vehicles. Additionally, consideration could be given to extending the measure to companies that can demonstrate efficient, ecological, and responsible management of their logistics activities." (Metropolitan Urban Mobility Plan 2019-2024)
GHG emission reduction crediting and offsetting mechanism	A carbon offset credit is a transferrable instrument certified by governments or independent certification bodies to represent an emission reduction of one metric ton of CO ₂ , or an equivalent amount of other GHGs (see Text Box, below). The purchaser of an offset credit can "retire" it to claim the underlying reduction towards their own GHG reduction goals.	Example: "12.8 Consolidate the issuance of sustainable bonds." (Climate Plan 2018-2030)
Sanctions	Punitive measures used by governments to enforce compliance with laws, regulations, or international norms.	Example: "Article 17. Violations and Penalties. Violations of this regulation include actions not protected by law that impede, obstruct, hinder, or make the provision of the service more burdensome or that damage the conditions of the protective barrier once the service has been provided. These actions will be classified as very serious violations when they prevent the service or cause severe environmental damage, and as serious or minor, depending on their severity, in other cases. Very serious violations may be punished with a fine of up to 3,000 EUR, serious violations with a fine of up to 1,500 EUR, and minor violations with a fine of up to 750 EUR.

		If the violation affects land considered to be public domain, the penalty cannot be less than that resulting from the application of Article 175 of the Local Entities Heritage Regulation. Additional provision. Legislative references. References to legal norms contained in this regulation will be considered made to those that replace them in the future, without the need to amend this ordinance." (Model Ordinance Regulating the Municipal Service for Maintaining an External Protective Barrier Around Urbanizations, Population Centers, Buildings, and Installations Located on Forest Land, and for Maintaining Parcels and Green Areas Free of Vegetation)
Deposit-refund systems	Surcharge on the price of potentially polluting products. When pollution is avoided, by returning the products or their residuals, the surcharge is refunded (Laubinger, 2022).	Example: "3. The elected officials will be required, before the granting of the corresponding licenses, to establish a security deposit for the estimated cost of the restoration, according to the assessment carried out by the Parks and Gardens Service." (Ordinance on Natural Areas and Green Spaces)
Policy support		
Institutional creation	Establishment of an institution to regulate a mitigation-relevant sector.	Example: "Statutes of the local public business entity 'Parcs i jardins de barcelona, institut municipal' - Chapter i general provisions Article 1 Nature and Organizational Attachment (...) Article 2 Legal Regime (...) Functions and powers

		Article 3 Functions of the Institute (...)." (Statutes of the Municipal Institute of Parks and Gardens)
Strategic planning	Policies establishing strategic priorities and roadmaps for specific sectors or economy wide.	Example: "17.3 Define a comprehensive strategy to reduce Barcelona's ecological debt." (Climate Plan 2018-2030)
Voluntary instruments		
Negotiated agreements (public-private sector)	Partnerships between public and private actors for the implementation of mitigation-related activities or agreed voluntary commitments (Kang et al., 2012).	Example: "Introduction of Electric Vehicles to Private Fleets: - Visit and Assessment Plan: Personalized promotion of EVs by selecting the 100 most suitable Catalan companies, visiting 40 of these companies, and conducting a full feasibility study for 16 companies to achieve 12 companies that incorporate at least 2 EVs into their fleet. - Ecofleet Meeting Point: Organization of the leading event for promoting sustainable vehicles in fleets, with presentations and test drives of vehicles at the Circuit de Catalunya (Montmeló)." (Electric Mobility Strategy)
Public voluntary schemes	Policy instrument where the government encourages businesses or other organizations to voluntarily adopt certain practices or standards without mandating them through regulations or laws.	Example: "Article 5. Voluntary Adoption of Individual Action Plan. Holders of activities not included within the scope of this Ordinance may adopt an individual action plan voluntarily. For this purpose, they may use as a reference the generic measures for any sector identified in the generic action plan for reducing emissions from industries in the Metropolitan Area of Barcelona." (Model Ordinance Regulating Protection Against Atmospheric Pollution by NO ₂ and PM ₁₀ from Industrial Activities)

Variables on policy instruments modification

Regulatory level	Changes in the numerical level or calibration of the policy instruments that are in place to regulate the policy instrument of interest. It is coded as “1” in case of level expansion, and code “2” in case of level dismantling (Steinebach and Knill, 2017).	Example: "Article 1. New effective dates for the Ordinance on the restriction of certain vehicles in the city of Barcelona to preserve and improve air quality, for vehicles of categories N2, N3, M2, and M3. It is established that, for vehicles of categories N2, N3, M2, and M3, the Ordinance on the restriction of certain vehicles in the city of Barcelona to preserve and improve air quality, definitively approved on December 20, 2019 (BOPB 31-12-2019), will take effect from the following dates: a) For vehicles of categories N2, N3, and M2, from January 1, 2022. b) For vehicles of category M3, from July 1, 2022. Article 2. Modification of Annex 4 of the Ordinance on the restriction of certain vehicles in the city of Barcelona to preserve and improve air quality." (Ordinance on the restriction of certain vehicles in the city of Barcelona to preserve and improve air quality)
Regulatory scope	Changes in the cases, constellations, or addressees covered by a certain policy instrument under the guiding question: <i>how encompassing is the regulation of an instrument?</i> It is coded as “1” in case of scope expansion, and code “2” in case of scope dismantling (Steinebach and Knill, 2017).	Example: "(...) Two. A new letter h) is added to paragraph 1 of Article 63, with the following wording: «h) Violating the prohibition of consuming tobacco products or nicotine release devices on the beaches of Barcelona, as established in paragraph 6 of Article 10. »" (Initial approval of the amendment to the Ordinance on the use of public roads and spaces, to establish the prohibition of consuming tobacco and other nicotine release devices on the beaches of Barcelona)

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Appendix B to Protecting the Climate to Challenge the Center? Secessionism and Climate Policy Preferences in Catalonia

Table B.1 Scores of Pro-decentralization

Election	Political Party	Salience of Pro-decentralization
2017	C's	1.3
2017	CUP	13.6
2017	ECP	4.2
2017	ERC	9.3
2017	JxC	3.1
2017	PP	1.2
2017	PSC	7.0
2021	C's	0.7
2021	CUP	8.8
2021	ECP	11.3
2021	ERC	9.2
2021	JxC	6.0
2021	PP	0.7
2021	PSC	5.7
2021	VOX	0.0

* Scores on based on authors' own measurements

Table B.2 Scores of Pro-independence

Election	Political Party	Salience of Pro-independence
2017	C's	0.0
2017	CUP	17.9
2017	ECP	1.1
2017	ERC	13.5
2017	JxC	7.8
2017	PP	0.0
2017	PSC	1.8
2021	C's	0.9
2021	CUP	7.0
2021	ECP	8.7
2021	ERC	9.3
2021	JxC	5.3
2021	PP	2.0
2021	PSC	6.0
2021	VOX	0.0

* Scores on based on authors' own measurements

Table B.3 Results of Bivariate Correlations

Dependent variable	Salience of Climate		Position on climate	
	N	Est.	N	Est.
Position on climate (RMP)	15	0.205* (0.109)	15	0.599*** (0.139)
Salience of Decentr.	15	0.894*** (0.247)		
Salience of Indep.	15	0.560** (0.233)		

Notes: Standard errors are in parentheses and stars indicate level of statistical significance:

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

Appendix C to Party Preferences for Climate Policy and the Renewable Energy Transition in Spain's Multilevel Democracy

