Opportunities, challenges, and strategies for implementing international environmental agreements in multi-level systems

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Résumé

Mots clés : Fédéralisme, Décentralisation, Structures multi-niveaux, Mise en œuvre, Accords environnementaux multilatéraux, Accord de Paris, Convention de Ramsar, Union européenne, Canada, Australie.

Les systèmes multiniveaux ont une mauvaise réputation dans la littérature sur le respect des engagements internationaux et la mise en œuvre des accords internationaux. Pourtant, de nombreux exemples indiquent que le fédéralisme, la gouvernance décentralisée et la prise de décision conjointe peuvent avoir des effets positifs sur la mise en œuvre des engagements internationaux, ce qui n'a guère été évoqué jusqu'à présent dans la littérature consacrée à la mise en œuvre des accords internationaux. Dans ce contexte, cette thèse part d'une triple motivation : comprendre les opportunités qui peuvent découler des structures multi-niveaux pour la mise en œuvre des accords internationaux sur l'environnement, les défis auxquels les systèmes fédéraux sont confrontés lorsqu'il s'agit de mise en œuvre et la manière dont ces défis peuvent être surmontés. Pour mieux comprendre comment les structures à plusieurs niveaux affectent la mise en œuvre des accords internationaux sur l'environnement, la thèse pose trois questions de recherche spécifiques :

1. Quels sont les effets des structures à plusieurs niveaux sur la mise en œuvre des accords internationaux sur l'environnement ?

2. Dans quelles conditions les gouvernements subfédéraux résistent-ils ou soutiennent-ils la mise en œuvre d'un accord international ?

3. Dans quelles conditions les « side-payments » parviennent-ils à maintenir ou à faire adhérer les gouvernements subfédéraux à la mise en œuvre d'un accord international ?

Pour comprendre les processus de mise en œuvre dans les systèmes multi-niveaux, cette thèse se positionne au carrefour de la politique comparée et des relations internationales et est convaincue que la combinaison de ces deux sous-disciplines s'avère fructueuse pour répondre aux questions de recherche et comprendre l'exécution des obligations internationales dans les systèmes multi-niveaux.

La thèse répond aux trois questions de recherche dans trois articles académiques en utilisant une approche de méthodes mixtes qui combine l'analyse statistique, l'analyse comparative qualitative et la recherche d'études de cas. De manière générale, cette thèse démontre que les structures à plusieurs niveaux peuvent également avoir des effets positifs sur la mise en œuvre, que la résistance à la mise en œuvre par les gouvernements subfédéraux doit être prise au sérieux et que les stratégies de « side-payments » peuvent être un outil efficace, mais aussi limité, pour engager les gouvernements subfédéraux dans la mise en œuvre.

Abstract

Key words: Federalism, Decentralization, Multi-level structures, Implementation, International Environmental Agreements, Paris Agreement, Ramsar Convention, European Union, Canada, Australia

Domestic multi-level systems have a bad reputation in the literature on international compliance and implementation of international agreements. Yet, there is ample evidence that indicates that federalism, decentral governance, and joint decision-making can also have positive effects on the implementation of international commitments which has hardly been considered in the implementation literature so far. Against this backdrop, this dissertation starts with the threefold motivation to understand opportunities that can arise from multi-level structures for the implementation of international environmental agreements, challenges federal systems face when it comes to implementation and how these challenges can be overcome. To better understand how multi-level structures affect the implementation of international environmental agreements, the thesis asks three specific research questions:

1. What are the effects multi-level structures on the implementation of international environmental agreements?

2. Under which conditions do sub-federal governments resist or support the implementation of an international agreement?

3. Under what conditions are side-payments successful in keeping or bringing sub-federal governments on board with the implementation of an international agreement?

To understand implementation processes in multi-level systems, this thesis positions itself at the crossroads between comparative politics and international relations and is convinced that the combination of these two sub-disciplines proves fruitful in answering the research questions and understanding the fulfilment of international obligations in multi-level systems.

The dissertation answers the three research questions in three academic articles using a mixed-methods approach that combines statistical analyses, Qualitative Comparative Analysis, and case study research. In general, this dissertation demonstrates that multi-level

structures can have positive effects on implementation, that resistance to implementation by sub-federal governments should be taken seriously, and that side-payment strategies can be an effective, but also limited, tool to engage sub-federal governments in implementation.

Zusammenfassung

Schlüsselwörter: Föderalismus, Dezentralisierung, Mehrebenenstrukturen, Umsetzung, Internationale Umweltabkommen, Pariser Abkommen, Ramsar-Konvention, Europäische Union, Kanada, Australien

Ausgangspunkt dieser Dissertation ist die Beobachtung, dass Mehrebenensysteme, die hier verstanden werden als institutionelle Manifestationen von Föderalismus und Dezentralisierung, in der bestehenden Literatur mit Blick auf die Umsetzung von internationalen Abkommen eine schlechte Reputation haben. Entscheidungsverfahren in Mehrebenensystemen gelten in der Regel als zu schwerfällig und anfällig für Vetospieler, die Entscheidungen im Rahmen des Umsetzungsverfahrens behindern oder gar blockieren können. Zudem erschwere sub-nationale Autonomie es der Zentralregierung, die Umsetzung bis in die lokale Ebene durchzusetzen, und politische Rechenschaftspflicht auf subnationaler Ebene führe dazu, dass Entscheidungsträger*innen aus Rücksicht vor der lokalen Wähler*innenschaft notwendige Maßnahmen nicht treffen oder umgehen. Während diese Annahmen in der Literatur, die sich mit der Umsetzung von internationalen Abkommen befasst, und in der *compliance*-Forschung dominieren, gibt es in der Föderalismusforschung auch Indizien dafür, dass Mehrebenenstrukturen auch einen positiven Beitrag zur Umsetzung von internationalen Verpflichtungen leisten können. In diesem Zusammenhang stellt sich demnach die Frage, inwieweit Mehrebenenstrukturen nicht auch eine Chance (*opportunities*) für die erfolgreiche Umsetzung bieten können.

Gleichzeitig unterstreichen zahlreiche Beobachtungen auch, dass zumindest in föderalen Systemen das Handeln der sub-föderalen Regierungen teilweise entscheidend für das Erfüllen von internationalen Verpflichtungen sein kann und sub-föderale Regierungen den Umsetzungsprozess wesentlich befördern und behindern können. Regierungen auf Länder-, Region-, Provinz-, Kanton- oder Staatenebenen können Umsetzungsentscheidungen insbesondere über ihr Wirken in intergouvernementalen Gremien, die von Parlamentskammern auf Bundesebene, die sich aus Vertreter*innen der subföderalen Ebenen zusammensetzen, bis zu informellen Ebenen übergreifenden Mechanismen der Koordination und Konsultationen reichen können, ihre Unterstützung oder Ablehnung von bundespolitischen Maßnahmen und ihre eigenes Handeln innerhalb ihres

Zuständigkeitsbereichs beeinflussen. Widersetzen sich sub-föderale Regierungen mittels eines dieser Kanäle der Umsetzung eines internationalen Abkommens kann dies eine zentrale Herausforderung (*challenge*) für die Erfüllung der internationalen Verpflichtung darstellen.

Föderale Systeme haben jedoch auch Verfahren und Strategien (*strategies*), um auf diese Herausforderungen zu reagieren. Ein wichtiges Instrument, das föderale Systeme nutzen, um sub-föderale Regierungen zu einem gewissen Verhalten zu führen, sind sogenannte *side-payments*. Damit können sie Akteur*innen auf der subföderalen Ebene dazu bewegen, Maßnahmen, etwa zur Umsetzung eines Abkommens, zu treffen oder mitzutragen, die sie aus ihrer Perspektive gegenüber des status-quo schlechter stellen. Konkrete Mechanismen sind die direkte Unterstützung von Maßnahmen auf sub-föderaler Ebene, etwa durch finanzielle Zuschüsse, Instrumente der Lastenverteilung, die schwachen Schultern, denen es etwa an Umsetzungskapazität mangelt oder die von der Umsetzung besonders negativ betroffen sind, weniger abverlangen und politische Gegenleistungen, die etwa daran bestehen können, der unkooperativen sub-föderalen Regierung im Gegenzug für ihr Mitwirken an der Umsetzung Zugeständnisse in anderen Politikfeldern zu machen.

Vor diesem Hintergrund geht die vorliegende Arbeit der Frage nach, wie Mehrebenenstrukturen die Umsetzung von internationalen Umweltabkommen beeinflussen. Konkret möchte sie einen Beitrag zu den drei genannten Achsen leisten: Chancen, die sich aus Mehrebenensystemen für die Umsetzung von internationalen Abkommen ergeben, die Herausforderung, die subföderaler Widerstand gegen die Umsetzung von internationalen Abkommen darstellen kann, und die Strategien, die föderale Systeme nutzen, um solchen Widerstand zu überwinden und stellt damit drei untergeordnete Fragen:

1. Welche Auswirkungen haben Mehrebenenstrukturen auf die Umsetzung internationaler Abkommen?

2. Unter welchen Bedingungen widersetzen sich Regierungen der subföderalen der Umsetzung eines internationalen Abkommens?

