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Exploring the Impact of Identity Politics on Climate Policy: A Bibliometric Analysis of Uncertainty and Responses to Climate Change

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Abstract: This study examines the influence of identity politics on climate policy over the period 2003–2024 through a bibliometric analysis, with a specific focus on the interconnections between climate change, policy uncertainty, and identity politics. Using data extracted from the Scopus database, thematic mapping and co-occurrence analysis were conducted via Biblioshiny software to identify key research trends, thematic networks, and collaboration patterns. The findings demonstrate that identity politics has intensified public polarization regarding climate issues, obstructing global consensus-building and compromising the sustainability of climate policy frameworks. The analysis reveals that political affiliations significantly shape public perceptions and support for climate initiatives, contributing to policy uncertainty and constraining investments in green technologies. Furthermore, the role of identity politics in framing national and international climate discourses is highlighted, illustrating its capacity to hinder cooperation across diverse stakeholder groups. The study emphasizes the critical need for inclusive and depolarized approaches to climate policy formulation, which are essential for overcoming the challenges posed by political polarization. By addressing gaps in the literature and providing an overview of existing collaboration networks, this research offers valuable insights into the nexus of identity politics and climate action. Key recommendations are proposed to foster more sustainable and equitable climate strategies, ensuring that political and social divides are effectively addressed to enable long-term climate resilience.

Keywords: Identity politics; Climate policy; Policy uncertainty; Climate change

1. Introduction

Climate change is a significant global challenge, threatening social, economic, and ecosystem well-being worldwide. The negative impacts of climate change are difficult to anticipate without explicitly incorporating species responses into global decision-making and strategic frameworks (Pecl et al., 2017). Climate policy is a key instrument for mitigating and adapting to these changes. However, in its implementation, this policy is often hampered by identity politics that exacerbate public polarization on the issue of climate change. This polarization has increased in recent years, making consensus increasingly difficult to achieve. This study aims to address the gap in the literature on the extent to which identity politics influences the formulation and implementation of climate policy, and how group affiliations, such as ethnicity, religion, and ideology, can strengthen or weaken policy responses to climate change. By understanding these dynamics, this study makes an important contribution to designing inclusive and consensus-based climate policies.

Currently, many countries face a dilemma in implementing effective climate policies. In the United States, conservatives often choose less sustainable products; while holding product prices and attributes constant, they often choose products that do not have environmental benefit claims (e.g., saving energy or reducing carbon emissions). Furthermore, 80% of Democrats claimed they would pay a higher tax rate for recycling programs,

compared with 46% of Republicans and 55% of independents. Another recent study found that 80% of Americans agree that the government should prioritize recyclable product utilization. Meanwhile, 73% of Australian liberal voters agree that reducing greenhouse gas emissions is "very important," and only 26% of conservatives agree with the statement (Chan & Faria, 2022).

Although, in Europe, there is broader agreement on what climate action is needed, identity politics still plays an important role in determining how the implementation of policies in individual member states is done. Research by Aasen (2015) shows that, in Norway, climate change polarization is emerging among individuals with different values and political affiliations (Aasen, 2015; Weko, 2022). Aside from that, Tranter & Booth (2015) found that the relatively high levels of climate denial in Norway and the UK were similar to those in the US, while political affiliation in other European countries did not show a notable impact on climate attitudes (Tranter & Booth, 2015).

However, climate policy challenges are not only influenced by the dynamics of identity politics, but have also been complicated by the COVID-19 pandemic. Many countries have had to adjust their priorities to focus on economic recovery, often at the expense of long-term climate targets. In this context, identity politics not only shapes policy debates but can also influence decisions about which groups receive greater support in recovery efforts. In addition, the increased attention to climate risks in recent years has made climate policy changes more fraught with uncertainty, which has had a tremendous impact on economic sectors, including companies (Ren et al., 2022).

Uncertainty can be seen as a situation where future outcomes are unpredictable, resulting in a lack of clarity about future business conditions. Uncertainty in climate policy can hinder investment and innovation in green technologies. Various factors caused this uncertainty, including regulatory changes, lack of political consensus, and unpredictable policy impacts. The never-ending COVID-19 pandemic has caused a high level of uncertainty in the global economy (Olasehinde-Williams et al., 2023). The unprecedented nature of the pandemic, lockdowns, and related restrictions led to a sharp decline in consumption and investment, contributing to global economic weakness in 2020.

Climate policy uncertainty affects R&D investment in heavy emissions companies in the United States, finding that uncertainty reduces investment in green technologies (Olasehinde-Williams et al., 2023). Another study by Fried et al. (2021) shows that uncertainty policy can influence public confidence in climate policy and public support for mitigation actions (Fried et al., 2021). Governments and policymakers are advised to make sure that climate policy objectives are well defined and adhered to, restraining regulatory uncertainty so that private sector participation in sustainable investment can be encouraged (Olasehinde-Williams et al., 2023).

Identity politics can amplify policy uncertainty by creating polarization in political decision-making (Hussain et al., 2023). For example, researchers show that identity politics can shape public perceptions of climate risks and influence support for climate policies. Groups with particular political identities can exploit scientific uncertainty to support their political agendas, whether to urge forceful action or to delay policy implementation (Bogado, 2024).

Political beliefs play a prominent role in the acceptance of climate policies. In escalating public support for climate policy, climate communication must prioritize addressing public concerns regarding the competence of politicians in designing good climate policy. In a study of 23 countries, which are predominantly European, Fairbrother et al. (2019) found that people who distrust politicians or live in countries with low political trust are less likely to support increasing taxes on fossil fuels (Fairbrother et al., 2019). Countries with higher levels of political trust tend to have exceptional public support for climate policy despite differences in political identity (Fried et al., 2021).

Identity politics plays a crucial role in shaping public discourse and policies in various countries. Policy responses to crises vary between countries. Case studies of Fukushima in Japan and Germany show that major policy changes occur if there are new ideas and support, and policy stability occurs if the previous system is impenetrable. In contrast to Switzerland, the factors of refusing to clean energy policies identified from the role of climate change skepticism and the influence of political elites on public opinion (Kammermann & Dermont, 2018). Another study discusses the challenges for economic policymakers in Europe facing economic polarization and institutional instability, along with the importance of a coherent strategy to unify differences and address future challenges.

Uncertainty in climate policy is one of the main obstacles to investment and innovation in the clean energy and green technology sectors. This uncertainty often arises from unexpected regulatory changes and a lack of stable political consensus. This study finds that climate policy uncertainty in China affects corporate investment non-linearly, with a greater negative impact on the mining industry and a positive impact on the energy sector (Ren et al., 2022), illustrating the importance of policy stability to encourage sustainable economic growth (Farooq et al., 2023). In this context, understanding how identity politics influences policy uncertainty is the key to developing strategies that reduce these obstacles.

This research aims to further examine how identity politics and policy uncertainty influence each other and shape responses to climate change. By using bibliometric analysis, this research will identify current research trends, gaps, and potential for further study in this field (Liu et al., 2022). The bibliometric analysis provides

insight into publication and collaboration patterns in the existing literature. Research applies this approach to the political process through changes in administration and policy, creating volatility and uncertainty through radical changes in structure, agenda, and priorities (Hamblin et al., 2024).

Climate change has been recognized as one of the greatest challenges facing humanity in the 21st century, with far-reaching impacts on ecosystems, human health, and global economic stability. Despite growing awareness and urgency to address climate change, efforts to develop and implement effective climate policies are often hampered by a variety of political factors, including identity politics (Klandermans, 2014). Identity politics, which refers to affiliations and loyalties based on ethnicity, religion, and political ideology, can significantly influence how climate policies are formulated, adopted, and implemented across countries. This research highlights the importance of understanding these complex dynamics to better address the global response to climate change.

This research uses bibliometric analysis to map the global research perspective related to identity politics and climate policy. This approach allows the identification of key research trends, collaborations between researchers and institutions, and gaps in the existing literature. The bibliometric analysis provides systematic insight into how research in this area develops and where further attention is needed. That bibliometric analysis can identify important determinants of renewable energy consumption and their relevance to climate policy suggests the potential to direct future research and policy. As part of the research objectives, this study will analyze existing literature to identify patterns of collaboration and research focus related to identity politics and climate change. Hoping that this will help clarify how academics and practitioners understand and respond to the challenges posed by identity politics on the subject of climate policy (Olasehinde-Williams et al., 2023). In addition, this research aims to offer policy recommendations that can reduce the negative impacts of political uncertainty and increase the effectiveness of responses to climate change. By identifying strategies that can overcome the barriers of identity politics, this research hopes to contribute to forming more all-around and sustainable climate policies.