Table C.1 Position on Decentralization

Election	Political Party	Position on Decentralization
2016	C's	-0.7
2016	CDC	40.4
2016	UP	1.9
2016	PP	1.41
2016	PSOE	1.3
2016	ECP	5.2
2016	ERC	13.2
2016	EHB	18.4
2016	EAJ-PNV	22.8
2016	EM	3.7
2016	CMP	2.5
2016	CC-PNC	31.7
2019	UP	0.6
2019	MP-E	1.8
2019	PP	-1.1
2019	PSOE	5.2
2019	VOX	-14.4
2019	C's	-9.3
2019	BNG	23.7
2019	CC-NC	11.6
2019	EHB	12.8
2019	EAJ-PNV	9.9
2019	ERC	11.5
2019	JxC	25

2019	CUP	7.1
2019	ECP	3.5
2019	NA+	3.5
2019	TE	52.9
2019	PRC	54.9
2019	CMP	6.4
2023	UNITE	2.1
2023	PP	-0.1
2023	PSOE	1.5
2023	VOX	-6.8
2023	BNG	30.5
2023	CC	37.3
2023	EHB	7.8
2023	EAJ-PNV	13.9
2023	ERC	11.4
2023	JxC	34.9
2023	UPN	24.2

* Scores based on authors' own measurements

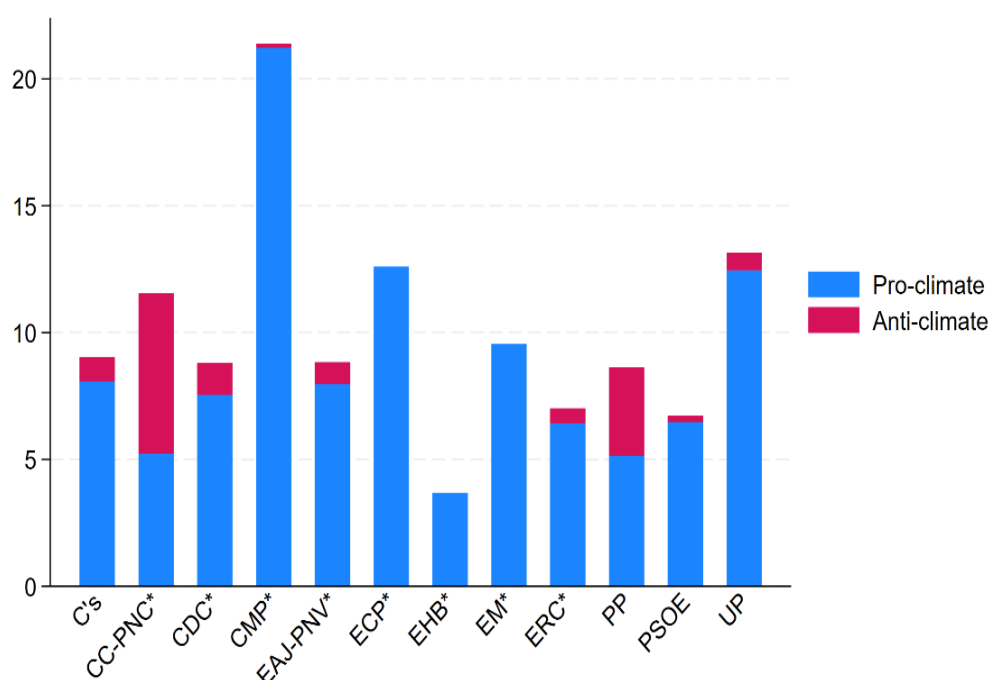
Table C.2 Results of Bivariate Correlations

Dependent variable	Salience of Climate		Salience of Pro-Renewable Energy	
	N	Est.	N	Est.
Position on Decentr.	40	0.251** (0.088)	29	0.095 (0.208)
Position on Decentr. (MRG/ CMP/ MARPOR)	40	0.029 (0.017)	29	0.004 (0.029)

Notes: Standard errors are in parentheses and stars indicate level of statistical significance:

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

Figure C.1 Share of Quasi-sentences delivered in Party Manifestos in the Spanish National Elections of 2016, by Climate Code and Political Party (percent)

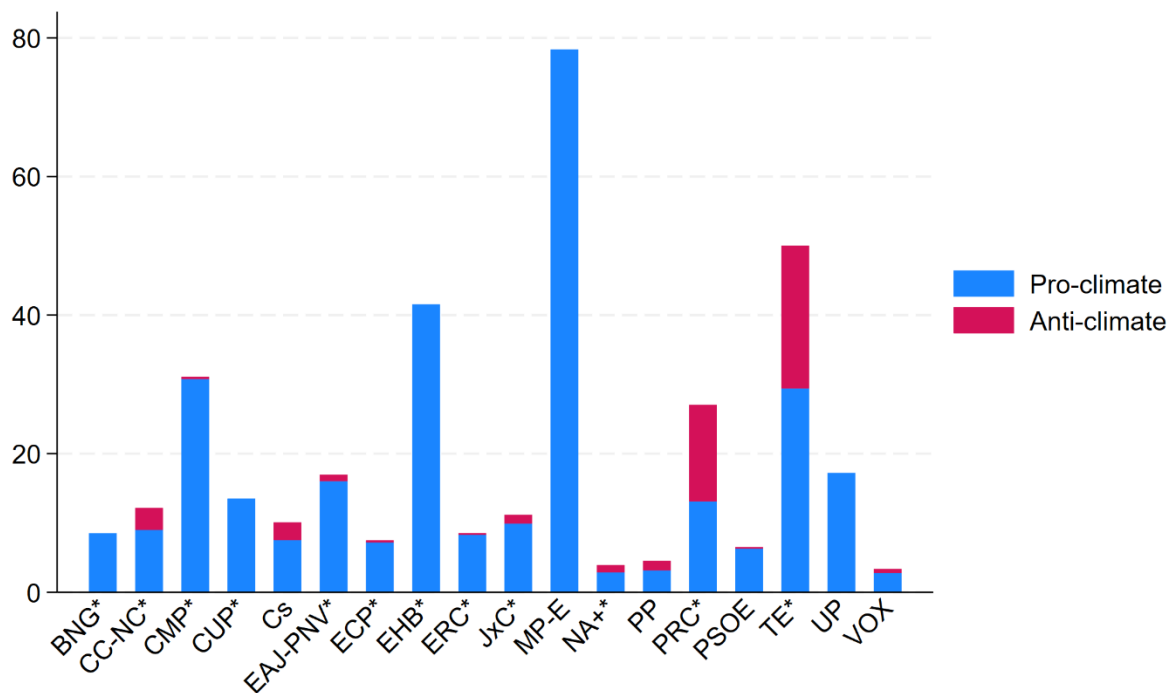


*Non-Statewide Parties (NSWPs)

Scores based on authors' own measurements

Legend: Blue bars show the percentage of quasi-sentences in each political party's manifesto that promote policies aimed at reducing GHG emissions or increasing GHG sinks, while red bars show the percentage of quasi-sentences in each manifesto dedicated to promoting policies that lead to increased GHG emissions or reduced GHG sinks.