3. Unter welchen Bedingungen sind *side-payments* wirksam, um subföderale Regierungen für die Umsetzung eines internationalen Abkommens zu gewinnen?

Diese Arbeit sieht sich am Knotenpunkt zwischen Vergleichender Politikwissenschaft und Internationalen Beziehungen und ist der Überzeugung, dass sich die Verbindung dieser beiden Teildisziplinen zur Beantwortung der Forschungsfragen als fruchtbar erweist. Zum einen sieht diese Arbeit für die Forschung im Bereich der Umsetzung von internationalen Abkommen einen Mehrwert, auf Konzepte und Wissen der Föderalismus- und Mehrebenenforschung zurückzugreifen. Um den drei Forschungsfragen nachzugehen, wird dementsprechend zunächst eine dreidimensionale Konzeption von Mehrebenenstrukturen entwickelt. Statt Mehrebenenstrukturen auf ein institutionelles Merkmal zu begrenzen oder als Vetospielersystem zu verstehen, differenziert diese Arbeit zwischen Föderalismus, der sich durch die Autonomie der subnationalen Ebene auszeichnet, Dezentralisierung, unter welcher subnationale Entscheidungs- und Handlungsbefugnis verstanden wird, und Ebenen übergreifender Entscheidungsfindung, die als Beteiligung der subnationalen Ebene an systemweiten Entscheidungen definiert ist. In diesem Zusammenhang wird auch auf den konzeptionellen und empirischen Unterschied zwischen Föderalismus und Föderation hingewiesen. Diese konzeptionelle Herangehensweise erlaubt es, die spezifischen Effekte von Mehrebenenstrukturen auf die Umsetzung von internationalen Abkommen zu untersuchen. Zudem ermöglicht es die Differenzierung zwischen Föderalismus und Föderation, den Fall der Europäischen Union gewinnbringend in die vergleichende Untersuchung aufzunehmen.

Zum anderen nutzt die Arbeit Ansätze der Internationalen Beziehungen, um die Dynamiken innerhalb von föderalen Systemen zu untersuchen. So können etwa die *compliance*-Forschung und die Literatur, die sich mit internationalen Verhandlungen befasst, Anregungen dazu liefern, wieso subföderale Regierungen sich der Zusammenarbeit mit Blick auf die Umsetzung von internationalen Abkommen verweigern. Ansätze zur Erklärung des Agierens von nationalen Regierungen auf internationaler Ebene können damit auch furchtbar für die Theorisierung des Verhaltens von subföderalen Regierungen innerhalb von föderalen Systemen genutzt werden. Auch Wissen über Strategien, die auf internationaler Ebene genutzt werden, um Staaten zur Kooperation zu bewegen, kann für interne Dynamiken von föderalen Systemen herangezogen werden. Die Fusion dieser Forschungsbereiche stellt einen wichtigen Beitrag dieser Dissertation dar.

Die Dissertation umfasst drei wissenschaftliche Aufsätze, die sich jeweils einer der drei Forschungsfragen widmen. Der erste Beitrag untersucht die Umsetzung der Ramsar Konvention zum Schutz von Feuchtgebieten. Mittels einer statistischen Analyse wird untersucht, wie sich die einzelnen Komponenten von Mehrebenenstrukturen auf die Umsetzung auswirken. Die Untersuchung kommt zu dem Ergebnis, dass Staaten, in welchen sub-nationale Einheiten ein hohes Maß an Autonomie von der zentralen Ebene genießen, in welchen sub-nationale Akteur*innen gegenüber ihrer regionalen Wähler*innenschaft rechenschaftspflichtig sind oder über politische Entscheidungsbefugnisse verfügen, und Staaten mit einem Zweikammersystem – zumindest im Bereich des Schutzes von Feuchtgebieten – eher in der Lage sind, wirksame Umsetzungsmaßnahmen zu treffen. Spezifische Mehrebenenstrukturen können damit in bestimmten Politikbereichen in der Tat auch einen positiven Einfluss auf die Umsetzung von Abkommen haben.

Der zweite Aufsatz konzentriert sich auf den Widerstand, den sub-föderaler Einheiten gegen die Umsetzung von internationalen Abkommen entwickeln können und untersucht mittels einer *Qualitative Comparative Analysis* das Verhalten der subföderalen Regierungen Australiens, Kanadas und der EU bei der Umsetzung des Pariser Abkommens. Die Untersuchung ergibt, dass ein großer Teil der Unterstützung bzw. des Widerstands der subföderalen Regierungen durch die Kombination von Willen und Fähigkeit zur Umsetzung bzw. den Mangel an beidem erklärt werden kann. Subföderale Regierungen, die nicht willens, aber in der Lage sind, zum Umsetzungsprozess beizutragen, können es vermeiden, für die Umsetzung verantwortlich gemacht zu werden. Sie können die Verantwortung für die Umsetzung auf die Institutionen auf Bundesebene abwälzen, wenn sie nicht in die Verhandlungen zum internationalen Abkommen oder im Umsetzungsprozess eingebunden wurden. Subföderale Regierungen, denen entweder der Wille oder die Fähigkeit fehlt, tragen dennoch zur Umsetzung bei, wenn sie in den Verhandlungs- und Umsetzungsprozess involviert waren oder wenn sie am Umsetzungsprozess beteiligt sind und keine Machtposition innerhalb des jeweiligen föderalen Systems innehaben.

Der dritte Aufsatz ergänzt diese Erkenntnisse, indem es versucht zu verstehen, wie föderale Institutionen solche subföderalen Widerstände überwinden und subföderale Regierungen bei der Umsetzung mit ins Boot holen können. Basierend auf qualitativen Fallstudien zur Umsetzung des Pariser Abkommens in Kanada und der EU wird gezeigt, dass der Widerstand

auf subföderaler Ebene nicht unbedingt gänzlich überwunden werden kann, aber föderale Systeme *side-payments* wirksam nutzen können, um die Unterstützung der subföderalen Regierungen für die wichtigsten Umsetzungsschritte zu gewinnen. Wenn die Regierungen mächtiger subföderaler Einheiten die Umsetzung eines internationalen Abkommens nicht unterstützen wollen, werden *side-payments* ihre Haltung nicht ändern. Kooperative subföderale Regierungen, die auf innerstaatliche Umsetzungshindernisse stoßen, können jedoch unabhängig von ihrer Machtposition mit Hilfe von *side-payments* ins Boot geholt werden. Regierungen subföderaler Einheiten ohne Machtposition, denen es an Umsetzungswillen mangelt, können nur dann überzeugt werden, wenn sich keine Allianz mächtiger Einheiten gegen die Umsetzung gebildet hat, der sie sich zum gemeinsamen Widerstand gegen die Umsetzung anschließen können.

Diese Arbeit leistet einen Beitrag zur Forschung auf drei Ebenen: Empirie, Theorie und Disziplin. Empirisch nutzt der erste Aufsatz erstmals den neu entwickelten Environmental Convention Index, der es ermöglicht, die Umsetzung von internationalen Umweltabkommen über Einzelstudien hinaus zu untersuchen. Im zweiten Aufsatz wurde basierend auf einer umfangreichen Analyse von Medienbeiträgen und offiziellen Dokumenten ein eigener Index entwickelt, der den Widerstand von subföderalen Regierungen gegen die Umsetzung des Pariser Abkommens quantitativ darstellt und damit vergleichende Analysen erlaubt. Der letzte Aufsatz nutzt darüber hinaus originelles Material, das mittels Interviews und Hintergrundgesprächen gewonnen wurde.

Theoretisch zeigt die Arbeit den Mehrwert der Überwindung der Teilung der politikwissenschaftlichen Disziplinen auf. Internationale Beziehungen und Vergleichende Politikwissenschaft, insbesondere vergleichende Föderalismusforschung, können im Zusammenspiel furchtbar gemacht werden. Darüber hinaus zielt sie darauf ab, einen theoretischen Beitrag zum sich neu entwickelnden Bereich der vergleichenden subnationalen Regierungslehre und *policy*-Forschung.