2. Methodology

This study uses bibliometric analysis to explore the impact of identity politics on climate policy, focusing on climate change uncertainty and responses. The method uses statistical techniques to analyze scientific publications, allowing the identification of research trends, collaboration patterns, geographic distributions, and thematic relationships (Donthu et al., 2021). Data visualization through thematic maps, collaboration networks, and trend graphs provides insights into the structure and evolution of the field (Parlina et al., 2020). Data collection in this study focused exclusively on Scopus, as shown in Table 1. Scopus was chosen because of its broad coverage, rigorous indexing of peer-reviewed publications, and global recognition as a primary scholarly resource. Scopus ensures standardized metadata essential for bibliometric analysis, such as abstracts, keywords, and citations, allowing for consistent and reliable results. Relying exclusively on Scopus minimizes variability in data quality, ensuring analytical rigor. While other databases, such as Web of Science, offer complementary perspectives, Scopus' comprehensive coverage is sufficient for the purposes of this study. Keywords include "identity politics," "climate policy," "climate change response," and "policy uncertainty."

The last 21 years, from 2003 to 2024, were carefully selected to cover significant developments in climate change research and the impact of identity politics on climate policy. This period began when global awareness of climate change experienced a major increase, marked by the publication of important reports from the Intergovernmental Panel on Climate Change (IPCC) in the early 2000s (Change, 2007). In addition, the growth of relevant academic literature also showed a surge in the mid-2000s, when many scientific journals began to disseminate insights on climate change to a wider audience.

The selection of this period takes into account the relevance of various global policies and events, such as the implementation of the Kyoto Protocol (entered into force in 2005), the increasing attention to political identity after the 2008 global financial crisis, and the implementation of the 2015 Paris Agreement (McCright & Dunlap, 2011). This time frame reflects the dynamics of policy change, uncertainty, and polarization driven by political identity in addressing global challenges, including climate change. In addition, technological advances—including the adoption of big data analytics and modern bibliometric methods that developed during this period—allowed for a more structured and comprehensive research approach.

The period 2003 to 2024 was chosen as an ideal scope to analyze the evolution, trends, and challenges in the interaction between identity politics and climate policy (McCright & Dunlap, 2011), as shown in Table 1. This study is based on a review of at least 318 peer-reviewed articles published during this period. Data were collected using the following keyword combination: TITLE-ABS-KEY (("Identity Politics" AND "Climate Policy") OR ("Policy Uncertainty" AND "Climate Change Response") OR ("Identity Politics" AND "Policy Uncertainty") OR ("Climate Policy" AND "Climate Change Response") OR ("Political Identity" AND "Climate Policy") OR ("Political Uncertainty" AND "Climate Policy") OR ("Political Identity" AND "Climate Change")). This combination was designed to ensure a broad coverage of the relevant topics in this study.

After the data is collected, the next stage is selecting relevant articles. Inclusion and exclusion criteria were applied to ensure only those related to the research topic were considered and selected based on title, abstract, and

keywords. Review carried out manually to ensure all selected articles were suitable to the research topic, avoiding bias and ensuring data quality.

This research is a bibliometric analysis, using software such as Biblioshiny (a module of the Bibliometrix R-package), we will map the keywords, authors, institutions, and most influential countries in this research. Biblioshiny is a software application built using the R programming language, with the main purpose of simplifying quantitative research on scientific publications. The software provides a variety of metrics and visualization capabilities to perform bibliometric analysis on large-scale bibliographic datasets, including articles, journals, and authors.

Table 1. Methodology process

Stage	Details
	Data Collection
Database	Scopus
Document Type	Articles
Date Range	2003–2024
Language	English
Query String	TITLE-ABS-KEY ((“Identity Politics” AND “Climate Policy”) OR (“Policy Uncertainty” AND “Climate Change Response”) OR (“Identity Politics” AND “Policy Uncertainty”) OR (“Climate Policy” AND “Climate Change Response”) OR (“Political Identity” AND “Climate Policy”) OR (“Policy Uncertainty” AND “Climate Policy”) OR (“Political Identity” AND “Climate Change”))
Subject Area	All Subject Areas
Selection Process	Evaluate abstracts and keywords to ensure relevance, yielding 318 articles relevant to the topic.
	Data Analysis
Text Mining & Visualization	- Extract top keywords and identify publication trends. - Map the geographical distribution of publications. - Create Word Clouds to visualize major themes.
Network Mapping	- Collaboration Networks: Analyze collaborations between researchers and institutions. - Thematic Mapping: Classify themes based on density and centrality. - Co-occurrence Networks: Map relationships between key terms. - Factorial Analysis: Identify major research dimensions. - Dendrogram: Cluster keywords and research themes hierarchically.
Interpretation of Results	- Trend Chart - Distribution Map - Word Cloud - Collaboration Network - Thematic Map - Co-occurrence Network - Factorial Analysis - Dendrogram

Biblioshiny will assist with the data import and processing from several sources, including Scopus and Web of Science, thereby meeting the needs of researchers. This mapping will help identify key trends and collaboration patterns in the existing literature. Collaboration network analysis was carried out to identify relationships between authors, institutions, and countries. In addition, citation analysis will find the most frequently cited articles to understand their impact on this research field.

3. Results

To understand the evolving dynamics of identity politics and its significant impact on climate policy, this study analyzes publication trends over the past two decades. Using bibliometric analysis, the study identifies important shifts in academic focus, revealing patterns that highlight the increasing interaction between political identities and climate change discourse. These trends not only reflect a growing recognition of the complexities surrounding climate change, but also highlight the importance of addressing policy uncertainty exacerbated by political identity polarization. This introductory discussion provides a foundation for exploring the research findings, emphasizing the relevance of this study in providing a comprehensive understanding of how identity politics shapes and challenges climate policy at the global and regional levels.

3.1 Publication Trends

This research reveals a significant increase in publications on identity politics and climate policy over the past

two decades (2003–2023), as illustrated in Figure 1. The number of publications per year is increasing gradually, with a sharp spike in recent years (2022–2023). This surge correlates with increasing global awareness of climate change and the urgent need to address the issue. This awareness is triggered by the extreme weather events and natural disasters that are increasingly occurring, such as forest fires, storms, and floods, which have occurred more frequently in recent years and are closely related to climate change, as stated by the Intergovernmental Panel on Climate Change (IPCC) (Change, 2007). In the last decade, extreme weather event attribution and their impacts have enabled scientists, the public, and policymakers to connect real-world experiences of extreme weather events with scientific understanding of anthropogenic climate change. Align with the increasing academic publications focusing on the impacts of climate change and the accompanying political dynamics, calling passionately for a just and equitable approach to addressing this widespread global dilemma (Mead, 2022).