Figure C.2 Share of Quasi-sentences delivered in Party Manifestos in the Spanish National Elections of 2019, by Climate Code and Political Party (percent)

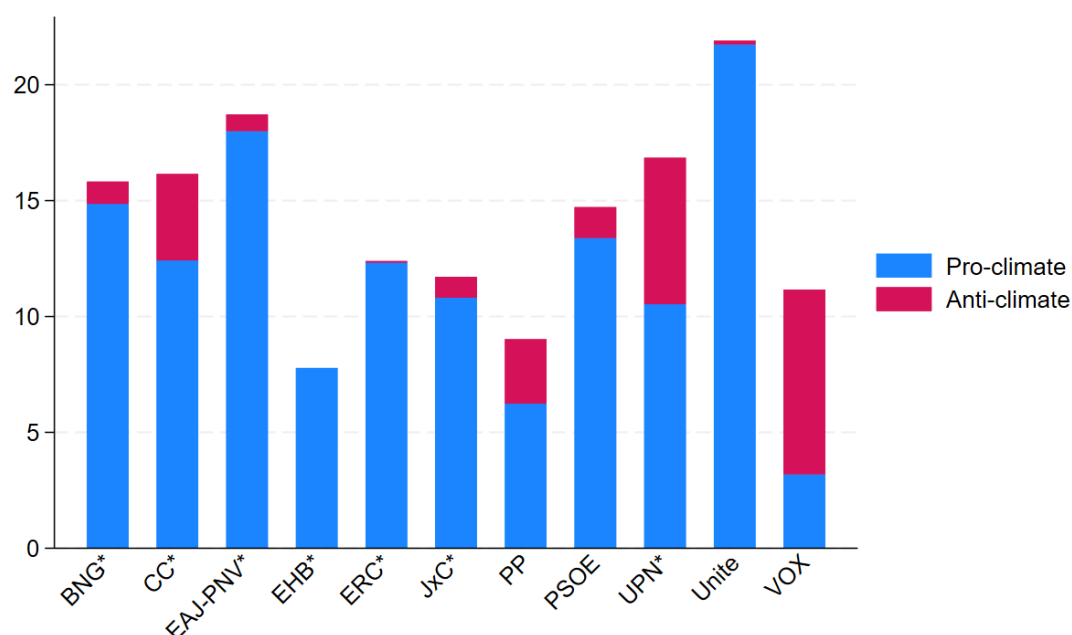


*Non-Statewide Parties (NSWPs)

Scores based on authors' own measurements

Legend: Blue bars show the percentage of quasi-sentences in each political party's manifesto that promote policies aimed at reducing GHG emissions or increasing GHG sinks, while red bars show the percentage of quasi-sentences in each manifesto dedicated to promoting policies that lead to increased GHG emissions or reduced GHG sinks.

Figure C.3 Share of Quasi-sentences delivered in Party Manifestos in the Spanish National Elections of 2023, by Climate Code and Political Party (percent)

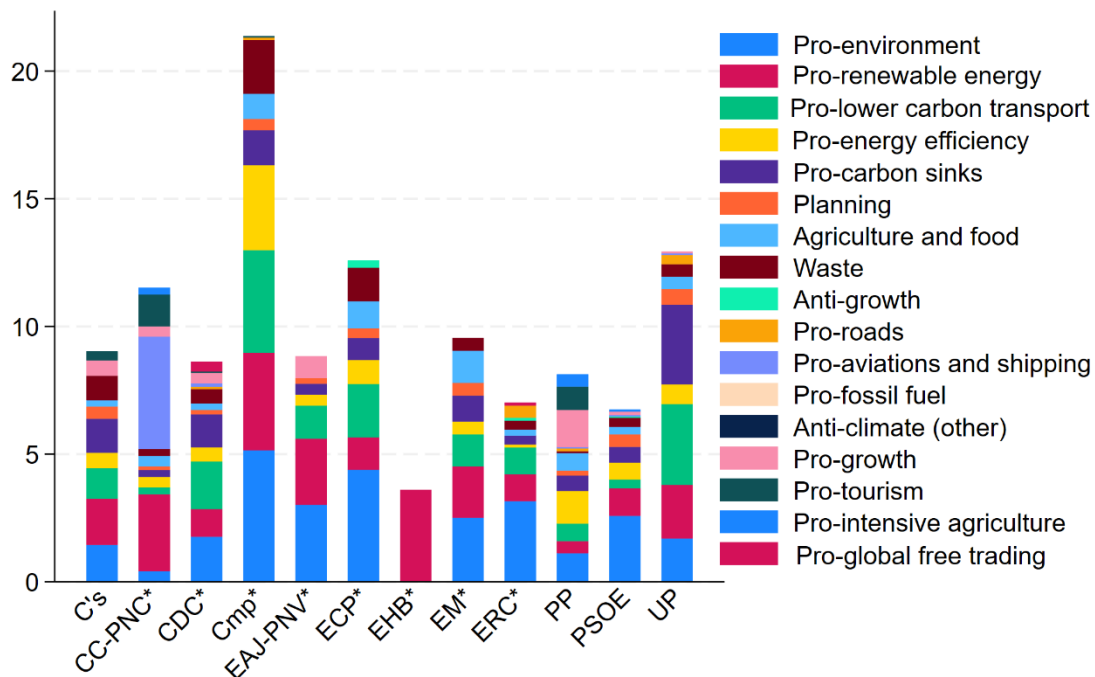


*Non-Statewide Parties (NSWPs)

Scores based on authors' own measurements

Legend: Blue bars show the percentage of quasi-sentences in each political party's manifesto that promote policies aimed at reducing GHG emissions or increasing GHG sinks, while red bars show the percentage of quasi-sentences in each manifesto dedicated to promoting policies that lead to increased GHG emissions or reduced GHG sinks.

Figure C.4 Share of Quasi-sentences delivered in Party Manifestos in the Spanish National Elections of 2016, by Climate Code Subcategory and Political Party (percent)

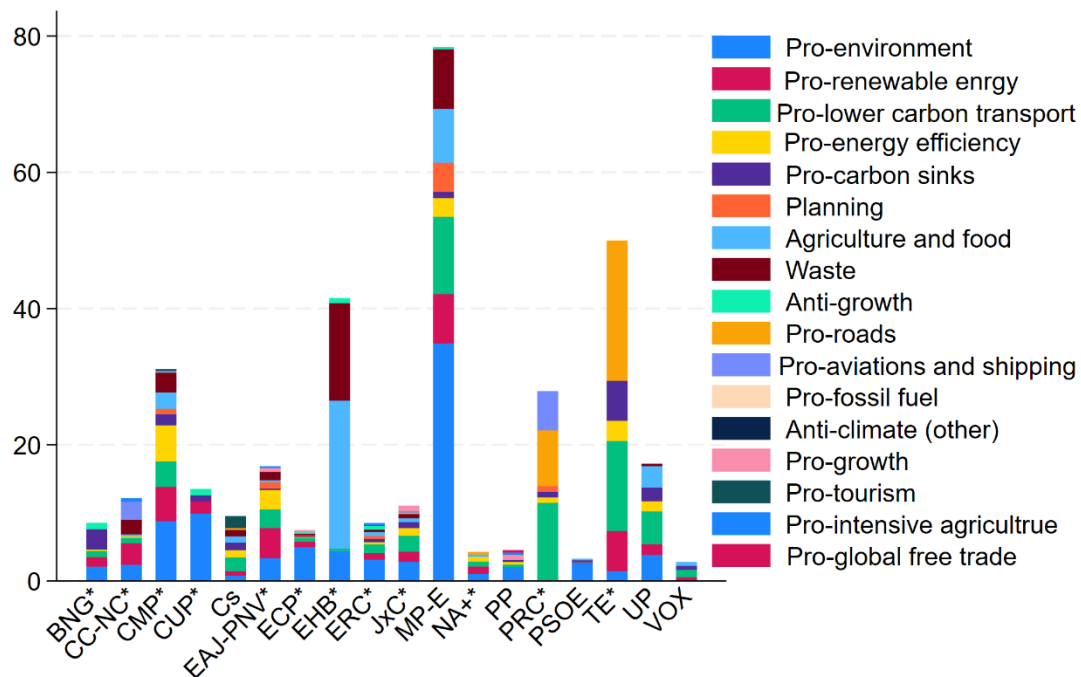


*Non-Statewide Parties (NSWPs)

Scores based on authors' own measurements

Legend: Bars of different colors show the percentage of quasi-sentences in each political party's manifesto dedicated to promoting policies within different 'pro' and 'anti' climate categories. Among the 'pro-climate' categories, we find: 'pro-environment', 'pro-renewable energy', 'pro-lower carbon transport', 'pro-energy efficiency', 'pro-carbon sinks', 'planning', 'agriculture and food', and 'waste'. Among the 'anti-climate' categories, we find: 'pro-roads', 'pro-aviation and shipping', 'pro-fossil fuel', 'anti-climate (other)', 'pro-growth', 'pro-tourism', 'pro-intensive agriculture', and 'pro-global free trade'.