Mit Blick auf die Disziplinen der politikwissenschaftlichen EU- und Kanada-Studien sieht sich diese Arbeit als Teil des *comparative turn*, der seit den 1980er und 1990er-Jahren auf beiden Seiten des Atlantiks damit einhergeht, dass EU- und Kanada-Forscher*innen verstärkt auf Konzepte und Theorien der Politikwissenschaft im Allgemeinen und der

Vergleichenden Politikwissenschaft im Speziellen zurückgreifen. Dieser Arbeit leistet einen Beitrag zur Entwicklung eines Forschungsprogramms, im Rahmen dessen auch tatsächliche Vergleiche angestellt werden.

Insgesamt liefert vorliegende Arbeit damit eine wichtige konzeptionelle, theoretische und empirische Grundlage, auf die zukünftige Projekte aufbauen können.

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List of abbreviations

CCME	Canadian Council of Ministers of the Environment
COAG	Council of Australian Governments
csQCA	crisp-set Qualitative Comparative Analysis
ECI	Environmental Conventions Index
EU	European Union
EU-ETS	EU Emission Trading Scheme
FFM	First Ministers' Meeting
fsQCA	fuzzy-set Qualitative Comparative Analysis
GHG	greenhouse gas
iNDC	intended Nationally Determined Contribution
PCF	Pan-Canadian Framework for Clean Growth and Climate Change
QCA	Qualitative Comparative Analysis
UNFCCC	United Nations Framework Convention on Climate Change

To Ida and Kilian

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Foreword

I wrote this thesis in the framework of a cotutelle convention between the Université de Montréal in Québec and the Ludwig-Maximilians-Universität in Bavaria. The dissertation was submitted to both universities in April 2023. The two versions of my dissertation only differ in the cover letter and the page listing the members of my doctoral committee. The page numbers are not identical due to the different page sizes in Europe and North America.

This dissertation consists of three papers and is written in English. In accordance with the rules of the Université de Montréal, I have obtained the necessary authorisation in due time. All three articles are single-authored.

As stipulated in my supervision agreement with my supervisors Frédéric Mérand and Berthold Rittberger, two of the three articles have been submitted to academic journals. I submitted the paper entitled "Show Me the Money. Side-Payments and the Implementation of International Agreements in Federal Systems" to *Politics and Governance* in February 2023. After the peer-review process and one round of revisions, the article was accepted for publication in May 2023 and will be published in July 2023. The article "Federalism, decentral governance, and joint decision-making. Bad news for the implementation of international environmental agreements?" was submitted to *Publius: The Journal of Federalism* in April 2023. In June 2023, I received an invitation to re-submit the article after "minor revisions". I plan to re-submit the article in August 2023.

The version of the article "Federalism, decentral governance, and joint decision-making. Bad news for the implementation of international environmental agreements?" included in this dissertation corresponds to the text I submitted to *Publius* in April 2023. The version of the article "Show Me the Money. Side-Payments and the Implementation of International Agreements in Federal Systems" is the final version of the article after the language editing process. And the version of the article "Opening the black box. Sub-federal resistance to the implementation of international agreements" is the full-length version of the article. Thus, it does not correspond to the shorter version that I will submit to an academic journal in summer 2023.

1. Introduction

> So today I am announcing that with the Trans Mountain halted, and the work on it halted, until the federal government gets its act together; Alberta is pulling out of the federal climate plan. […] And let's be clear, without Alberta that plan isn't worth the paper it's written on (Notley 2018, quoted in Tasker 2018).

In August 2018, Rachel Notley, premier of the Canadian province of Alberta, withdrew the province from the Pan-Canadian Framework on Clean Growth and Climate Change (PCF), Canada's main strategy for meeting its international commitments under the Paris Climate Agreement. As a result of its oil sands industry, Alberta is the most polluting province in Canada. Without Alberta's support in implementing the Paris Agreement, prime minister Justin Trudeau will have a hard time meeting Canada's climate target. In order to persuade the government of Alberta to contribute to the implementation of the Paris Agreement, the federal government had supported the extension of a pipeline system that Alberta and its oil industry had long asked for. When this 'side-payment' was halted by a federal court ruling, the Alberta government withdrew its support for the implementation of the Paris Agreement, underlining, as the quote above makes clear, the magnitude of Alberta's withdrawal for the implementation process.

This example illustrates three axes of research that this dissertation aims to address. First, cases such as Alberta's resistance to the implementation of the Paris Agreement are one of the reasons why existing literature has generally considered multi-level systems, especially federalism and decentralisation, as bad news for implementation (König and Luetgert 2009; Borghetto, Franchino, and Giannetti 2006; Linos 2007; Mbaye 2001; Thomson 2007; Raustiala and Victor 1998; Vogel and Kessler 1998; M. A. Levy, Young, and Zürn 1995; Bursens 2002; Jacobson and Brown Weiss 1995). Decision-making procedures in multi-level systems are usually considered too onerous and prone to veto-players who can hinder or even block decisions in the implementation process. Moreover, sub-national autonomy makes it difficult for the central government to enforce implementation down to the local level, and political accountability at the sub-national level leads to decision-makers not taking or circumventing necessary measures out of deference to the local electorate. While these assumptions dominate the literature dealing with the implementation of international agreements and compliance research, there is also evidence in federalism research that multi-level structures can also make a positive contribution to the implementation of

international obligations (for instance, Lijphart 2012; Poloni-Staudinger 2008; Wälti 2004; Kincaid 2001). In this context, the question therefore arises to what extent multi-level structures can also offer *opportunities* for successful implementation.

Second, the Alberta example also shows how crucial sub-federal entities can be to the effective fulfilment of international obligations and that federal governments cannot take sub-federal commitment to implementation for granted (Gordon and Macdonald 2014, 155; Macdonald 2014; Wälti 2004, 602). Sub-federal governments can significantly stimulate and hinder the implementation process (Paquin 2010; Michelmann 2009; Linos 2007; Mbaye 2001; Haverland 2000). Governments at the state, regional, provincial, cantonal, or state levels can influence implementation decisions, particularly through their work in intergovernmental bodies, which can range from parliamentary chambers at the federal level composed of representatives of the sub-federal levels to informal cross-level mechanisms of coordination and consultation, their support for or opposition to federal policies and their own actions within their sphere of competence. Resistance by sub-federal governments to the implementation of an international agreement through any of these channels can pose a key *challenge* to the fulfilment of the international obligation.

Third, the federal government's attempt to buy Alberta's support for the implementation of the Paris Agreement is an example of the *strategies* federal bodies use to respond to these challenges and to get sub-national governments on board with implementation. An important tool that federal systems use to induce sub-federal governments to behave in a certain way is 'side-payments'. In this way, they can persuade actors at the sub-federal level to adopt or support measures, for example to implement an agreement, which, from their perspective, put them at a disadvantage compared to the *status quo* (Cappelletti, Fischer, and Sciarini 2014; Kabir 2019; Scharpf 1988). Concrete side-payments mechanisms include direct support for measures at the sub-federal level, for example through financial subsidies, instruments of burden-sharing that demand less from weak shoulders that lack implementation capacity or are particularly negatively affected by implementation, and political *quid pro quos* that can consist of making concessions in other policy areas to the uncooperative sub-federal government in return for its cooperation in implementation.

Against this background, this dissertation seeks to better understand how multi-level structures influence the implementation of international environmental agreements. More specifically, it aims to contribute to the three axes outlined above and pose three research questions:

1. What are the effects multi-level structures on the implementation of international environmental agreements?
2. Under which conditions do sub-federal governments resist or support the implementation of an international agreement?
3. Under what conditions are side-payments successful in keeping or bringing sub-federal governments on board with the implementation of an international agreement?

Implementation refers to the domestic policies and instruments that a party to an international agreement adopts in order to fulfil its international obligations (Simmons 1998; Young 1979, 104; Brown Weiss and Jacobson 1998; Jacobson and Brown Weiss 1995; Brown Weiss 1998, 1562). To understand implementation processes in multi-level systems, this thesis positions itself at the crossroads between comparative politics and international relations and is convinced that the combination of these two sub-disciplines proves fruitful in answering the research questions and understanding the fulfilment of international obligations in multi-level systems. On the one hand, this dissertation sees an added value for research on the implementation of international agreements in drawing on concepts and knowledge from federalism and multilevel studies. Accordingly, in order to address the three research questions, a three-dimensional conception of multi-level structures is developed (see article 1). Instead of limiting multi-level structures to one institutional feature or understanding them as a mere system of veto-players, this thesis differentiates between federalism, which is characterized by the autonomy of the subnational level, decentralization, which is understood as subnational authority to decide and act, and cross-level decision-making, which is defined as the participation of the sub-national level in system-wide decisions. In this context, the conceptual and empirical difference between federalism and federation is also pointed out. This conceptual approach makes it possible to examine the specific effects of multi-level structures on the implementation of international agreements. Moreover, the differentiation between federalism and federation makes it possible to profitably include the case of the European Union in the comparative study (see article 2 and 3).