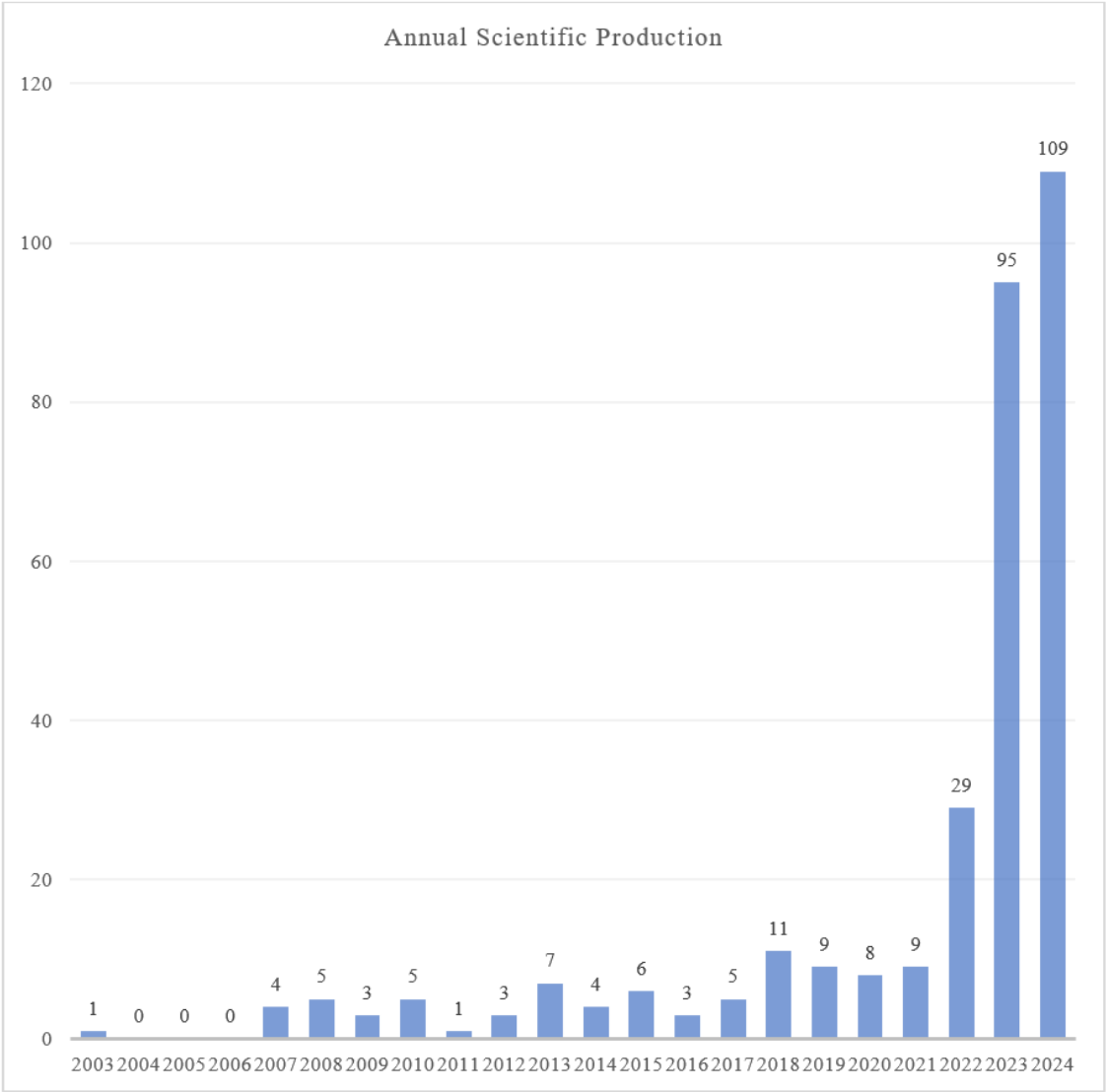

Figure 1. Annual scientific production

This phenomenon has prompted greater academic attention to how identity politics influences climate policy, as responsive policies are essential to effectively address these challenges. Evidence from the literature indicates that debates around identity politics are increasingly shaping policy decisions in many countries, particularly regarding climate action (Fisher et al., 2018). Research also highlights that the intensification of climate disasters has exacerbated political and identity polarization, further impacting the formulation of climate policies.

Based on the analysis of country scientific production (Figure 2), developed countries such as the United States, China, and the United Kingdom dominate research contributions on climate change. Tian's findings reveal the evolution of the research field from the definition of its most considerable concepts in sustainability research, primarily coming from the United States, China, the United Kingdom, and Canada. Their dominance indicates their broad access to research resources, such as funding, technology, and high scientific capabilities.

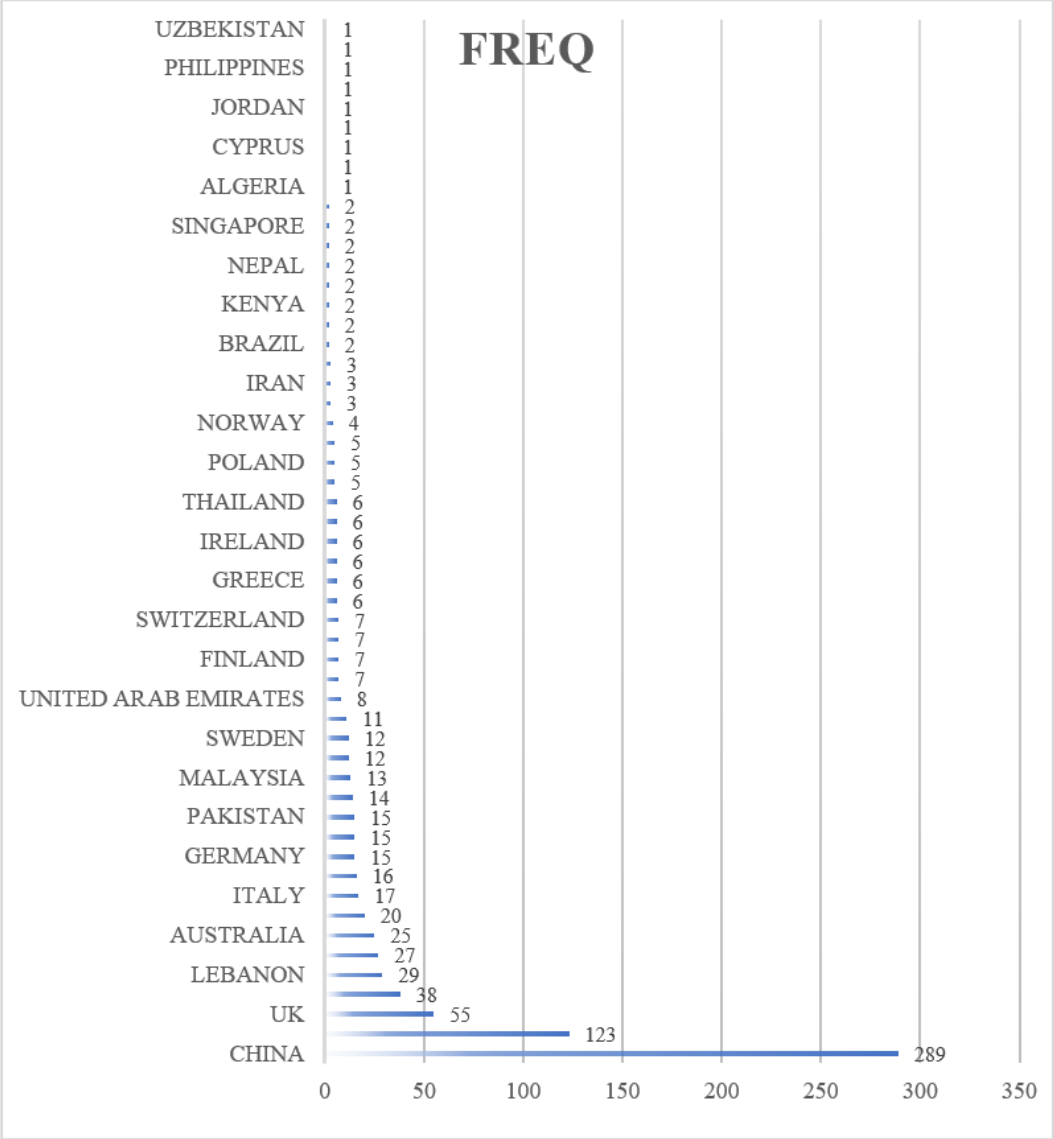

Figure 2. Country scientific production

Given the significant impacts of climate change on the economy and environment, individual countries' climate policies have driven the global research agenda (Gilmore & Buhaug, 2021). The world's two largest carbon emitters, the United States and China, have a major responsibility in addressing the climate crisis, as reflected in their dominant research contributions in this table. Based on Figure 2, China ranks first with a frequency of 289 publications related to climate policy, followed by the United States with 123 publications, and the United Kingdom with 55 publications. This figure reflects the countries' wide access to research resources, such as funding, technology, and high scientific capacity. The dominance of research from these countries also shows their strategic role in guiding the global discourse on climate policy. In addition, China's significant contribution shows the increasing efforts of developing countries to participate in climate research and policy, driven by the awareness of the impacts of climate change on their social and economic well-being (Shrivastava et al., 2020). Thus, this study highlights the importance of research contributions from these major countries in advancing more inclusive and representative climate action globally.

3.2 Main Topics and Research Themes

The Word Cloud in Figure 3, provides a text visualization showing the most frequently occurring words in the dataset, with word sizes corresponding to their frequency of occurrence. In the context of research on the impact of identity politics on climate policy, the Word Cloud analysis reveals central themes such as "identity politics," "climate policy," and "policy uncertainty," reflecting the research's primary focus on how political identity influences climate change policymaking. The dominance of the "identity politics" theme indicates the significant

influence of this factor in shaping perceptions and decision-making regarding climate policy, as Harrison and Sundstrom explain that political identity can shape individual and group views on climate policy. Furthermore, the emergence of the "policy uncertainty" theme as a significant theme reflects that policy uncertainty is often exacerbated by the dynamics of identity politics, where the polarization of political identities can affect policy stability in complex ways (Nightingale, 2017). Previous research has also highlighted that identity politics is often a dominant factor in the acceptance or rejection of environmental policies, which is consistent with the finding that the themes "climate policy" and "identity politics" dominate this Word Cloud visualization.