Figure C.5 Share of Quasi-sentences delivered in Party Manifestos in the Spanish National Elections of 2019, by Climate Code Subcategory and Political Party (percent)

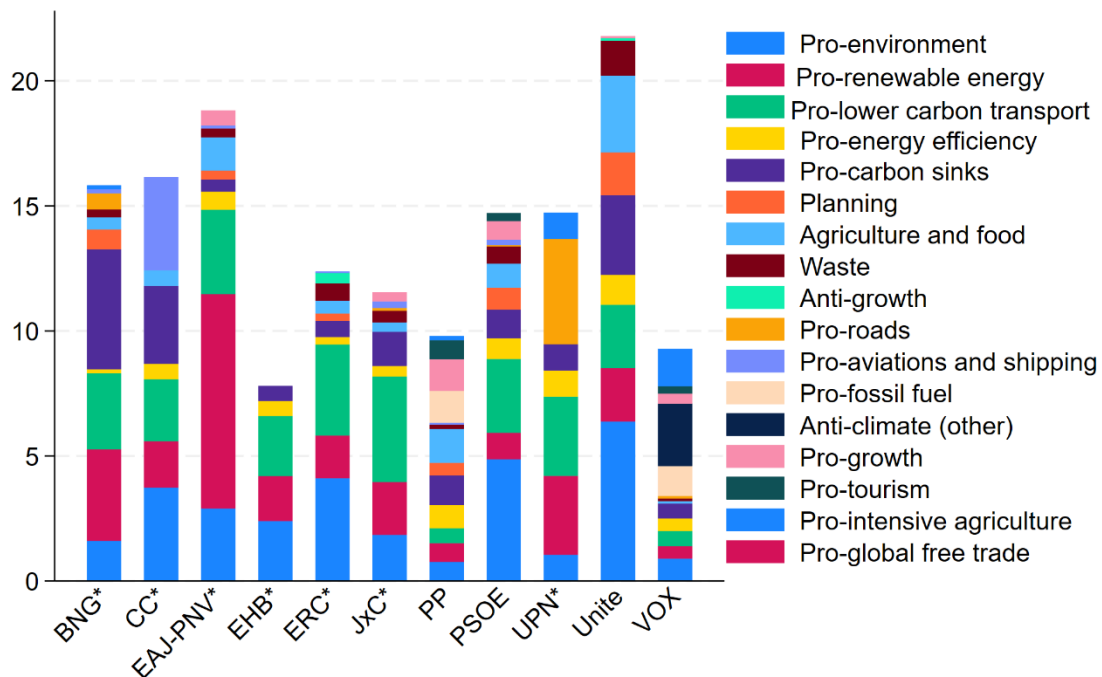


*Non-Statewide Parties (NSWPs)

Scores based on authors' own measurements

Legend: Bars of different colors show the percentage of quasi-sentences in each political party's manifesto dedicated to promoting policies within different 'pro' and 'anti' climate categories. Among the 'pro-climate' categories, we find: 'pro-environment', 'pro-renewable energy', 'pro-lower carbon transport', 'pro-energy efficiency', 'pro-carbon sinks', 'planning', 'agriculture and food', and 'waste'. Among the 'anti-climate' categories, we find: 'pro-roads', 'pro-aviation and shipping', 'pro-fossil fuel', 'anti-climate (other)', 'pro-growth', 'pro-tourism', 'pro-intensive agriculture', and 'pro-global free trade'.

Figure C.6 Share of Quasi-sentences delivered in Party Manifestos in the Spanish National Elections of 2023, by Climate Code Subcategory and Political Party (percent).



*Non-Statewide Parties (NSWPs)

Scores based on authors' own measurements

Legend: Bars of different colors show the percentage of quasi-sentences in each political party's manifesto dedicated to promoting policies within different 'pro' and 'anti' climate categories. Among the 'pro-climate' categories, we find: 'pro-environment', 'pro-renewable energy', 'pro-lower carbon transport', 'pro-energy efficiency', 'pro-carbon sinks', 'planning', 'agriculture and food', and 'waste'. Among the 'anti-climate' categories, we find: 'pro-roads', 'pro-aviation and shipping', 'pro-fossil fuel', 'anti-climate (other)', 'pro-growth', 'pro-tourism', 'pro-intensive agriculture', and 'pro-global free trade'.

Appendix D to Comparing Regional and National Climate Policy Preferences: An Analysis of Political Parties in the Basque Country and Catalonia

Table D.1 Share of Quasi-sentences Delivered in Party Manifestos, by Climate Code and Political Party (percent)

Climate Code	UP/ EP- EB	PSOE/ PSC/ PSE- EE	C's	PP	PP- Cs	VOX	CUP*	ECP*	ERC*	CDC/ JxC*	EHB*	EAJ- PNV*
Spain												
2016												
Pro-climate policy	12.5	6.5	8	5.1	-	-	-	12.6	6.4	7.6	2.6	8
Anti-climate policy	0.7	0.3	1	3.5	-	-	-	0	0.6	1.2	1	0.8
2019												
Pro-climate policy	17.2	6.3	7.5	7.6	-	2.8	13.5	7.3	8	9.8	41.5	16.0
Anti-climate policy	0	0.2	2.6	5.6	-	1.7	0	0.2	0.4	1.2	0	0.9
Catalonia												
2017												
Pro-climate policy	-	7.6	9.8	4.2	-	-	20.4	20	12	10.8	-	-
Anti-climate policy	-	0	2.6	4.2	-	-	0.1	0.1	0.6	1.2	-	-
2021												
Pro-climate policy	-	13.1	4.3	4.6	-	0	17.9	24.6	18.3	13.2	-	-
Anti-climate policy	-	0.5	0.5	6.5	-	11.1	0	0.2	0.4	1.4	-	-

Basque C.

2016

Pro-climate policy	15.8	11	-	6	-	-	-	-	-	-	4.8	13.7
Anti-climate policy	0	0.9	-	2.4	-	-	-	-	-	-	0.4	0.3

2020

Pro-climate policy	10.1	18.1	-	-	11.8	2.9	-	-	-	-	11.4	14.6
Anti-climate policy	0	0.2	-	-	2.9	2.9	-	-	-	-	0	0.8

*Non-Statewide Parties (NSWPs)

Source: Scores based on authors' own measurements (2024).