On the other hand, this thesis uses approaches from international relations to examine the dynamics within federal systems. For example, compliance research and the literature dealing with international negotiations can provide suggestions as to why sub-federal governments refuse to cooperate with regard to the implementation of international agreements (see article 2). Approaches to explaining the actions of national governments at the international level can thus also be used to theorize the conduct of sub-federal governments within federal systems. Knowledge about strategies used at the international level to induce states to cooperate can also be applied to internal dynamics of federal systems (see article 3). The fusion of these research areas is an important merit of this dissertation.

This dissertation consists of three academic articles, each dedicated to one of the three research questions. In general, this dissertation demonstrates that multi-level structures can also have a positive impact on implementation, that sub-federal resistance to implementation should be taken seriously, and that side-payment strategies can be an effective, but also limited, tool to get sub-federal governments on board with implementation.

More specifically, the first article statistically analyzes the effects of multi-level structures on the implementation of the Ramsar Convention on Wetlands. It shows that states in which sub-national decision-makers act autonomously from the central level, are accountable to their local electorate or have policy-making competences as well as bicameral systems can be better placed to produce implementation measures – at least in the area of environmental conservation. The second paper conducts a Comparative Qualitative Analysis (QCA) of sub-federal governments' roles in the implementation of the Paris Climate Agreement in Australia, Canada, and the EU. I find that the combination of sub-federal capacity and willingness sufficiently explains sub-federal support. Cooperation between the federal and sub-federal governments during international negotiations and the implementation process can compensate for the lack of sub-federal capacity or willingness and bring sub-federal governments on board with implementation, at least in the case of weak sub-federal entities. Conversely, not being involved in the negotiation or implementation process facilitates resistance to implementation by unwilling sub-federal governments. In the last article, I conduct a structured, focused comparison to study the

effectiveness of side-payments in the implementation of the Paris Agreement in Canada and the EU. The analysis shows that if governments of powerful sub-federal entities do not want to support the implementation of an international agreement, side-payments will not alter their stance. However, cooperative sub-federal governments that encounter domestic implementation obstacles can be brought on board by means of side-payments, irrespective of their power. Governments of weak sub-federal entities that lack willingness to implement can only be persuaded if no alliance of powerful entities opposing implementation has been formed.

This thesis is structured as follows. Chapter 2 briefly introduces the literature on compliance and implementation and the role multi-level structures has played therein. Chapter 3 gives an overview of the methodological framework by pointing to the general methodological considerations, challenges, and contributions. Chapter 4 represents the first article, in which I statistically study the effects of multi-level structures on the implementation of the Ramsar Convention on Wetlands. Chapter 5 is the second article, in which I conduct a Qualitative Comparative Analysis to identify the conditions under which sub-federal governments in Australia, Canada and the European Union resist or support the implementation of the Paris Agreement. Chapter 6 consists of the third article. Through qualitative case studies, I seek to identify the conditions and processes that help explain the effectiveness of side-payments in persuading Canadian and European sub-federal governments to support the implementation of the Paris Agreement. Chapter 7 concludes by providing a summary of the key findings, referring to the general contributions of this dissertation and developing a research agenda.

2. Literature review

This section serves to introduce the main arguments of the literature on international compliance and the implementation of international agreements and the attention that has been paid to the role multi-level structures play in the implementation process.

In the international compliance literature, the so-called 'enforcement school' has argued that the national governments' willingness to comply with their international commitments is a function of a calculation of domestic costs and benefits (Downs, Rocke, and Barsoom 1996). Especially research on compliance with EU law has identified partisan policy positions as a direct indicator of a national government's willingness to implement a specific supranational decision (Treib 2014, 22) and has shown that the policy preference of the ruling party has a relevant effect on the accomplishment of international obligations (Treib 2003; Jensen and Spoon 2011). The underlying causal mechanism refers to the electoral incentives ruling political parties have to implement policies in line with the positions they campaigned with (Jensen and Spoon 2011, 303). Other have also included public opinion (for instance, Mbaye 2001) and the role of interest groups (for instance, Börzel 2000), which in turn can affect the policies adopted by the ruling political parties, in their conceptualization of 'willingness'. With respect to environmental protection, there is also scholarship that sees little or no influence of party political preferences on environmental performance or compliance with international environmental commitments (for instance, Wälti 2004; Crepaz 1995).

Conversely, the 'management school' has underlined the lack of a country's capacity as a key explanation for its lack of compliance with its international obligations rather than the willingness and policy preference of a state's central government (Chayes and Chayes 1998; Chayes, Chayes, and Mitchell 1998). Capacity has especially referred to the resources necessary for implementation, especially administrative capacity and personnel, expertise, financial resources and regulatory authority (Linos 2007; Jensen 2007; Hille and Knill 2006; Chayes, Chayes, and Mitchell 1998; Jacobson and Brown Weiss 1995, 141; Simmons 1998, 83). States lacking these capacities will have a harder time meeting their commitments – even if they want to. On the other hand, it refers to the institutional constraints that the political system can impose on political actors, which includes the number of veto-players

(for instance, Madden 2014; Mbaye 2001; Kaeding 2006; König and Luetgert 2009), and the system of interest representation (for instance, Scruggs 1999; Jahn 1998; Crepaz 1995). Literature that has considered the effects of multi-level structures has largely viewed the impact of multi-level structures on implementation capacity as negative (König and Luetgert 2009; Borghetto, Franchino, and Giannetti 2006; Linos 2007; Mbaye 2001; Thomson 2007; Raustiala and Victor 1998; Vogel and Kessler 1998; M. A. Levy, Young, and Zürn 1995; Bursens 2002; Jacobson and Brown Weiss 1995). Levy, Young and Zürn (1995, 315) have representatively argued that "[h]ierarchical states in which great authority is vested in the central government will find it easier to translate the provisions of international regimes into national law than decentralized systems in which the central government has limited authority over regional and local governments."

Based on this literature, which has theorized and identified that components of multi-level structures affect implementation negatively, my first article develops the so-called 'pessimistic school'. While multi-level structures can also be hypothesised to affect implementation positively, a proper 'optimistic school' in the area of compliance and implementation has not emerged yet. Article 1 thus relies on literature that has argued that multi-level structures have a positive influence on policy output or outcome (Poloni-Staudinger 2008; Wälti 2004; Lijphart 2012; Kincaid 2001) and comparative federalism research that has identified specific features of multi-level systems that can make a difference in terms of implementation (Paquin 2010; Freudlsperger 2018; Schreurs and Tiberghien 2007; Gordon and Macdonald 2014; Macdonald 2014; Winfield and Macdonald 2012) to develop the optimistic line of reasoning. A conceptual limitation paper 1 seeks to overcome is that existing literature has failed to dismantle multi-level structures in their distinct components. Most compliance and implementation studies do not differentiate the distinct dimensions and components by merging them, especially federalism and decentral governance (e.g., König and Luetgert 2009; Poloni-Staudinger 2008; Thomson 2007) or all three by means of a compound index (e.g., Börzel 2021; Mbaye 2001); using only individual components as a proxy indicator for multi-level governance (e.g., Linos 2007); or simplifying multi-level structures as a mere system of veto-players (e.g., Kaeding 2006; Borghetto, Franchino, and Giannetti 2006). Paper 1 brings in concepts from the comparative federalism

literature to enable a thorough and differentiated analysis of the effects of multi-level structures.

Regarding the role sub-national or sub-federal entities play in the implementation process, it has been argued that systems, in which the sub-national level enjoys a considerable degree of autonomy vis-à-vis the central level, the successful fulfilment of international commitments regularly depends on the good will of the sub-federal governments (Gordon and Macdonald 2014, 155; Macdonald 2014; Wälti 2004, 602). While some have argued that involving sub-federal governments in the negotiation of the international commitment fosters their contribution to the implementation process (Freudlsperger 2018; Paquin 2010), no comprehensive framework exists on the conditions under which sub-federal governments develop such a 'good will' for implementation – or resist against implementation. My second article seeks to make a contribution in this regard by borrowing plausible explanations from various comparative federalism and international relations research areas.

The literature has also identified two main strategies that federal systems can employ to overcome or prevent sub-federal resistance to implementation. First, intergovernmental cooperation mechanisms across the different levels of government can help to accommodate divided internal regional interests and thus contribute to a federal system's capability to meet its international obligations (Gordon and Macdonald 2014; Macdonald 2014; Paquin 2010). Second, federal systems can use so-called 'side-payments', i.e., instruments to induce actors to take actions that they consider to be a deterioration to the status quo (Cappelletti, Fischer, and Sciarini 2014; Kabir 2019; Scharpf 1988). In terms of implementation, side-payments include concessions granted to hesitant sub-federal governments or compensations for bearing the costs associated with an implementation measure. My third article contributes to this literature by developing an explanatory framework regarding the effectiveness of side-payments, when it comes to the implementation of international agreements in federal systems.