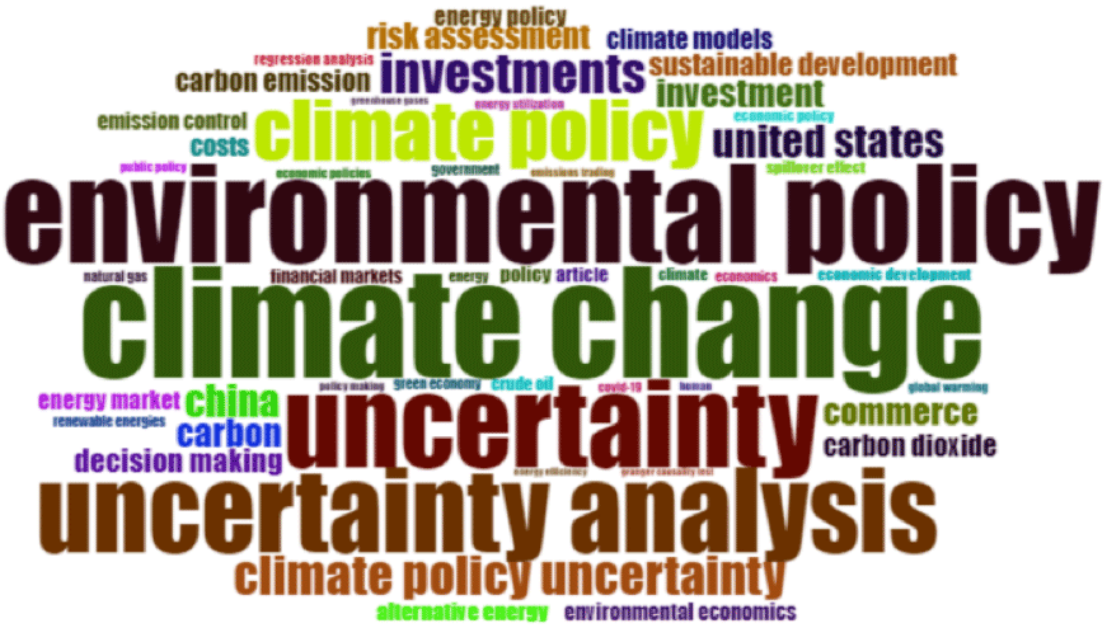

Figure 3. Word Cloud

Words such as "climate change" and "environmental policy" appear with high frequency, indicating that discussions in the scientific literature are heavily focused on the challenges posed by climate change and the uncertainties in policymaking. The Word Cloud also highlights other relevant but less commonly discussed keywords, such as "adaptation," "mitigation," and "global warming," reflecting a range of policy responses to climate change. This Word Cloud analysis provides valuable insight into the primary focus in the literature, helping researchers identify trends and patterns that can guide further research. By offering a diverse bibliometric overview of climate change adaptation science, it emphasizes the human dimension and how the issue is shaped across time, disciplines, social relationships, and geographies. Researchers can evaluate the evolution of the issue and identify gaps or areas of under-attention in the existing literature. Over the past two decades, climate change adaptation has become a central and recognized component of the international climate change policy and research agenda (Owen, 2020).

The TreeMap (Figure 4) depicts data that simultaneously maps keywords or themes based on certain hierarchies or categories, with the box size representing the proportion of data related to that theme. The TreeMap is used to describe the distribution of key themes such as "identity politics," "climate policy," and "policy uncertainty" concerning the climate policy research. TreeMap provides the advantage of identifying the thematic structure of the analyzed literature, allowing researchers to see how these themes are interconnected and how the dominance of some themes develops over time (Chigbu et al., 2023). For example, the large size of the boxes representing "identity politics" and "climate policy" suggests that these discussions dominate the literature, while other themes with smaller boxes, such as "social justice" or "economic impact," may receive less attention but still count in climate policy analysis.

TreeMap also allows for the visualization of relationships between themes, such as how "policy uncertainty" correlates with discussions about "climate change adaptation" or "international agreements." By providing a visual representation of the distribution and relationships of key themes, TreeMap helps reveal complexities in research and provides a deeper understanding of the dynamics of identity politics in climate policy. Overall, TreeMap's analysis offers a comprehensive perspective on the focus and evolution of the literature related to identity politics and climate policy to direct future research, identify emerging themes, and assess the relevance and influence of these themes on an international scale.

Figure 4. TreeMap

3.3 Researcher Collaboration and Institutional Network

In Figure 5, the "Collaboration Network" illustrates the collaborative network between institutions and countries in climate policy research, particularly on identity politics and policy uncertainty. This network shows that leading institutions from the United States and Europe, such as leading universities and research institutions, are at the center of this international collaboration. This reflects their capacity to provide resources, technology, and expertise that are the main drivers of climate policy research. The dominance of institutions from developed countries is in line with the findings of Bulkeley, who highlighted that international collaboration is key to creating effective solutions to climate change, due to its complexity and global impacts. In addition, this collaboration pattern shows the importance of diversifying perspectives through cross-country engagement, where institutions from developing countries are also starting to play an important role in the global discourse on climate justice and more inclusive climate action. For example, the increasing contribution of countries such as China and India in this collaborative network reflects a shift in research focus from only developed countries to a more collective and globally representative approach (Hurrell & Sengupta, 2012). These results confirm that successful climate policy requires cross-border coordination and integration that not only strengthens local action but also strengthens global capacity to address the increasingly pressing challenges of climate change.

The clusters of nodes visible on this map, such as the blue and red, indicate close relationships between several institutions actively working together. This collaboration is important because the diverse perspectives presented by different countries and institutions can help to reduce uncertainty in climate policy and strengthen the global response to the challenges facing. Collaboration between these research institutions enables the exchange of knowledge, data, and best practices that can improve our understanding of how political and identity factors influence climate policy (Zhang & Liang, 2020).

Smaller and more dispersed nodes indicate more focused or regional collaboration, which also plays an important role in developing contextual solutions to climate change challenges. Large nodes such as "ren x," "bourin," and "su wei" indicate institutions or researchers that play a central role in the network. The dominance of institutions from Europe and the United States fits with current research trends, where climate policy and responses to climate change are often led by developed countries that have greater research capacity and resources (Tan et al., 2021). This collaborative network underlines the importance of cross-border research integration to understand and effectively respond to the dynamics of identity politics in climate policy. Effective international

cooperation is an important step in mitigating climate change, research contributions and collaboration from resource-limited regions of the world should be encouraged.

In Figure 6, the 'Country Collaboration Map' shows a map of cross-country collaboration in climate policy research and identity politics, depicting strong inter-country connections, especially between the United States, Europe, and Asia, reflecting the global nature of the issue and shared interests in developing effective climate policies. This cross-country collaboration reflects the understanding that climate change is a global problem that requires a coordinated response. Countries depicted in darker shades, such as the United States and China, act as major hubs in this collaborative network, indicating their dominant influence on climate policy research and development (Chen et al., 2023).