Table D.2 Scores of Decentralization

Election	Political Party	Position on Decentralisation
Spain		
2016	C's	-0.7
2016	CDC	40.5
2016	UP	1.9
2016	PP	1.4
2016	PSOE	1.3
2016	ECP	5.2
2016	ERC	13.2
2016	EHB	18.4
2016	EAJ-PNV	22.8
2019	C's	-9.3
2019	CUP	7.1
2019	ECP	3.5
2019	ERC	11.5
2019	JxC	25.0
2019	PP	-1.1
2019	PSOE	5.2
2019	VOX	-14.4
2019	EAJ-PNV	9.9
2019	EHB	12.8
2019	UP	0.6
Basque Country		
2016	EHB	12.1
2016	EAJ-PNV	5.5
2016	PP	-1
2016	PSE-EE	6.6
2016	EP-EB	4.1

2020	VOX	-8.5
2020	EHB	8.1
2020	EAJ-PNV	3.1
2020	PP-Cs	-1.1
2020	PSE-EE	1.5
2020	EP-EB	1.8
Catalonia		
2017	C's	-0.6
2017	CUP	13.6
2017	ECP	4.3
2017	ERC	9.3
2017	JxC	3.1
2017	PP	-1.8
2017	PSC	6.8
2021	C's	0.7
2021	CUP	8.8
2021	ECP	11.3
2021	ERC	9.3
2021	JxC	6.0
2021	PP	-0.7
2021	PSC	5.7
2021	VOX	-8.3

* Scores on based on authors' own measurements

Table D.3 Scores of Independence

Election	Political Party	Position on Independence
Spain		
2016	C's	0
2016	CDC	6.8
2016	UP	0.0
2016	PP	-0.4
2016	PSOE	0.1
2016	ECP	0.5
2016	EHB	5.3
2016	EAJ-PNV	0.7
2016	ERC	33.7
2019	C's	-12.8
2019	CUP	22.5
2019	ECP	0.1
2019	ERC	14.4
2019	JxC	1.4
2019	PP	-0.7
2019	PSOE	0.0
2019	VOX	-1.7
2019	EAJ-PNV	0.3
2019	EHB	0.0
2019	UP	0.0
Basque Country		
2016	EHB	12.6
2016	EAJ-PNV	1
2016	PP	-0.1
2016	PSE-EE	0.7
2016	EP-EB	0.1

2020	VOX	0
2020	EHB	2.9
2020	EAJ-PNV	1
2020	PP-Cs	0
2020	PSE-EE	0.9
2020	EP-EB	0.4
Catalonia		
2017	C's	-12.4
2017	CUP	17.9
2017	ECP	1.1
2017	ERC	13.5
2017	JxC	8
2017	PP	-15.9
2017	PSC	3.1
2021	C's	0
2021	CUP	11.4
2021	ECP	1.2
2021	ERC	11
2021	JxC	6
2021	PP	-0.7
2021	PSC	0.3
2021	VOX	-11.1

* Scores on based on authors' own measurements

Table D.4 Results of Bivariate Correlations

Dependent variable	Salience of Climate		Position on climate	
	N	Est.	N	Est.
Position on Decentr.	46	0.116 (0.104)	46	0.271* (0.126)
Position on Decentr. (MRG/ CMP/ MARPOR)	46	0.228 (0.139)	46	0.434** (0.164)
Position on Indep.	46	0.116 (0.104)	46	0.225 (0.139)

Notes: Standard errors are in parentheses and stars indicate level of statistical significance:

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

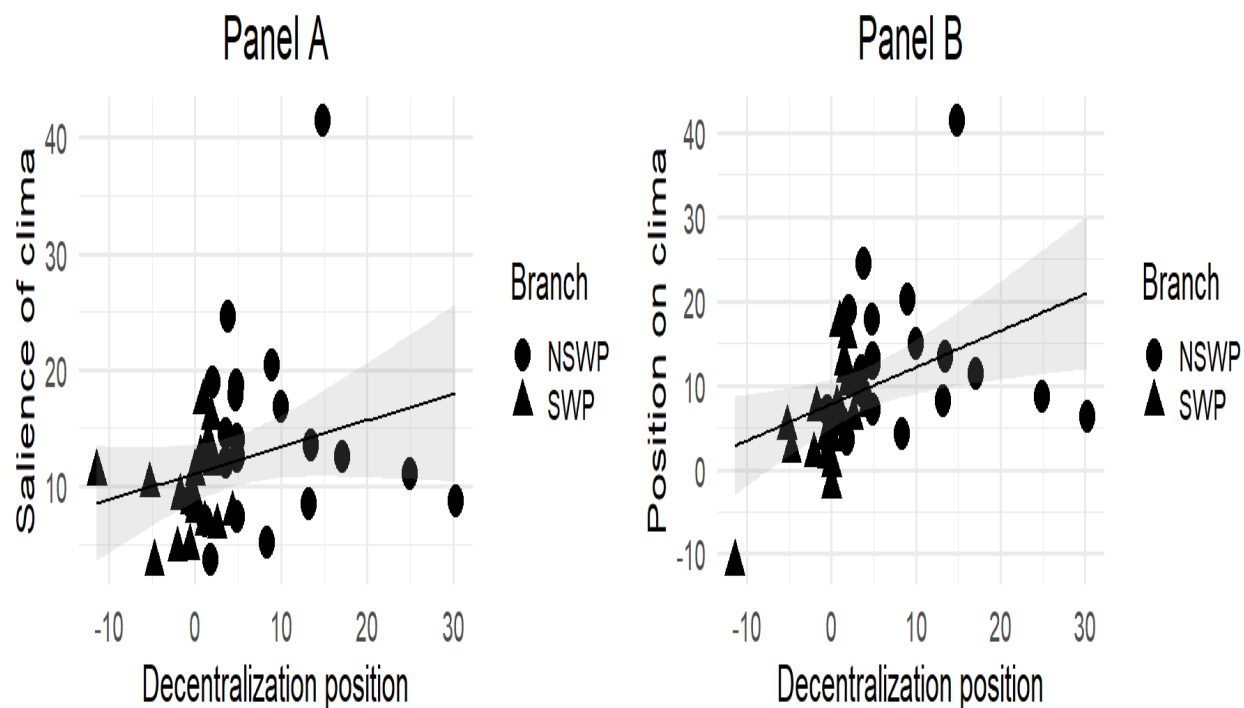
Table D.5 Results of Bivariate Correlations

Dependent variable	Salience of Climate		Position on climate	
	N	Est.	N	Est.
Regional elections				
Position on Decentr.	23	0.115 (0.104)	23	1.017*** (0.197)
Position on Decentr. (MRG/ CMP/ MARPOR)	23	0.195 (0.226)	23	0.919** (0.313)
Position on Indep.	23	0.183 (0.126)	23	0.537** (0.180)
National elections				
Position on Decentr.	23	0.076 (0.154)	23	0.093 (0.164)
Position on Decentr. (MRG/ CMP/ MARPOR)	23	0.228 (0.139)	23	0.308 (0.203)
Position on Indep.	23	-0.072 (0.194)	23	-0.01 (0.208)

Notes: Standard errors are in parentheses and stars indicate level of statistical significance:

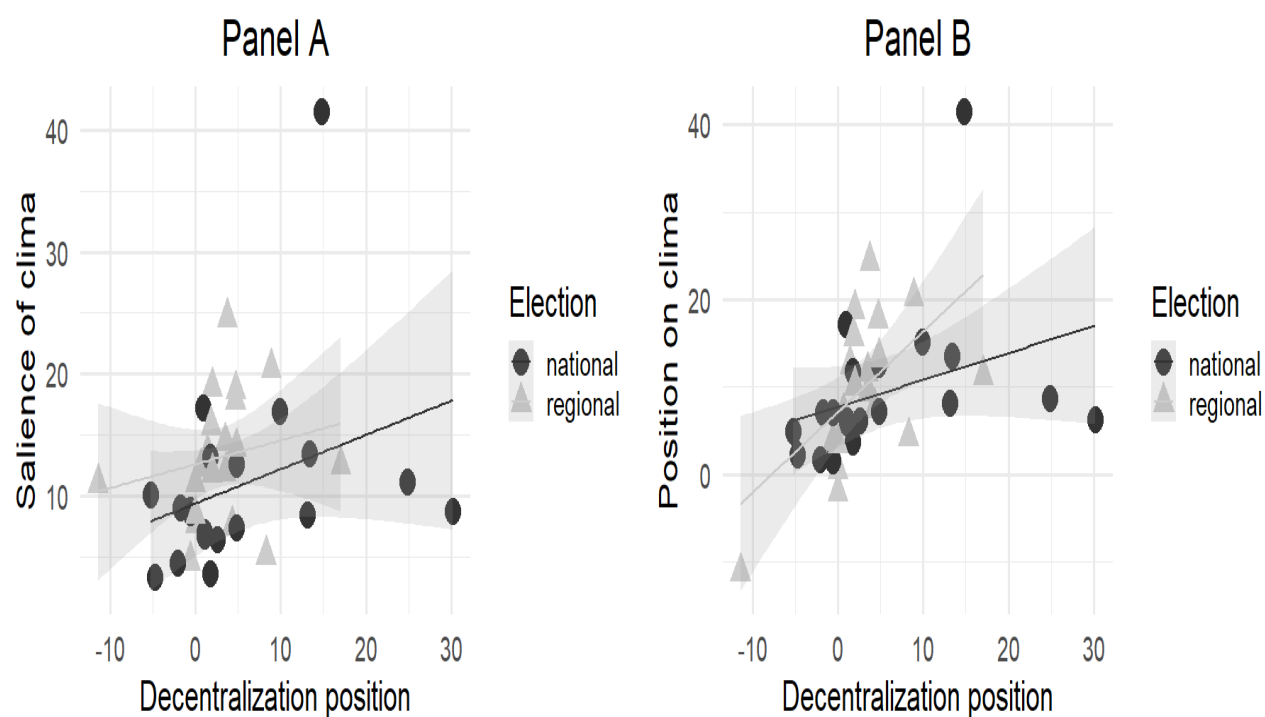
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Figure D.1 Relationships between Political Positioning on Decentralization and Climate Policy Saliency and Position



Source: Scores on decentralization taken from Regional Manifestos Project (RMP) database (Gómez et al. 2022; Alonso et al. 2013) and Manifesto Data Collection (MRG/CMP/MARPOR) (Lehmann et al. 2024). Scores on climate saliency and position calculated from data shown in Table A.1 in the Appendix A.

Figure D.2 Relationships between Political Positioning on Decentralization and Climate Policy Saliency and Position, by Election level



Source: Scores on decentralization taken from Regional Manifestos Project (RMP) database (Gómez et al. 2022; Alonso et al. 2013) and Manifesto Data Collection (MRG/CMP/MARPOR) (Lehmann et al. 2024). Scores on climate saliency and position calculated from data shown in Table A.1 in the Appendix A.

Appendix E to Local Preferences for the Adoption and Modification of Climate Policy Instruments under a Radical Left Government: Unveiling the Impact and Legacy of Barcelona in Common

Table E.1 Newly Adopted Policy Instruments

Year	Policy instruments (total)	‘Hard’ policy instruments	‘Soft’ policy instruments
1984	2	1	1
1985	0	0	0
1986	0	0	0
1987	0	0	0
1988	0	0	0
1989	0	0	0
1990	0	0	0
1991	0	0	0
1992	7	4	3
1993	0	0	0
1994	1	0	1
1995	0	0	0
1996	0	0	0
1997	20	20	0
1998	10	6	4
1999	16	14	2
2000	36	34	2
2001	13	10	3
2002	108	45	63
2003	1	1	0
2004	0	0	0
2005	6	5	1

2006	21	21	0
2007	0	0	0
2008	4	4	0
2009	0	0	0
2010	28	19	9
2011 (May 22)	115	59	56
2011 (May 23)	3	2	1
2012	138	86	52
2013	15	14	1
2014	9	5	4
2015 (May 23)	269	117	152
2015 (May 24)	10	2	8
2016	249	91	158
2017	184	70	114
2018	228	80	148
2019	422	128	294
2020	33	18	15
2021	63	29	34
2022	20	14	6
2023	72	22	50
Σ	2103	921	1182

* Scores based on authors' own measurements

Table E.2 Climate Protection Laws and Action Plans

Year	Climate Protection Laws and Action Plans
1984	Mayor's Decree for the Approval of the Technical Standard on Plastic Bags for Waste Collection
1985	-
1986	-
1987	-
1988	-
1989	-
1990	-
1991	-
1992	Instruction on the Collection of Used Paper and Use of Recycled Paper
1993	-
1994	Statutes of Barcelona Regional, Metropolitan Agency for Urban Development and Infrastructure, S.A.
1995	-
1996	-
1997	Ordinance on Natural Areas and Green Spaces
1998	Statutes of the Metropolitan Waste Agency
1999	Ordinance on the Environment of Barcelona Ordinance on the Uses of the Urban Landscape of the City of Barcelona
2000	Regulatory Norms for Local Fire Prevention Subsidies Municipal Ordinance Regulating Radiocommunication Activities and Installations Metropolitan Regulation on Wastewater Discharge (II)
2001	Municipal Ordinance on Activities and Comprehensive Environmental Administration Intervention
2002	Statutes of the Municipal Institute of Parks and Gardens Statutes of Infrastructures of Llevant de Barcelona, S.A. Municipal Ordinance Regulating Radiocommunication Activities and Installations

	Barcelona Energy Improvement Plan (PMEB) Regulatory Procedure for Promoting Activities of the Municipal Campaign for the Protection and Improvement of the Urban Landscape for the Year 2002
2003	Instructions on Verified Environmental Assessment: Application Criteria
2004	-
2005	Instruction Regarding the Rational and Efficient Use of Air Conditioning in Summer Regulations on Christmas Lighting Installations on Public Roads
2006	Regulation of the Monitoring Council of the Metropolitan Program for Municipal Waste Management Regulatory Regulation of the Metropolitan Public Service for Municipal Waste Management and Treatment: Characteristics, Criteria, and Admission Procedure to Metropolitan Plants
2007	-
2008	General Regulation of the Metropolitan Domestic Water Supply Service
2009	-
2010	Fiscal Ordinance Regulating Metropolitan Taxes for Municipal Waste Treatment and Disposal Savings and Energy Improvement Plan for Municipal Buildings
2011 (May 22)	Barcelona Energy, Climate Change, and Air Quality Plan 2011-2020
2011 (May 23)	Instruction Regarding Urban Elements of the City of Barcelona
2012	Citizen Commitment to Sustainability 2012-2022 Statutes of Water de Barcelona, Metropolitan Company for Integrated Water Cycle Management, S.A. Model Ordinance for Municipal Environmental, Safety, and Public Health Intervention Fiscal Ordinance No. 1.2 Regulating the Vehicle Excise Duty Fiscal Ordinance No. 3.4 Regulating the Fee for the Certification of Companies for Municipal Waste Management and Other Environmental Services Regulation of the Metropolitan Integrated Water Cycle Service