3. Methodological framework

Mixed-methods research generally needs to carefully consider the methodologies it combines so they are compatible with the underlying epistemology and theoretical foundations (Beach and Pedersen 2013; D. L. Morgan 2007). However, this dissertation seeks to answer three research questions, which require different methodological approaches and therefore are examined in three independent analyses.

Article 1 is interested in the effects of the different components of multi-level structures on implementation. It is thus suitable to conduct a statistical study of average effects of the independent variables (Goertz and Mahoney 2012; Rubinson et al. 2019, 2). By contrast, the second and third papers are outcome-centred and are in line with a logic of qualitative methodology (Goertz and Mahoney 2012). Accordingly, I select methods that are in line with these methodological assumptions of causality, i.e., Qualitative Comparative Analysis (QCA) (Mello 2021; Schneider and Wagemann 2012; Ragin 2008; Rihoux 2003) and structured, focused comparison (George and Bennett 2005; George 1979).

Next to the diversity of methodology and methods, this dissertation also engages in a diversity of data. My first article relies on existing quantitative datasets to measure the different components of multi-level structures, especially the Regional Authority Index (Shair-Rosenfield et al. 2021; Hooghe et al. 2016; Hooghe, Marks, and Schakel 2010) and Lijphart's Bicameralism indicator (2012, 199–200). As for my dependent variable, I use the recently developed Environmental Convention Index (ECI) (Escobar-Pemberthy and Ivanova 2020), which for the first time provides the opportunity to study the implementation of international environmental agreements beyond individual case studies or qualitative comparisons considering a small number of cases.

Articles 2 and 3 face the typical challenge of studying sub-federal governments, i.e., the lack of existing data. To map the degree to which sub-federal governments have resisted the implementation of the Paris Agreement, I have analyzed 915 news articles and 77 official documents. On this basis, I created an index covering 55 sub-federal governments in Australia, Canada, and the European Union. Moreover, I coded 69 sub-federal party manifestos to measure the climate policy positions of 55 sub-federal governments in the three federal systems. The most common source regarding party policy preferences is the

Manifesto Project. However, the Manifesto Project does not consider party platforms of political parties at the sub-federal level.

Furthermore, as part of the third article, I conducted 11 semi-structured interviews and background talks with political practitioners in Canada and the European Union to gain insights of the implementation process of the Paris Agreement. The 46 documents I studied further contribute to the broad range of data used in the three articles.

The collection of original data and the creation of an original dataset is one of the merits of this dissertation.

4. Article #1: Federalism, decentral governance, and joint decision-making. Bad news for the implementation of international environmental agreements?

There is a lingering myth in the international compliance literature that domestic multi-level structures have a negative impact on the fulfilment of commitments. This paper argues that this literature has lacked the understanding multi-level structures as a multi-layered concept. Instead of viewing multi-level governance as a one-dimensional concept or a mere system of veto-players, I propose to study the effects of the individual components, i.e., federalism, decentral governance, and joint decision-making. I test the plausibility of this approach by statistically analysing the implementation of the Ramsar Convention on Wetlands. My findings debunk the myth about the negative effects of multi-level structures on the implementation of international agreements. I show that states in which sub-national decision-makers act autonomously from the central level, are accountable to their local electorate or have policy-making competences as well as bicameral systems can be better placed to produce implementation measures – at least in the area of environmental conservation.

Keywords: Federalism, Decentralisation, Joint decision-making, Implementation, International Environmental Agreements, Ramsar Convention

4.1 Introduction

Domestic multi-level systems have a bad reputation in the literature on international compliance and implementation of international agreements (König and Luetgert 2009; Borghetto, Franchino, and Giannetti 2006; Linos 2007; Mbaye 2001; Thomson 2007; Raustiala and Victor 1998; Vogel and Kessler 1998; M. A. Levy, Young, and Zürn 1995; Bursens 2002; Jacobson and Brown Weiss 1995). Federalism, decentral governance, and joint decision-making have been viewed as institutional features that add further veto-players to the implementation game, create incentives for non-implementation and lead to enforcement and coordination problems. Yet there is ample evidence that indicates that multi-level governance can also have positive effects on the implementation of international commitments (e.g., Poloni-Staudinger 2008; Wälti 2004; Lijphart 2012; Kincaid 2001), which has hardly been explored in the implementation literature so far. On this basis, this paper

challenges the lingering myth of the negative effects of domestic multi-level structures on implementation. It asks what effects multi-level structures have on the implementation of international environmental agreements.

The argument developed here is twofold. First, I propose to understand multi-level structures as a multi-layered concept that needs to be dismantled into its individual components, i.e., federalism, decentral governance, and joint decision-making – instead of viewing multi-level governance as a one-dimensional concept or a mere system of veto-players. Secondly, I suggest that, taking into account the specific policy issue, we can develop an optimistic school on the impact of multi-level structures as an alternative to the existing pessimistic school. I test the plausibility of this approach using a statistical analysis of the implementation of the Ramsar Convention. I find that states in which sub-national decision-makers act autonomously from the central level, are accountable to their local electorate or have policy-making competences as well as bicameral systems can be better placed to produce implementation measures – at least in the area of environmental conservation. In other words, multilevel governance is not necessarily bad news for implementation.

The remainder of this paper is organised as follows. I will first develop my conceptual framework by unpacking the different components of multi-level governance. I then introduce a pessimistic and optimistic school regarding the effects of multi-level structures on the implementation of environmental agreements. On this basis, I develop a set of optimistic hypotheses. Section 3 and 4 introduce my research design and present my analyses and results. In section 5, I discuss the findings. By way of conclusion, I summarize this paper's findings and contribution and give an outlook on future research steps.

4.2 Multi-level structures: federalism, decentral governance, and joint decision-making

I conceptualize multi-level structures as features of political systems in which political authority and channels of political accountability are distributed across different levels of government. Multi-level structures thus exist in cases of federalism and decentral governance. The concept of decentralisation describes the distribution of competences and financial resources between the national and the sub-national levels of government, while

federalism refers to the question of political autonomy and political accountability. A third dimension of multi-level structures that results from the existence of multiple levels of government are the cross-level relations between national and sub-national institutions and actors. I decompose each of these three dimensions into two components, which are summarized in Table 4-1.

Table 4-1 **Dimensions of multi-level governance**

Multi-level structures dimension	**Component**	**Definition**
Federalism: Sub-national independence from the central level	Sub-national autonomy from central level	Sub-national decision-making power without interference from the centre
	Sub-national accountability	Election of sub-national decision-makers by local constituency
Decentral governance: Sub-national authority to decide and act	Policy decentralisation	Sub-national jurisdiction over policy fields
	Financial decentralisation	Sub-national access to financial resources and spending power
Joint decision-making: Sub-national participation in nationwide decisions	Bicameralism	Sub-national influence on national legislation via parliamentary chamber
	Mechanisms of intergovernmental cooperation	Institutionalisation of regular intergovernmental meetings with decision-making power

Federations have generally been defined as political systems with at least two levels of government which have the constitutional guarantee of taking decisions autonomously in at least one area and are directly accountable to their citizenry (Watts 1996, 7; Elazar 1987, 7; Riker 1964, 11). Federalism as a principle, however, is not limited to federations, but can be an inherent element of multiple political arrangements that combine "self-rule" at the sub-national level with "shared-rule" at the central level (King 1982; Elazar 1987; Watts 1996). The specific feature that distinguishes federations is the constitutional codification of sub-federal competencies (Watts 2013, 31; Thorlakson 2003, 5). I thus conceptualize federalism in terms of the independence of the sub-national level from the central level. This sub-national independence manifests itself in the sub-federal authority to take decisions autonomously and in the accountability of the sub-federal decision-makers to their constituency (Elazar 1995).

The question of the extent to which a system is federal is "part of the story of how independently the national state can operate from lower levels of governance or territorial

units, and hence, to what extent subnational units within the nation-state are capable of autonomous political actions" (Keman 2000, 198; see also Auer 2005). The more the central government can interfere in sub-national decisions, for example through a right of veto, the less a political system can be considered federal. Sub-national autonomy thus stands in stark contrast to processes of deconcentration. In such a transfer of administrative tasks to the sub-national level, the actors at the lower level remain under the control of the central government to which they are accountable (Ribot 2002, 4; Ferguson and Chandrasekharan 2012, 64). The second federal component of a federal system is the political accountability of the sub-national decision-makers, i.e., regional assemblies and governments, to the citizens within their entity. Consequently, they do not depend on the central government to enter office and be re-elected. Political systems in which sub-national officials are appointed by the central level lack this federal characteristic.