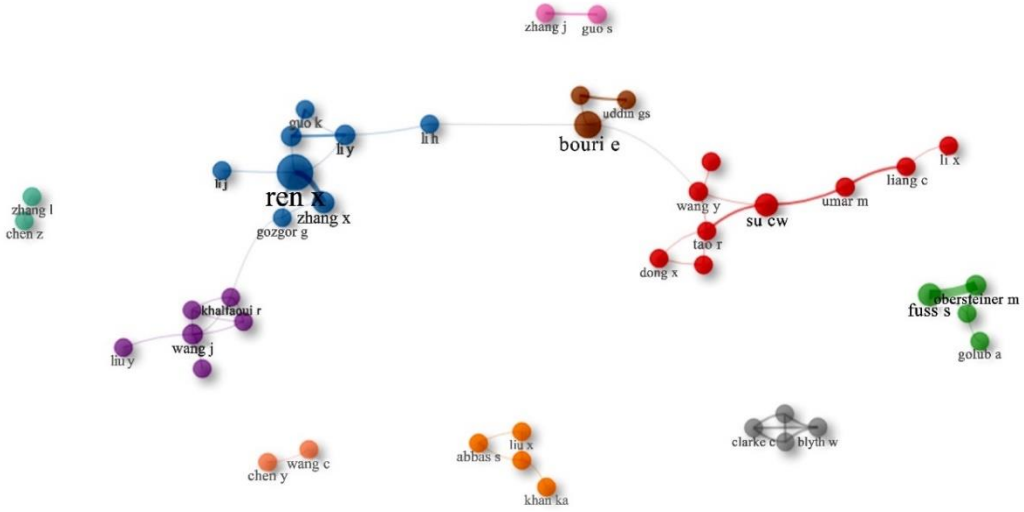

Figure 5. Collaboration network

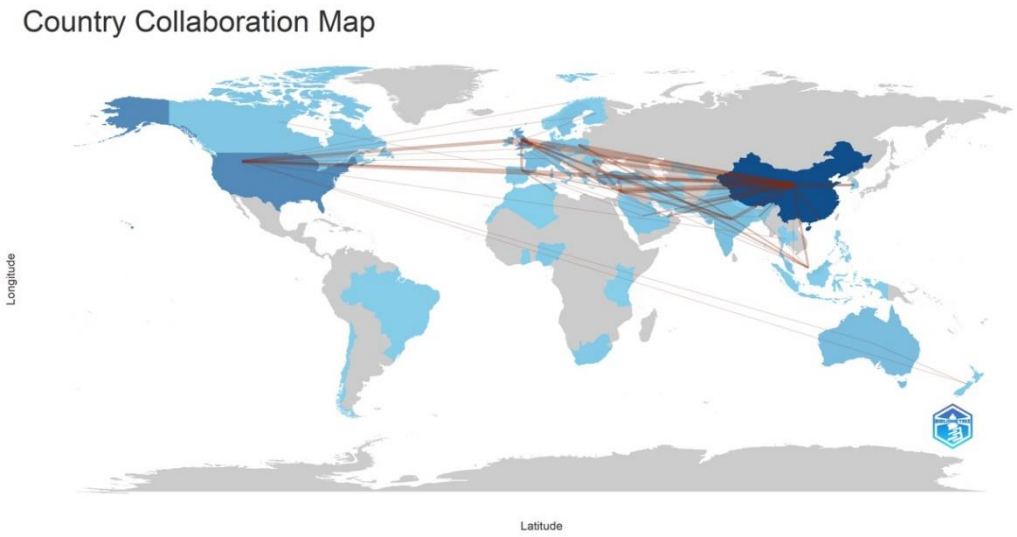

Figure 6. Country collaboration map

The involvement of countries in this collaboration shows that despite differences in political and economic approaches, there is global agreement on the urgency of climate change. Collaboration also reflects a trend of increasing engagement in climate research and policy by developing countries, which are often at the forefront of addressing the impacts of climate change but have been underrepresented in previous global discussions (Cradock-Henry et al., 2023).

3.4 Citation Chart

The Most Global Cited analysis in Figure 7 identifies key articles that had a massive influence on identity politics and climate policy. These articles often combine theoretical analysis with empirical case studies to provide

comprehensive insights into how identity politics impacts climate policymaking. The work Kahan (2013) is one of the author's most highly cited works, published in Judgment and Decision Making with 819 total citations, points out how psychological factors and political identity influence public perceptions of the risks of climate change, showing how important an interdisciplinary understanding of this issue is. This article was highly influential because it linked psychological and social aspects of climate policy decision-making, helping to shape the direction of research in this area.

Other articles that stand out in this analysis include Drummond in Proceedings of the National Academy of Sciences, with 322 citations, and Di Gregorio in Global Environmental Change, with 222 citations. These works make tremendous contributions by exploring how climate policy is influenced by political, social, and economic factors. Drummond emphasizes the importance of collaboration between institutions in addressing the challenge of climate change, while Di Gregorio et al. (2019) emphasize how identity politics influences environmental governance in various developing countries. We can see that the most influential literature in this area is the one that successfully combines theoretical analysis with empirical evidence, both reflecting a critical interdisciplinary approach to understanding the impact of identity politics on climate policy.

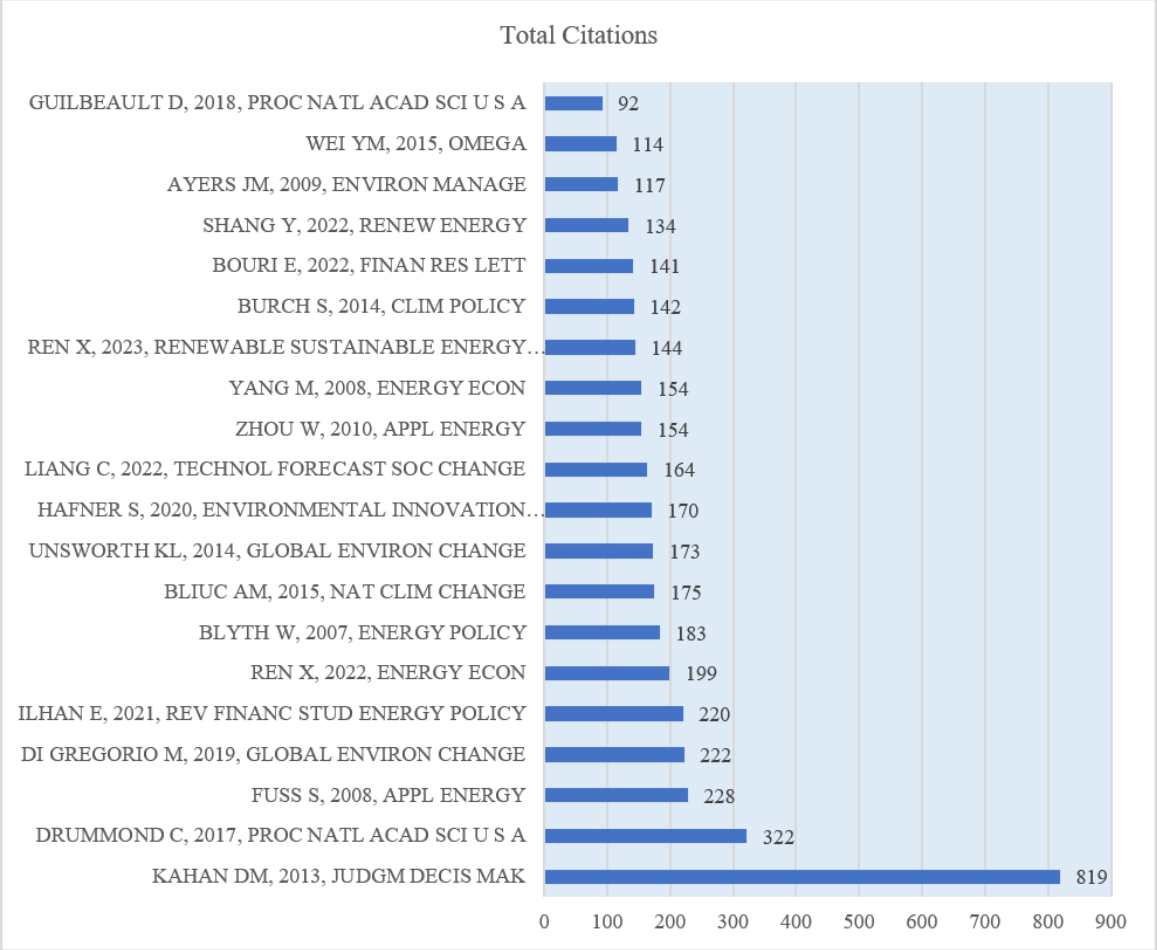

Figure 7. Most global cited

This citation analysis identifies foundational works in this field and shows the importance of interdisciplinary approaches in addressing climate-related challenges. Climate adaptation governance requires combining economic, social, and environmental perspectives to develop capacities that support personal, systematic, and, finally, sustainable development (Wamsler et al., 2020). These articles function as key indicators of foundational texts that shape current research directions and emphasize the importance of understanding identity politics in the global climate change context.

3.5 Thematic Map

The thematic map in Figure 8 identifies four main categories of research themes: motor themes, basic themes, emerging themes, and niche themes. In the motor themes category, themes such as "climate change," "policy

uncertainty," and "identity politics" indicate that current research focuses heavily on understanding how policy uncertainty and identity politics influence responses to climate change. Experts say these themes occupy a central position due to their high relevance and influence in the global discourse on how climate policies are designed and implemented and how various actors are involved in the process (Scoville-Simonds et al., 2020).

The basic themes category includes fundamental concepts; despite lack of density, they remain an important basis for other researches. For example, "environmental policy" and "uncertainty analysis" are often used as cornerstones in the study of climate policy, although they may not develop as quickly as other themes. Scholarly opinion suggests that, although these themes are less visible in the developing literature, they play a critical role in strengthening the theoretical framework of climate research by providing a basic understanding of how policies are implemented and analyzed in terms of environmental uncertainty and challenges (Olasehinde-Williams et al., 2023).