2013	Mayor's Decree on Responsible Public Procurement with Social and Environmental Criteria Instruction on the Elimination of Paper Documents Replaced by Electronic Copies Ordinance on Terraces (2013) Interpretative Clarifications of the Regulation of the Metropolitan Integrated Water Cycle Service Interpretative Clarifications of the Regulation of the Metropolitan Integrated Water Cycle Service
2014	Government Commission Agreement on the Regulations for the Use of Green Points in Barcelona Government Measure to Promote "Living Roofs and Green Covers" in Barcelona Regulations for the Use of Green Points in the City of Barcelona
2015 (May 23)	Instruction on Criteria to be Applied in Controlling Air Emissions from Cannabis Associations Technical Instruction for the Application of Sustainability Criteria in Communication Elements Technical Instruction for the Application of Sustainability Criteria in Paper Technical Instruction for the Application of Sustainability Criteria in Electricity Supply Technical Instruction for the Application of Sustainability Criteria in IT Equipment Technical Instruction for the Application of Sustainability Criteria in Food Services Technical Instruction for the Application of Sustainability Criteria in Vehicles Technical Instruction for the Application of Sustainability Criteria in Events Technical Instruction for the Application of Sustainability Criteria in Construction Projects Barcelona Air Quality Improvement Plan 2015-2018 Barcelona Urban Mobility Plan 2013-2018 Barcelona Green and Biodiversity Plan 2020
2015 (May 24)	Bicycle Strategy

2016	Government Measure to Implement the Eradication of Glyphosate Use in Green Spaces and Public Areas of Barcelona Strategy to Promote Responsible Consumption Strategy to Promote Food Policy 2016-2019 Report for the CEUM: Development of Electric Vehicles in Barcelona Government Measure: Transition to Energy Sovereignty Bringing Streets to Life with the Implementation of Superblocks in Barcelona (2016) Model Ordinance Regulating the Municipal Service for Maintaining a Protective Outer Strip Around Urbanizations, Population Centers, Buildings, and Installations Located in Forest Areas, and for Maintaining Parcels and Green Areas Free of Vegetation Fiscal Ordinances for the Year 2017 Municipal Action Plan 2016-2019 Plan to Promote the Social and Solidarity Economy 2016-2019 Drought Protocol (2017) Barcelona Energy Advice Points Urban Resilience (2016)
2017	Environmental Public Procurement Guide Barcelona Tourism Mobility Strategy Service Charter Sustainable Public Procurement by the Barcelona City Council Regulatory Decree for the Activation of the Episodic Low Emission Zone Instruction to Promote Electronic Invoicing by the Barcelona City Council and Dependent Entities Instruction on the Prohibition of Chemical Herbicides in Work Carried Out by the Barcelona City Council, Municipal Bodies, Municipal Companies, and Contracted Companies within the Scope of Application Government Measure: Program to Promote Solar Energy Generation in Barcelona Tree Master Plan (2017-2037) Strategic Tourism Plan 2020 Program to Promote Urban Green Infrastructure

	Metropolitan Program of Measures Against Air Pollution Protocol for the Processing of Projects and Monitoring of Routine Infrastructure and/or Urbanization Element Works, Conservation, Improvement, and Urbanization Projects
2018	Climate Plan 2018-2030 Technical Instruction for Applying Sustainability Criteria in Vehicles of the Sustainable City Program Sustainable Public Procurement Plan of the Barcelona City Council for 2018 Ordinance for Roads Owned by the Barcelona Provincial Council Metropolitan Ordinance for the Control of Air Pollution in Construction Works Master Plan for Olympic Port (2018) Strategic Plan for Coastal Areas of the City (2018-2025) Action Protocol for High Levels of Air Pollution in the City of Barcelona Regulation of the Public Service for Secure Bicycle Parking Complementary to Metropolitan Public Transport Metropolitan Tax for the Management Service of Municipal Waste Generated in Private Households
2019	Electric Mobility Strategy Regulation of the Metropolitan Register of Foreign Vehicles and Other Vehicles Authorized in Low Emission Zones Mayor's Decree S1/D/2019-1599 of July 18, Approving the Sustainable Public Procurement Plan of the Barcelona City Council for 2019 Instruction Regarding Bottled Water and the Use of Plastic Cups and Other Single-Use Plastic Items in Municipal Premises and Services Fiscal Ordinance Regulating the Metropolitan Tax for the Provision of Services and the Performance of Environmental Activities by the AMB Ordinance on the Restriction of Certain Vehicles in the City of Barcelona to Preserve and Improve Air Quality Model Ordinance Regulating Protection Against Atmospheric Pollution by NO₂ and PM₁₀ from Industrial Activities Metropolitan Urban Mobility Plan (2019-2024)

	Regulation of the Metropolitan Register of Foreign Vehicles and Other Vehicles Authorized in Low Emission Zones
2020	Initial Approval of the Mayor's Decree Establishing Traffic Restriction Measures for the Most Polluting Vehicles in the Event of an Environmental Episode of Air Pollution by NO₂ Declared by the Government of Catalonia Government Commission Agreement on the Modification of Public Prices by the Urban Ecology Area for Environmental Education Activities and Other Environmental Services for the Year 2020 and Beyond Mayor's Decree Approving the Sustainable Public Procurement Objectives Plan 2020-2021 Instruction for Incorporating the Objective of Renewable Energy Generation in Municipal Actions Related to the Drafting of Construction Projects and Urban Planning Instruments Technical Instruction for Applying Environmental Criteria in Construction Projects Modification of the Social Statutes of Barcelona Regional Urban Development Agency Environmental Sustainability Plan for AMB Municipalities Technical Plan for the Utilization of Alternative Water Resources (2020) Metropolitan Program for the Prevention and Management of Municipal Resources and Waste and Metropolitan Agreement for Zero Waste Regulation for the Use of Urban Gardens
2021	Approval of the Protocol for the Use Conditions of Urban Gardens Located at 23-U Iradier Street, Sarrià-Sant Gervasi District, for the Period from July 2021 to July 2024 Mayor's Decree Establishing Traffic Restriction Measures for the Most Polluting Vehicles in the Event of an Environmental Episode of Air Pollution by NO₂ Declared by the Government of Catalonia Fiscal Ordinance Regulating the Tax for Metropolitan Management of Low Emission Zones Covenant of Mayors for Sustainable Energy Environmental Sustainability Plan for AMB Municipalities

	Special Urban Plan for the Regulation of Tourist Accommodation Establishments, Youth Hostels, Tourist Use Homes, Shared Homes, and Collective Student Residences for Temporary Accommodation Public Prices of the Urban Ecology Area Framework Program of Energy and Climate Actions 2020-2023 (PMEC) Metropolitan Program of Actions for the Improvement of the Natural and Urban Landscape (PSG) Protocol for the Implementation of Green Roofs on Municipal Buildings Regulation of the Metropolitan Register of Foreign Vehicles and Other Vehicles Authorized in Low Emission Zones
2022	Mayor's Decree Approving the Operational Model for the Management of European Funds Next Generation EU (NGEU) Government Commission Agreement of June 2, 2022, Approving the Sustainable Public Procurement Objectives Plan 2022 Final Approval of the Justifying Report for the Establishment of the Public Bicycle Service and Its Regulation Instruction on Common Criteria in Sanctioning Procedures for Violations of Tourism Regulations Instruction on the Non-transferability of Authorizations for the Activity of Tourist Use Housing and Shared Homes Municipal Instruction Regulating Reserved Contracts Instruction for the Adoption of Measures to Promote and Implement Energy Savings and Efficiency in the Barcelona City Council in Compliance with Royal Decree-Law 14/2022 of August 1, on Economic Sustainability Measures in the Field of Transport, Scholarships and Study Grants, as well as Measures for Savings, Energy Efficiency, and Reduction of Energy Dependence Technical Instruction for the Application of Sustainability Criteria in Food Services of Natural Gas Specific Door-to-Door Collection Modality in the Sant Andreu de Palomar Area Urban Planning Plan for the Delimitation of Forest Fire Prevention Measures Metropolitan Program of Forest Management Actions (PMAF)