Decentral governance represents the second dimension of multi-level structures. It is both conceptually and empirically distinct to federalism (Keman 2000; N. Bolleyer and Thorlakson 2012; Ehlert, Hennl, and Kaiser 2007). Decentral governance grasps the dispersion of political authority among the different levels of government (Watts 1996, 65). It is a neutral account of the distribution of decision-making powers, without making any statement about who has the power to allocate competences. In contrast to federalism, this dimension does not deal with "the degree of *autonomy* or freedom from control by the other orders of government with which a particular government performs the tasks assigned to it" (Watts 2013, 31, original emphasis; see also N. Bolleyer and Thorlakson 2012). As federalism and decentral governance are two distinct dimensions, cases of federal systems that are highly centralised and unitary states in which relevant authority has been devolved to the sub-national level empirically exist (Erk 2004; Keman 2000). In centralised federations, sub-national entities can act autonomously from the central level, but the areas in which they can do so are limited. In decentralised unitary states, the room for manoeuvre of sub-national actors depends on the discretion of the central level, which can revoke sub-national powers at any time (Hueglin and Fenna 2015, 16–17).

More specifically, I distinguish between decentral governance in terms of policies and of finances (Rodden 2004; Watts 1996). Policy decentralisation[1] is about the "scope of jurisdiction" (Watts 2013, 31), i.e., the specific allocation of policy-making authority at the different levels of government. It thus entails both cases of devolution where policy-making authority has been transferred to the sub-national level, but the competence over the allocation of power rests at the central level, and federations, in which the sub-federal policy-making powers are codified in the constitution (Ferguson and Chandrasekharan 2012, 64; Thorlakson 2003). As financial resources are a key condition to carry out central political decisions, I consider fiscal decentralisation understood as sub-national financial capacity a second component of decentral governance. I deem the power to spend a more suitable approach to grasp financial decentralisation than focussing on the revenue. Sub-national expenditures encompass the entire range of resources the sub-national level can access, including their own tax revenues, bank credits and transfers within the state, and mirrors the *de facto* sub-national array of responsibilities and capacity to shape policy-making and policy-implementation (Thorlakson 2003, 13–14).

If there is a sub-national level, a third dimension comes into play. This third dimension takes into account that the central level in multi-level systems does not necessarily act independently from the sub-national level. Following a bottom-up logic, the sub-national level can influence decisions taken at the central level (Auer 2005). The comparative federalism literature has generally distinguished between the dual and the cooperative federal models (Kaiser 2002; Scharpf 2006; Schultze 1990). These models distinguish federal systems based on the division of authority among different levels of government, but also on the role that the sub-federal level plays in nationwide decisions. While these models have mostly been used to study federal systems, such cross-level dynamics also exist in multi-level systems in general (Behnke and Mueller 2017), given that most democratic political systems are to some degree federal or decentralized (Benz 2009). I consider sub-national participation in nationwide decisions as instances of joint decision-making, which I

[1] Decentralisation does not imply a process of devolution from the central level to lower tiers of government. I acknowledge that this is not the ideal term to describe the division of competences in a neutral way, but it is generally accepted in the comparative federalism literature (Watts 1996, 65).

decompose in bicameralism and in institutions of cross-level intergovernmental cooperation.

Bicameralism refers to the role sub-national representatives play in national legislation. Legislative bodies comprising two chambers exist in both federations and unitary states, and differ relevantly in their co-decision powers and composition (Hueglin and Fenna 2015; Lijphart 2012). The sub-national level has particularly strong influence on national decision-making if the upper chamber that represents the sub-national units has strong legislative powers and the sub-national representatives are selected independently from the elections to the lower chamber. For instance, in cases where the members of the upper chamber are selected by the central government or through the same electoral process as the lower chamber, the sub-national level can exert little influence. In addition to the bicameral structures, multi-level systems differ in the existence and functioning of intergovernmental mechanisms (Poirier, Saunders, and Kincaid 2015). Intergovernmental institutions, such as intergovernmental councils, empower sub-national governments as they offer them the opportunity to influence or co-determine nationwide policies (Behnke and Mueller 2017). Sub-national influence can be especially strong if the intergovernmental meetings between the national and the sub-national governments are held regularly and can take binding decisions. In cases in which both levels of government operate independently, the impact sub-national actors can have is limited to their own jurisdiction.

This conceptual unpacking of the dimensions and components of multi-level governance allows us in the next step to discuss the specific effects of multi-level structures on implementation.

4.3 The effects of multi-level structures on the implementation of international agreements

In this section, I first discuss my dependent variable, i.e., the implementation of international agreements, before mapping the existing literature on how federalism, decentral governance and joint decision-making influence implementation. I then develop three sets of hypotheses on the effects of the individual components of multi-level governance.

4.3.1 The dependent variable: implementation of international environmental agreements

Implementation refers to the domestic policies and instruments that a party to an international agreement adopts in order to fulfil its international obligations (Simmons 1998; Young 1979, 104; Brown Weiss and Jacobson 1998; Jacobson and Brown Weiss 1995; Brown Weiss 1998, 1562). International environmental obligations usually consist either of translating international regulatory standards into domestic law or of meeting internationally set targets. International regulatory commitments include, for instance, rules for trade with endangered animals and plants via CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) or of the export and import of hazardous wastes via the Basel Convention (Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal) that have to be translated into domestic law. Commitments that consist of achieving specific objectives mainly concern pollution mitigation. As in the case of the Paris Agreement under the UNFCCC (United Nations Framework Convention on Climate Change), parties committed to specific greenhouse gas emission reduction goals, but did not commit to specific actions to achieve those targets.

Implementation is not the same as effectiveness (Victor, Raustiala, and Skolnikoff 1998; Jacobson and Brown Weiss 1995). The effectiveness of an agreement refers to the extent to which a particular environmental problem is actually mitigated (Helm and Sprinz 2000; Breitmeier, Underdal, and Young 2011; Brown Weiss 1998, 1564). Effectiveness understood as emission reduction or improvement of environmental quality results from a variety of factors, such as economic development or the behaviour of private actors. In contrast, implementation in terms of policy output can be directly traced to domestic politics, i.e., the preferences and actions of political actors and the institutional design of a political system, including multi-level structures (Gordon and Macdonald 2014, 156; Knill, Debus, and Heichel 2010, 302; Wälti 2004, 609).

The main reason that research interested in the impact of institutions has nevertheless tended to look at policy outcomes rather than policy outputs or implementation measures is the availability of data (Knill, Debus, and Heichel 2010; Wälti 2004). The recently published Environmental Conventions Index (ECI) (Escobar-Pemberthy and Ivanova 2020) is a turning

point in this regard. It provides data on the implementation of five international environmental agreements in over 100 countries, which for the first time allows for the actual study of implementation by going beyond qualitative case studies (e.g., Victor, Raustiala, and Skolnikoff 1998) or the study of compliance with EU law, for which several data-sets have been available for some time.

4.3.2 The 'pessimistic school'

By focussing on the effects of domestic multi-level structures on implementation of environmental agreements, I follow the general assumption of the so-called management school and the findings of existing compliance studies that we need to understand the capacity of a state to implement international commitments rather than the willingness and policy preference of a state's central government (Jensen 2007; Linos 2007; Chayes and Chayes 1993). Existing literature largely views the impact of multi-level structures on implementation capacity as negative (König and Luetgert 2009; Borghetto, Franchino, and Giannetti 2006; Linos 2007; Mbaye 2001; Thomson 2007; Raustiala and Victor 1998; Vogel and Kessler 1998; M. A. Levy, Young, and Zürn 1995; Bursens 2002; Jacobson and Brown Weiss 1995). Levy, Young and Zürn (1995, 315) have representatively argued that "[h]ierarchical states in which great authority is vested in the central government will find it easier to translate the provisions of international regimes into national law than decentralized systems in which the central government has limited authority over regional and local governments." I deem this branch of the literature, which has theorized and identified that components of multi-level structures affect implementation negatively, the 'pessimistic school'.

Pessimists have generally argued that multi-level structures increase the number of players involved in the implementation process, which can lead to implementation delays or non-implementation (Kaeding 2006; Borghetto, Franchino, and Giannetti 2006). More specifically, it has been argued that sub-national actors enjoying autonomy and holding competencies in terms of regulation or policy-making prevent the central government from enforcing implementation (Jensen 2007; Jacobson and Brown Weiss 1995; Mbaye 2001; Brown Weiss 1998) or are likely to lead to problems of coordination (König and Luetgert 2009; Kaeding 2008; Jacobson and Brown Weiss 1995). Consequently, federalism and the

decentralised allocation of implementation powers have been seen as disrupting and fragmenting the implementation process, and consequently delaying or preventing implementation (Raustiala and Victor 1998, 671–72; Jensen 2007; Thomson 2007).