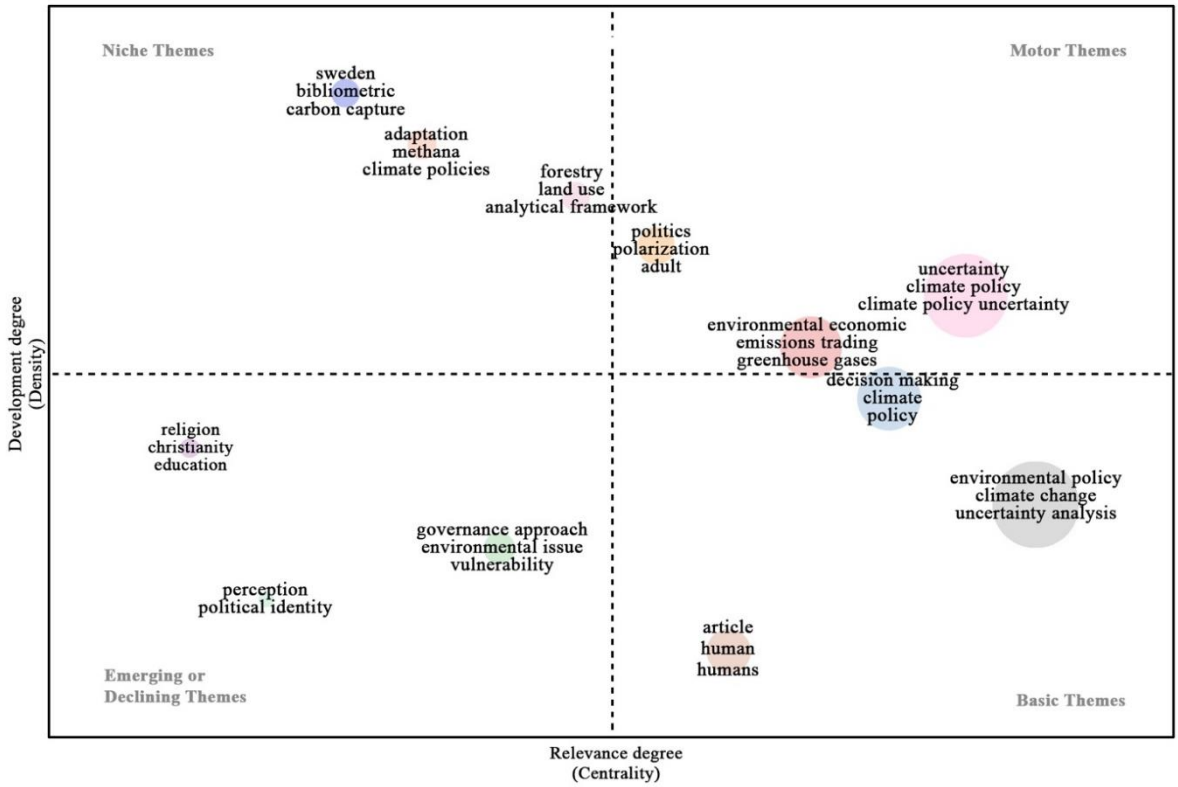

Figure 8. Thematic map

Emerging themes such as "renewable energy" and "environmental justice" show a shift in research toward innovative and fair solutions to climate change. Experts emphasize that increased attention to these themes reflects the necessity for a more inclusive and sustainable approach to climate challenges. That the growth of these themes reflects a growing awareness of the importance of combining technological innovation with social justice principles in climate policy (Domingue & Ryder, 2024).

Finally, niche themes such as "carbon capture" and "Sweden" are more specific and limited in scope but are still relevant in certain contexts. Despite their lack of centrality, these themes are important for understanding local dynamics or very specific issues in global literature, they are highly relevant in certain contexts or local studies. For example, “carbon capture” is essential in climate policy discussions in countries that depend on fossil energy and want to reduce carbon emissions without sacrificing economic growth. Likewise, focusing on a country like “Sweden” provides insight into a particular climate policy approach that acts as a model for other countries (Tranter & Booth, 2015).

3.6 Co-Occurrence Network

In Figure 9, the analyzed co-occurrence network illustrates the relationship between various concepts in the literature that focus on the impact of identity politics on climate policy. Currently, research shows that identity politics influences how climate policy is designed and implemented. The uncertainty in climate change is often complicated by the political identities of the actors involved in its creation. As identified by Barnett et al. (2021), identity politics can shape public and political understanding of environmental risks, including responses to climate

change (Barnett et al., 2021). The blue nodes in the figure show the close relationship between uncertainty and climate policy, indicating that the current literature mostly discusses how uncertainty influences climate policy. This uncertainty includes scientific, economic, and political aspects that often become obstacles in making policy decisions. Which means that uncertainty in scientific predictions of climate change can be exploited by certain political groups to oppose certain policy actions, showing how identity politics plays an important role in these discussions (Shrivastava et al., 2020).

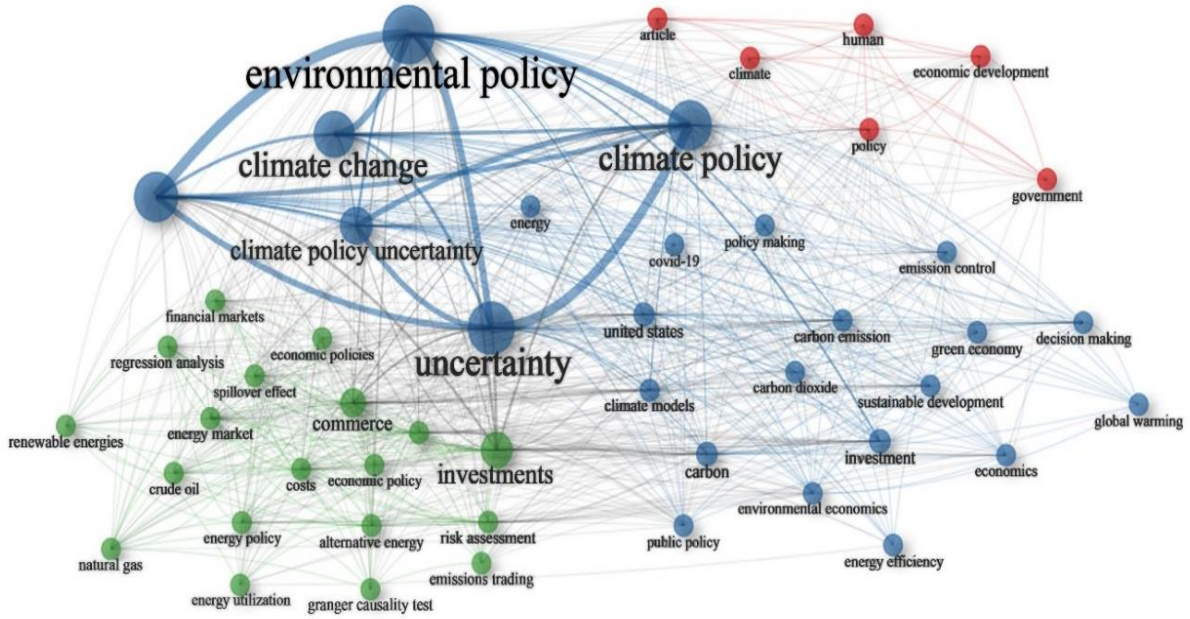

Figure 9. Co-occurrence network

Green nodes connecting economic terms such as “commerce” and “investments” show the relationship between climate policy and economic decisions. Recent literature shows that investment decisions and economic policies, are often influenced by political identities and underlying values. This emphasizes how climate change-related uncertainty interacts with economic decisions influenced by political identity. Finally, the red nodes covering “governance” and “decision-making” underline the importance of governance structures in responding to climate change. As the study Nightingale (2017) outlined, policy responses to climate change are shaped by political dynamics that reflect the political identities of leaders and their constituents.

3.7 Factorial Map

In Figure 10, the presented “Factorial Map” provides an in-depth look at the complex interactions between political identities and policy responses that influence the global response to climate change. This map shows how various factors, such as policy, economics, and political perspectives, play a role in shaping the direction and effectiveness of responses to the challenge of climate change. Political identities and underlying values influence how governments and policymakers prioritize particular climate policies, as explained by Scoones et al. (2015), where political identities determine approaches to climate uncertainty and environmental policy (Scoones et al., 2015).

Closely located nodes on this map, such as “climate policy,” “carbon dioxide,” and “public policy,” show the interrelationship between economic and political decisions in the face of climate change. Illustrating that current research focuses on how public policy and regulation are integrated with carbon emission reduction measures and renewable energy investment. Political identity perspectives often influence attitudes toward energy investment, with some actors prioritizing the green economy and clean energy, while others place more emphasis on conventional energy (Burke & Stephens, 2018).

On the other hand, the location of nodes such as “renewable energies,” “energy policy,” and “economic policy” on the map reflects the importance of energy and economic policies in terms of global climate change. Align with literature emphasizing that inclusive and sustainable energy and economic policies are necessary to achieve effective climate change mitigation. In this context, political identity plays a key role in determining the chosen policy path, whether toward renewable energy or maintaining the status quo of fossil energy.