	Action Protocol for Episodes of High NO₂ and PM₁₀ Pollution in the Metropolitan Area of Barcelona Operating Regulations of the Citizen Council for Sustainability
2023 (May 28)	Ordinance Establishing Access, Circulation, and Parking Criteria for Vehicles in the Low Emission Zone of Barcelona and Promoting Emission-Free Mobility Urban Mobility Plan 2024 Instruction by the Municipal Manager dated December 12, 2022, for the Interpretation of Regulations on the Use and Integration of Support Elements for the Installation of Solar Panels on Roofs and Terraces in Barcelona, which Organizes the Criteria and Conditions Established by Current Regulations for Solar Installations and Their Support Elements on Roofs and Terraces in the City of Barcelona Operational Model of the Technical Evaluation Committee, the Collegiate Body Managing the Barcelona Sustainable Energy Mechanism (MES Barcelona)

Source: Own elaboration (2024)

Table E.3 Expansion of Existing Policy Instruments

Year	Expanding modifications (total)	‘Hard’ expanding modifications	‘Soft’ expanding modifications
1984	0	0	0
1985	0	0	0
1986	0	0	0
1987	0	0	0
1988	0	0	0
1989	0	0	0
1990	0	0	0
1991	0	0	0
1992	0	0	0
1993	0	0	0
1994	0	0	0
1995	0	0	0
1996	0	0	0
1997	0	0	0
1998	0	0	0
1999	0	0	0
2000	0	0	0
2001	0	0	0
2002	1	1	0
2003	0	0	0
2004	12	12	0
2005	1	0	1
2006	3	3	0
2007	0	0	0
2008	1	1	0
2009	1	1	0

2010	0	0	0
2011 (May 22)	14	14	0
2011 (May 23)	0	0	0
2012	1	0	1
2013	2	2	0
2014	0	0	0
2015 (May 23)	6	6	0
2015 (May 24)	0	0	0
2016	1	0	1
2017	0	0	0
2018	0	6	0
2019	4	3	1
2020	1	0	1
2021	0	0	0
2022	12	9	3
2023 (May 28)	1	1	0
Σ	66	58	8

* Scores based on authors' own measurements

Table E.4 Dismantling of Existing Policy Instruments

Year	Dismantling modifications (total)	‘Hard’ dismantling modifications	‘Soft’ dismantling modifications
1984	0	0	0
1985	0	0	0
1986	0	0	0
1987	0	0	0
1988	0	0	0
1989	0	0	0
1990	0	0	0
1991	0	0	0
1992	0	0	0
1993	0	0	0
1994	0	0	0
1995	0	0	0
1996	0	0	0
1997	0	0	0
1998	0	0	0
1999	0	0	0
2000	0	0	0
2001	2	2	0
2002	1	1	0
2003	0	0	0
2004	1	1	0
2005	0	0	0
2006	0	0	0
2007	0	0	0
2008	0	0	0
2009	0	0	0

2010	0	0	0
2011 (May 22)	4	4	0
2011 (May 23)	0	0	0
2012	0	0	0
2013	4	4	0
2014	0	0	0
2015 (May 23)	3	3	0
2015 (May 24)	0	0	0
2016	1	0	1
2017	0	0	0
2018	3	3	0
2019	0	0	0
2020	2	2	0
2021	1	1	0
2022	3	3	0
2023 (May 28)	0	0	0
Σ	25	24	1

* Scores based on authors' own measurements.

Table E.5 Amending Climate Protection Laws and Action Plans

Year	Amending Climate Protection Laws and Action Plans
1984	-
1985	-
1986	-
1987	-
1988	-
1989	-
1990	-
1991	-
1992	-
1993	-
1994	-
1995	-
1996	-
1997	-
1998	-
1999	-
2000	-
2001	Ordinance on the Use of Public Roads and Spaces in Barcelona
2002	Metropolitan Regulation on Wastewater Discharge (2002)
2003	-
2004	Metropolitan Regulation on Wastewater Discharge (2004)
2005	Statutes of the Municipal Institute of Parks and Gardens
2006	Ordinance on the Environment of Barcelona (2006) Regulation of the Monitoring Council of the Metropolitan Program for Municipal Waste Management
2007	-
2008	General Regulation of the Metropolitan Domestic Water Supply Service

2009	Ordinance on the Uses of the Urban Landscape of the City of Barcelona
2010	-
2011 (May 22)	Ordinance on the Environment of Barcelona (2011) Metropolitan Regulation on Wastewater Discharge (2011)
2011 (May 23)	-
2012	Statutes of Barcelona Regional, Metropolitan Agency for Urban Development and Infrastructure, S.A.
2013	Statutes of Water of Barcelona, Metropolitan Company for Integrated Water Cycle Management, S.A.
2014	-
2015 (May 23)	Metropolitan Regulation on Wastewater Discharge (2015)
2015 (May 24)	-
2016	Ordinance on Terraces (2016)
2017	-
2018	Regulatory Decree for the Activation of the Episodic Low Emission Zone Ordinance on Terraces (2018) Metropolitan Regulation on Wastewater Discharge (2018)
2019	Statutes of the Municipal Institute of Parks and Gardens
2020	Ordinance regarding the restriction of the circulation of certain vehicles in the city of Barcelona with the objective of preserving and improving air quality (2020) Regulation of the Metropolitan Register of Foreign Vehicles and other vehicles authorized in low emission zones
2021	Metropolitan Regulation on Wastewater Discharge (2021)
2022	Ordinance regarding the restriction of the circulation of certain vehicles in the city of Barcelona with the objective of preserving and improving air quality (2022) Ordinance on the use of roads and public spaces in Barcelona - Amendment to the Ordinance regulating the use of roads and public spaces to establish the prohibition of consuming tobacco and using other nicotine delivery devices on the beaches of Barcelona (2021) Environmental sustainability plan for municipalities in the AMB.

	Initial approval of the modification of the Ordinance on the use of roads and public spaces, to establish the prohibition of consuming tobacco and other nicotine delivery devices on the beaches of Barcelona. Notice Exp: GMI2022581 of November 3, 2022, establishing a regulated parking zone for urban goods distribution on Caracas and Lima streets in the Sant Andreu district of Barcelona.
2023 (May 28)	-

* Scores based on authors' own measurements.

Table E.6 Categories of Climate Policy Instruments according to their Degree of Authoritative Force

'Hard' Climate Policy Instruments	'Soft' Climate Policy Instruments
Regulatory instruments and economic instruments with negative incentives. Costs are more visible (directly borne by firms and individuals).	Economic instruments focusing on positive incentives, public investments, organization, informational and voluntary instruments. Costs are less visible (mainly paid through the general budget).
- Taxes and tradable permit schemes - User charges - Codes and standards (building codes and product standards, sectoral standards, vehicle fuel-economy and emissions standards) - Obligation schemes and other mandatory requirements - Mandatory auditing and monitoring schemes - Prohibition mechanisms - Sanctions - Deposit-Refund systems	- Direct investments, grants and subsidies, loans, tax relief - Policy development and reform (policy support, including institutional creation and strategic planning) - Research, development, and deployment (RD&D) (including demonstration projects, research programs for technology deployment and diffusion and for technology development) - Information and education (including advice/aid in implementation, information provision, performance labels, professional training and qualification) - Voluntary approaches (negotiated agreements between public–private sector, public voluntary schemes, unilateral commitments by private sector)

* Own elaboration based on Climate Policy Database (CPD) published by the NewClimate Institute (2022) and relevant literature (Schulze 2021)