Others have claimed that federalism and decentral governance even create incentives for sub-national actors to actively refrain from supporting implementation. Incentives to not contribute to the implementation of an environmental agreement specifically result from the competitive nature of the relations between the sub-national entities, which leads to a "race to the bottom", also known as the "Delaware-effect" (Vogel 1997) based on the experiences in the US, and to the externalization of environmental problems to avoid implementation costs (Scruggs 1999). Systems in which sub-national office-holders are accountable to their local constituencies are also considered more vulnerable and sensitive to regional interests that may favour non-environmental policies, as regional accountability creates access points for business interests to influence policy decisions and constrain environmental policy-making (Ringquist 1993; Raustiala and Victor 1998). Besides these incentives to not implement, implementation at the sub-national level can also be prevented by the simple lack of implementation capacity in sub-national entities (Vogel and Kessler 1998).

Moreover, research on joint-decision making has suggested that institutions and mechanisms involving the sub-national level in decisions at the central level have a negative impact on implementation and policy outcomes. In case of strong decision-making or even veto-power of the sub-national entities, including bicameral systems, cross-level negotiations can lead through so-called 'joint decision-traps' to deadlocks or implementation delays (Benz, Detemple, and Heinz 2016; Linos 2007; Vatter 2005; Scharpf 1988; Linos 2007; Haverland 2000). Decisions made within joint-decision institutions in multi-level systems have also been deemed to be more likely to result in sub-optimal decisions based on the lowest common denominator among the involved actors (Benz 2000; Scharpf 1988).

4.3.3 The 'optimistic school' and hypotheses

While multi-level structures can also be hypothesised to affect implementation positively, a proper 'optimistic school' in the area of compliance and implementation has not emerged

yet. I thus rely on literature that has argued that multi-level structures have a positive influence on policy output or outcome (Poloni-Staudinger 2008; Wälti 2004; Lijphart 2012; Kincaid 2001) and comparative federalism research that has identified specific features of multi-level systems that can make a difference in terms of implementation (Paquin 2010; Freudlsperger 2018; Schreurs and Tiberghien 2007; Gordon and Macdonald 2014; Macdonald 2014; Winfield and Macdonald 2012) to develop the optimistic line of reasoning. Before doing so, it is necessary to point out some conceptual limitations in the existing literature in order to avoid similar pitfalls in the development of the optimistic school and the corresponding hypotheses.

First, in general, multi-level structures have not been disaggregated in their different components. Most compliance and implementation studies have failed to differentiate the distinct dimensions and components by merging them, especially federalism and decentral governance (e.g., König and Luetgert 2009; Poloni-Staudinger 2008; Thomson 2007) or all three by means of a compound index (e.g., Börzel 2021; Mbaye 2001); using only individual components as a proxy indicator for multi-level governance (e.g., Linos 2007); or simplifying multi-level structures as a mere system of veto-players (e.g., Kaeding 2006; Borghetto, Franchino, and Giannetti 2006).

Second, the conceptualization of multi-level structures as veto-players is especially problematic. On the one hand, players resulting from multi-level structures are not necessarily veto-players, i.e., “individual or collective actors whose agreement is necessary for a change of the status quo” (Tsebelis 2002, 19). Sub-national entities enjoying a relevant degree of autonomy or competency can play a crucial role by furthering or obstructing implementation. However, they regularly do not enjoy actual veto-power over implementation – in contrast to, for instance, political parties in coalition governments, presidents or courts. Conceptually, it is thus more appropriate to consider them as additional players, but not veto-players (Mbaye 2001, 272). Certain multi-level structures, such as mechanisms of joint decision-making, can create veto-points, i.e., the institutional right of political actors to block a decision (Immergut 1990). However, they do not necessarily increase the number of veto-players who actually use their given veto-power or differ in their policy interests (Oppermann and Brummer 2017; Kaiser 1997). When a player's preferences are found to be covered by the overlap of other veto-players' interests,

the player is 'absorbed' and has no influence on the political outcome (Tsebelis 2002). In addition, we already know that blockage situations do not necessarily occur, and sub-optimal outcomes can be avoided even in cases of diverging interests. For instance, the involved actors regularly develop a “problem-solving” negotiation style based on common goals and norms or solidarity, in which they accept solutions that do not entirely satisfy their individual interests. Besides, negotiations can be facilitated by the design of the initiative discussed (Scharpf 2006; Benz 2000; Scharpf 1988).

Third, when hypothesizing about the variables affecting implementation, one has to take into account the kind of international agreement or the specific policy issue, which has only been done by few (for instance, Poloni-Staudinger 2008; Wälti 2004). From a functionalist perspective, it is reasonable to expect that environmental problems that lend themselves to externalization or lead to issues of economic redistribution can be more effectively and efficiently solved if the central or even supranational level has strong decision-making or at least coordinative authority. For instance, Wälti (2004) has found that multi-level systems are better apt to reduce emissions whose production is geographically concentrated, and consequently lead to local pro-environmental pressures, and which can be mitigated by inexpensive local measures. Poloni-Staudinger (2008) has argued that federalism has a positive effect in the area of environmental conservation, including the measures related to protected areas, such as wilderness zones, national parks and nature reserves, and red books, i.e., lists of endangered species, and instruments concerning everyday issues, such as recycling, but not on taxation questions related to environmental protection. Conservation and mundane measures are more easily coordinated within a sub-federal entity than on the national level and are a result of sub-federal decision-makers’ responsiveness to regional citizens’ demands for local solutions to environmental problems.

That being said, I will develop the optimistic school and respective hypotheses in consideration of the three dimensions of multi-level structures proposed earlier. The general argument presented here is that the autonomous entities with decision-making authority and co-decision power at the central level strengthen the capacity of a political system to implement its international commitments. Portraying an optimistic school does not assume that it is universally valid. Rather, I acknowledge that the positive effects are

issue-specific. Based on Poloni-Staudinger (2008), in what follows I presume the implementation of an international agreement in the field of environmental conservation.

Table 4-2 **Effects of multi-level structures on implementation**

Multi-level structures dimension	**Pessimistic view**	**Optimistic view**
Federalism: Sub-national independence from central level	National enforcement prevented and coordination necessary due to sub-national autonomy Access points for interest groups and electorate opposing implementation	Possibility of autonomous action in times of deficient willingness at central level Access points for interest groups and electorate supporting implementation
Decentral governance: Distribution of authority between levels of government	Fragmentation of the decision-making process Incentives to externalize implementation costs and "race to the bottom" resulting from sub-national competition ("Delaware effect")	Innovative and efficient implementation solutions due to sub-national competition and local expertise Mutual reinforcement and "race to the top" ("California effect")
Joint decision-making: Sub-national participation in nationwide decisions	Deadlock situations and delays due to veto-players with diverging interests Sub-optimal and lowest common denominator-based decisions	Political culture of inclusive compromise solutions Venues for information- and best practice-sharing Positive effect of involving the sub-national level in conclusion of agreement

Table 4-2 summarizes the key arguments of the 'pessimistic' and the 'optimistic school'. While, as mentioned, a large part of the compliance and implementation literature does not clearly distinguish between the different dimensions of multi-level governance, I attempted to categorize the existing arguments to my three dimensions for the sake of structuring the debate and hypothesis-development.

My first optimistic proposition points to the positive effects federalism can have on implementation. While pessimists underline potential enforcement problems resulting from sub-national autonomy, others see autonomy as a chance for implementation. Sub-national autonomy enables sub-national actors to act and to contribute to implementation independently. They can thus compensate for other actors' lack of action, for instance in times in which the central government has other priorities or when other sub-national entities cannot or do not want to contribute to implementation (Houle, Lachapelle, and Rabe 2014; Bakvis and Skogstad 2020). Sub-national entities' engagement can be further

fostered if it allows for access points for the local electorate and interest groups. In contrast to the pessimists' fear that sub-national accountability will be exploited by business interests, such a federal feature can also allow the environmentally conscious voters and environmental organizations to put pressure on the lower political level or on both levels of government simultaneously (Wälti 2004; Poloni-Staudinger 2008; Kincaid 2001; Schreurs 2003). Even if the sub-national level has no decision-making autonomy vis-à-vis the central level, it can use its democratic mandate, which it receives from a different electorate than the national one, to demand more action from the central government and thus indirectly contribute to effective implementation.

HT1: Sub-national autonomy positively affects the implementation of an international environmental agreement.

HT2: Political accountability at the sub-national level positively affects the implementation of an international environmental agreement.