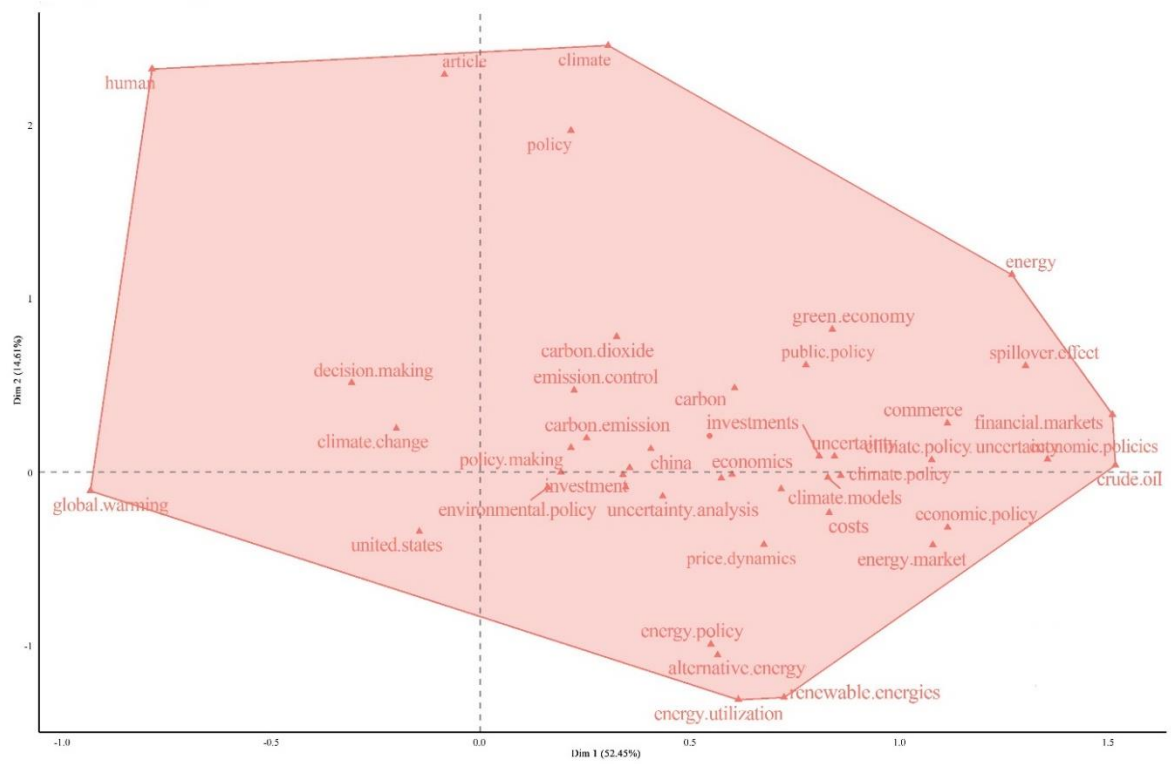

Figure 10. Factorial map

3.8 Dendrogram

In Figure 11, this "Dendrogram" displays the results of a hierarchical cluster analysis of research themes related to climate policy, illustrating how major themes such as "policy uncertainty" and "identity politics" are broken down into more specific sub-themes. This hierarchical structure helps understanding the relationships between different research areas and identifies gaps that could be the focus of future research. Now, research increasingly emphasizes the importance of understanding climate policy uncertainty, which is often influenced by a variety of political and economic factors, including identity politics (Jotzo et al., 2018). This uncertainty reflects how main themes are broken down into specific, deeper sub-themes, such as economic impacts or adaptation policies to climate change.

The figure can see smaller clusters representing sub-themes such as “economic impacts,” “energy transition,” and “public policy,” indicating that current research is not only focusing on policy uncertainty in general but also paying attention to how these specific sub-themes interact with each other. In line with the literature, which states that public policies related to energy and climate change require a more segmented approach to address the various dimensions of uncertainty and political dynamics that occur. This broader perspective not only examines the interaction of instruments, but also captures policy strategies that are aligned with long-term targets and pays greater attention to related policy processes (Rogge et al., 2017).

This "Dendrogram" also shows a close relationship between sub-themes such as "identity politics" and "public opinion," reflecting how domestic and international political dynamics can influence public acceptance of climate policy. Current research displays that political identity and ideological values influence not only policymaking but also society's response to those policies. This suggests that to understand the global response to climate change, we need to consider the multiple political perspectives and identities that shape current climate policy. It is important to consider social identity motivations when communicating climate change policy (Fielding et al., 2020).

Analysis of a country's identity politics has exceptional implications for climate change policies and programs. Identity politics refers to group affiliation based on factors such as ethnicity, religion, political ideology, or cultural values that can influence society's and government's perspectives on climate change issues. In terms of climate change, identity politics often determines how climate policies and programs are formulated, implemented, and interpreted by society and other political actors (Scoville-Simonds et al., 2020).

For example, in the United States, strong political identities among conservative groups often lead to resistance to progressive climate policies. Conservative views tend to be skeptical of the urgency of climate change, frequently seeing climate policy as a threat to economic freedom and national sovereignty. It was reflected in

policy decisions, such as the withdrawal from the Paris Agreement under the Trump administration, where political identity was used to mobilize support against the rejection of global climate policy (Mehling & Vihma, 2017).

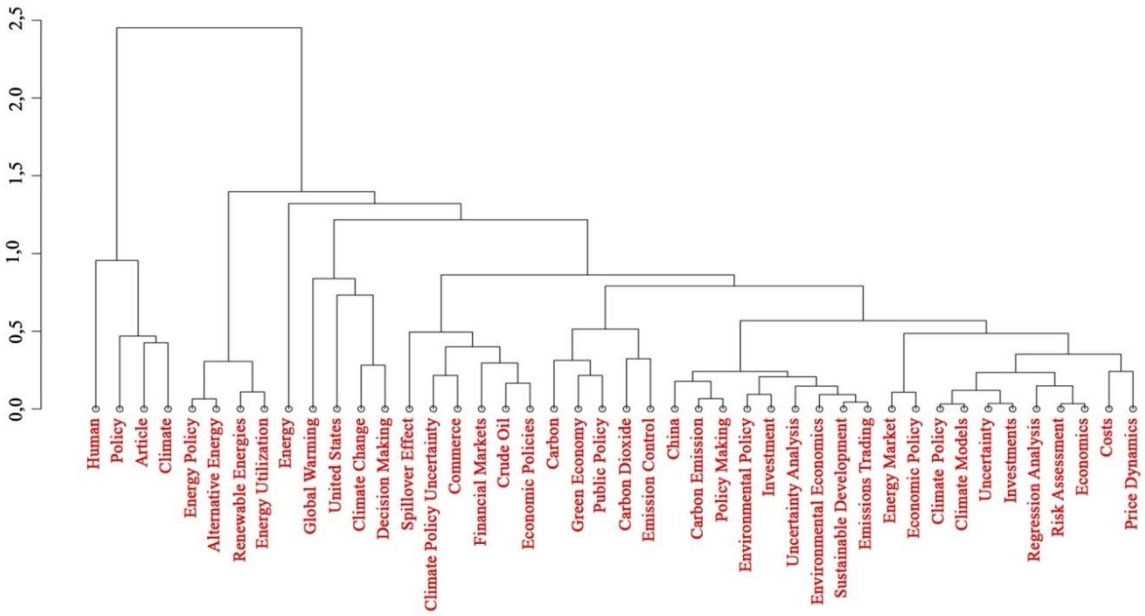

Figure 11. Dendrogram

On the contrary, in European countries, identity politics tends to favor aggressive climate action. For example, in Norway, political polarization on climate change largely centers on differences in values between conservative and progressive political groups, but there is a general context that climate action is needed. However, in some other European countries, such as the UK, political affiliation plays an important role in shaping attitudes toward climate change, with conservative parties often more skeptical than progressive parties (Moore et al., 2024).

The implications of identity politics are also visible in developing countries, where local politics and social identities can influence climate policy. In some Asian and African countries, climate policy is often influenced by the need to balance economic development and environmental sustainability. This reflects political identity dynamics, where groups that prioritize economic growth may be less supportive of strict climate policies (Huber, 2020).

In addition, identity politics also influences public perceptions of the risks and uncertainties associated with climate change. The uncertainty in climate science is often exploited by certain political groups to influence public opinion and policy. Strong political identities can amplify this uncertainty by interpreting scientific evidence to suit their political agenda, either to support stronger climate action or to delay policy implementation (Bogado, 2024).

4. Discussion

Identity politics plays an important role in determining policies and responses to climate change. An in-depth understanding of how identity politics influences climate policy can help policymakers design more inclusive and effective strategies for addressing this global challenge. Efforts to reduce political polarization and increase public trust in climate policy must be a priority in global efforts to mitigate and adapt to climate change. A comprehensive and evidence-based approach will encourage the participation of community groups in the design and co-production of solutions to develop policies and strategies that are more transformative and toward achieving a sustainable society (Adom et al., 2024).

Identity politics plays a critical role in shaping climate change policies and responses. Understanding how identity politics influences climate policy can help policymakers design more inclusive and effective strategies to address this global challenge. Research shows that political polarization based on group identity can hinder consensus on climate policy, as seen in public debates on mitigation and adaptation measures across countries (Linde, 2020). Efforts to reduce political polarization and increase public trust in climate policy should be a top priority in global efforts to mitigate the impacts of climate change. Additionally, a comprehensive, evidence-based approach can encourage community groups to participate in the design and co-production of solutions, leading to more transformative policies and sustainable societies. By integrating the views of different identity groups, these policies can be more responsive to the complex and pressing challenges of climate change.

Figure 12 explains how identity politics influences various levels of decision-making in climate policy, from local to national to international. This image is more than just a conceptual illustration but reflects key findings from in-depth research on the interactions between identity politics and climate policy. These findings suggest that identity politics plays an important role in determining the regulatory structures, programs, and strategies implemented by countries and international organizations in response to climate change. Also, the image emphasizes the importance of media and campaigns in shaping the public agenda and strengthening or weakening support for proposed climate policies, which contribute to global sustainability and security later on (Mavrodieva et al., 2019).

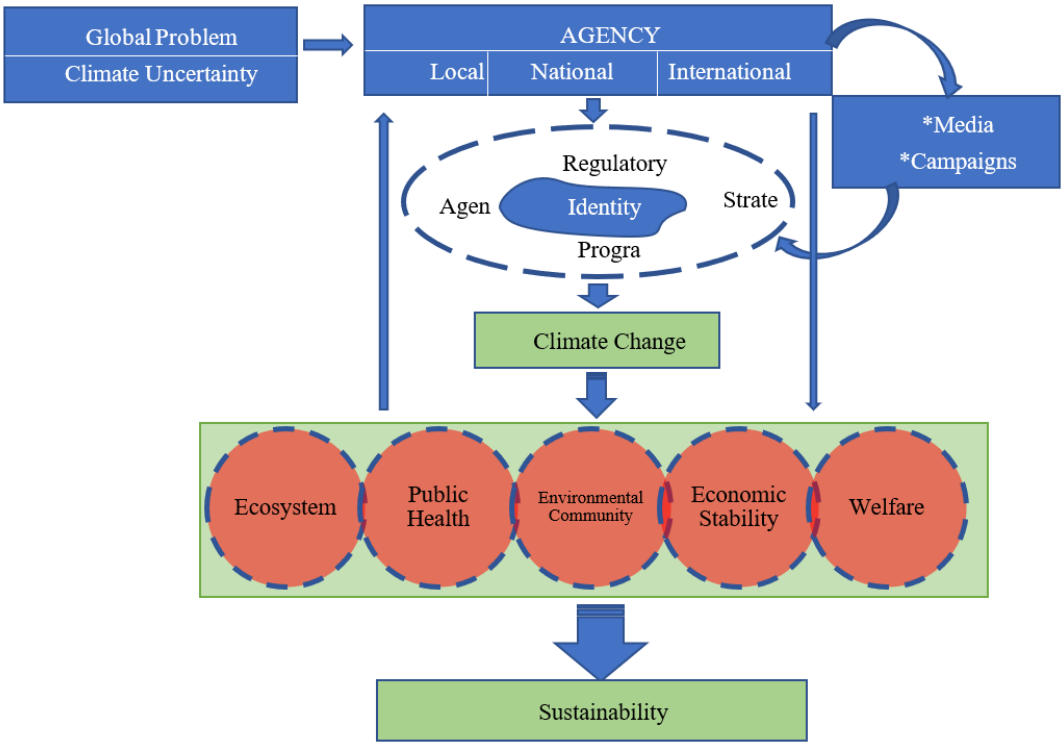

Figure 12. The identity politics framework influences various levels of decision making in climate policy

This research shows that political identity not only influences how climate policies are formulated but also how these policies are implemented and accepted by society. Climate uncertainty, also depicted in the figure, is often exacerbated by the dynamics of identity politics, creating additional challenges in achieving effective international agreements (Albert, 2020). This becomes an important finding in this research because it shows that to achieve greater sustainability and stability, an approach that is more inclusive and sensitive to the dynamics of identity politics is needed. This figure functions as a visual map of the complexity of the relationship between identity politics and climate policy, which is the core of the novelty and contribution of this research to the scientific literature.

A climate justice movement emphasizing fair treatment for communities most affected by climate change will likely wane. This movement points out the inequality that exists between developed and developing countries and between rich and poor communities within a country. Pressure from this movement could encourage countries to implement more equitable and all-encompassing climate policies, including greater funding for mitigation and adaptation in developing countries (Forni et al., 2018). At the national level, marginalized communities that are often most affected by climate change, such as Indigenous groups, coastal communities, and economically disadvantaged communities, are increasingly recognized as important rights holders and decision-makers in climate policy discussions. This could lead to the emergence of new forms of political identity that integrate environmental and social justice into climate policy frameworks (Tramel, 2020).

In the future, there is likely to be an increase in greater international collaboration to tackle climate change. However, this collaboration may increasingly be driven by the principle of "different but equal responsibilities" under the Paris Agreement, where countries with higher emissions and larger economies are expected to take the lead in financing and technology while developing countries focus on adaptation and sustainable development (Gomez-Echeverri, 2018). Countries with large research and technological capacities most likely play a key role in developing innovative and sustainable solutions, such as low-carbon technologies or renewable energy systems, that can be adopted by other countries (Sovacool et al., 2022). The political identity associated with global

leadership in climate change mitigation becomes an important component in international relations, with countries seeking to improve their position on the global stage through active contributions to climate policy.

This suggests that identity politics plays a significant role in shaping the direction of climate policy, with local and national political dynamics influencing policy acceptance and effectiveness. Previous research has shown that political identity is often a major barrier to climate policy consensus, especially in countries with strong political polarization. This polarization exacerbates uncertainty in climate policy decision-making and leads to fragmentation in global action (Sterman, 2012). On the other hand, the literature suggests that the integration of local values and socio-political consensus can strengthen climate policy implementation, as demonstrated by the success of several Northern European countries that have adopted a collective approach to environmental policy (Aasen, 2015).

In many countries, future climate policy will likely be increasingly personalized to the context of local and national identity politics. For example, in countries with high levels of climate skepticism, policies may focus on direct economic benefits, such as job creation in renewable energy or cost savings through energy efficiency, to attract support from groups previously opposed to climate action (Colvin et al., 2015). Likewise, in countries where political identity reflects collectivistic values and concern for the environment, as in some Northern European countries, climate policy is likely to remain strong and ambitious, supported by broad political and social consensus (Aasen, 2015). This shows that the future direction of identity politics in terms of climate change will depend largely on how local values and national identity develop. Technology and big data employment can play an important role in the future of climate change-related identity politics. More accurate data on the impacts of climate change can help reduce political uncertainty and strengthen transparency, increasing public trust in climate policy. Technology can monitor and track countries' emissions and climate commitments, forcing countries to be more accountable for their promises.

5. Conclusions

This study underscores the critical role of identity politics in shaping climate policy outcomes, revealing how political polarization acts as a significant barrier to achieving consensus on climate action. The findings suggest that policy uncertainty, fueled by ideological divides, hinders public acceptance of climate initiatives and deters investment in green technologies. The analysis highlights the dominance of developed countries in climate policy research, while also noting the growing contributions of developing nations, signaling a shift toward more inclusive global climate efforts. The study's implications are profound for both policy formulation and international cooperation. It emphasizes the necessity of tailoring climate policies to local political contexts, ensuring that policy strategies resonate with the political and economic identities of different populations. In regions with high climate skepticism, emphasizing tangible economic benefits, such as job creation in the renewable energy sector, can drive acceptance. Conversely, in regions with strong collective values, more ambitious and collaborative policies are more likely to succeed. Given the urgency of addressing climate change, this study calls for a more nuanced, evidence-based approach to climate policy—one that acknowledges and integrates diverse political and social perspectives. Policymakers must consider identity politics as a critical factor when designing and implementing climate strategies. Further research, particularly cross-country comparisons and investigations into emerging themes such as environmental justice and renewable energy, is crucial for developing effective, sustainable, and globally representative climate solutions. By embracing this approach, the global community can move toward more equitable and impactful climate action.

Data Availability

Not applicable.

Conflicts of Interest

The authors declare no conflict of interest.

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