Second, I propose that decentral governance can have a positive effect on implementation. Optimists would argue that a decentral allocation of policy competences and financial capacities furthers competition between sub-national entities allowing for policy experiments, fostering innovative solutions and promoting efficiency (Kincaid 2001; Wälti 2004; Lowry 1991). Also, sub-national competences allow sub-national players to set higher standards and do more than other players, thereby encouraging greater ambition on average throughout sub-national entities, an effect also known as the "California-effect" (Shipan and Volden 2006; Kelemen 2004; Vogel 1997). Similarly, it has been shown that the presence of sub-national actors and institutions that assume leadership roles, for instance in the area of environmental protection, can lead to a dynamic "multi-level reinforcement" increasing the overall engagement (Jänicke 2014; Schreurs and Tiberghien 2007).

HT3: Decentral governance in terms of policy competences positively affects the implementation of an international environmental agreement.

HT4: Decentral governance in terms of financial capacity positively affects the implementation of an international environmental agreement.

The third proposition is a result of the first two dimensions. If federalism and decentral governance have a positive effect on implementation, we can also suggest that involving

sub-national entities in decision-making processes at the central level positively influences implementation. In general, systems where it is common to involve multiple actors in decision-making processes develop a political culture of inclusive-compromise solutions that lead to positive political outcomes and are less biased towards particular interests (Lijphart 2012). Cooperation and coordination mechanisms involving actors from the different levels of government, including parliamentary chambers composed of sub-national representatives, can also specifically contribute to a political system's capability in terms of implementing an international agreement (Gordon and Macdonald 2014; Macdonald 2014; Paquin 2010; Bakvis and Skogstad 2020). They can be especially crucial in systems in which diverging interests of the constituting units need to be accommodated and balanced, which can further sub-national engagement in implementation (Macdonald 2014; Wälti 2004, 602). In addition, such institutions promote policy diffusion both vertically and horizontally through the exchange of information and best-practice experiences, which can further contribute to a successful accomplishment of the international commitment (Strebel 2011; Shipan and Volden 2006). The positive effects of such mechanisms can be further strengthened if they are not only used for implementation, but also exploited during the negotiation of the international commitment. Involving sub-national units in international negotiations, for instance by means of the upper parliamentary chamber, can be expected to have a positive effect on their contribution to implementation (Freudlsperger 2018; Paquin 2010; Raustiala and Victor 1998, 664).

HT5: Bicameralism positively affects the implementation of an international environmental agreement.

HT6: Domestic mechanisms of cross-level intergovernmental cooperation positively affect the implementation of an international environmental agreement.

4.4 Research design

This paper studies the effects of multi-level structures on the implementation of international environmental agreements. I test the explanatory power of my independent variables statistically. As the independent variables of interest hardly change, I decided to not conduct a time-series analysis. Instead, I employ linear mixed-effects models with random effects by country.

To operationalise my dependent variable, I rely on the recently developed Environmental Convention Index (ECI) (Escobar-Pemberthy and Ivanova 2020).[2] The ECI authors have examined the implementation of international environmental conventions in the participating countries. They developed an implementation index ranging from 0 to 5 and used this as a basis to evaluate each national report submitted by the convention parties. So far, the project has coded the implementation reports submitted as part of the African-Eurasian Migratory Waterbird Agreement (AEWA), Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), Stockholm Convention on Persistent Organic Pollutants, the Ramsar Convention on Wetlands, and the World Heritage Convention (WHC) between 2001 and 2016. In this analysis, I focus on the Ramsar Convention. In contrast to the other conventions, it has no geographic focus and goes beyond regularity measures. Moreover, a scan of the national reports submitted by the parties to the convention shows that authorities at the sub-national levels have been integrally involved in wetland protection and management in multiple states. The Ramsar Convention thus is an opportune case to test the impact of multi-level structures. Furthermore, wetland protection essentially is a policy seeking environmental conservation. Positive effects of multi-level structures are consequently more likely to hold true for wetland issues than, for instance, for climate mitigation change agreements whose implementation tend to be more politicised and linked to relevant redistribution issues (Macdonald 2014; Poloni-Staudinger 2008). The focus on the Ramsar Convention thus also follows a 'plausibility probe' reasoning (J. S. Levy 2008; Eckstein 1975).

The convention entered into force in 1975. The Ramsar Conference of the Contracting Parties (COP), which takes place every three years, regularly adopts new guidelines, recommendations, and work plans. This continuous development of new international goals and measures reduces the likelihood that states simply enter into international commitments that they have already implemented at home anyway. The parties report on the measures taken to implement the COP decisions in their triennial reports. These reports represent my unit of analysis. My dataset considers 165 national reports submitted by 44

[2] The database is available at environmentalconventionsindex.org (last access: 1 June 2021).

parties between 2005 and 2015. Due to the likely relevance of bureaucratic capacity, democratic governance, and level of economic development for the implementation process, I limit my analysis to OECD member states, Brazil, and India.

From the previous theoretical considerations, I expect six components of multi-level structures to influence the implementation of international environmental commitments: sub-national autonomy from the central government, political accountability at the sub-national level, policy decentralisation, financial decentralisation, bicameralism, and cross-level intergovernmental mechanisms.

Except for sub-national financial capacity and bicameralism, I rely on the Regional Authority Index (RAI) (Shair-Rosenfield et al. 2021; Hooghe, Marks, and Schakel 2010; Hooghe et al. 2016). For my variable "regional autonomy", I use the indicator n_instdepth, which measures the extent to which sub-national decisions are not merely a result of administrative deconcentration and dependent on central government vetoes. I operationalise regional political accountability as the degree to which the sub-national level has an independently elected assembly and executive. The RAI n_representation indicator assesses the presence and election of regional legislative and executive institutions. In order to account for policy decentralisation, I use the n_policyautonomy indicator. This indicator quantifies the range of policy areas in which the sub-national level can make autonomous decisions. Although environmental policy is not taken into account separately, we can assume that if there is a high number of policy areas under sub-national competency, it is likely that environmental protection or other fields related to wetland protection are amongst them. As for the relevance of intergovernmental meetings, I use the n_execcontrol indicator, which measures sub-national participation in nation-wide policy-making processes via intergovernmental meetings with decision-making powers. To measure financial decentralisation, I use the share of expenditures at the sub-national level in relation to the overall expenditures. The numbers are drawn from the OECD (2023). As for the indicators drawn from RAI, I use the scores of the year before the report submission. Although the scores in most countries do not change much over time, this method allows for a more accurate analysis. In contrast, as the OECD only provides data for sub-national expenditures for 2015, I use that year's data for all cases. Regarding bicameralism, I use Lijphart's Bicameralism Index. Lijphart (2012, 198–200) takes into account both the

symmetry between the parliamentary chambers and their congruence in terms of composition. While he does not explicitly include sub-national power in his measurement, I consider his index a suitable proxy, since empirically, upper chambers in states with strong bicameral systems, such as Australia, Germany and the United States, serve sub-national representation. The operationalisation of the variables and the indicators used are summarized in Table 4-3.

RAI represents the most comprehensive available dataset on multi-level systems. It is specifically useful, as it takes into account the potential existence of multiple levels of government below the central level, such as states in federations, but also regions, districts, and municipalities. I do not resort to Lijphart's federalism index (2012, 178). Although Lijphart conceptually distinguishes federalism from decentralisation, his index merges both dimensions. I also refrain from using Keman's (2000) index of federalism and decentralisation as it does not differentiate between the specific components of these concepts, only covers 18 states and dates back to 2000.

Table 4-3 **Operationalisation**

Concept	Variable	Indicator	Source
Fulfilment of international commitments	**Implementing measures to fulfil commitments resulting from an international agreement**	Environnemental Convention Index (ECI): Ramsar Convention	Escobar-Pemberthy and Ivanova (2020)
Federalism	**Autonomous decision-making at regional level**	Regional Authority Index (RAI): n_instdepth	Shair-Rosenfield et al. (2021); Hooghe et al. (2016); Hooghe, Marks and Schakel (2010)
	Political accountability at regional level	RAI: n_representation (extent of existence of independent	
Decentral governance	**Policy decentralisation**	RAI: n_policyautonomy	
	Financial decentralisation	Share of sub-national government expenditures	OECD (2023)
Joint decision-making	**Bicameralism**	Lijphart's Bicameralism Index	Lijphart (2012, 199–200)
	Institutionalisation of intergovernmental cooperation	RAI: n_execcontrol	Shair-Rosenfield et al. (2021); Hooghe et al. (2016); Hooghe, Marks and Schakel (2010)

Based on existing literature and plausibility, I identify four variables for which I control. To control for differences in wealth, I integrate GDP per capita in my models (for instance,

Madden 2014; Knill, Debus, and Heichel 2010). Data comes from the World Bank (2022a). I also control for horizontal veto-players at the central level, using the POLCON III index (Henisz 2002). The geographic size of a country in terms of land area is my third control variable as it can be theorized to affect the effect of multi-level structures. I draw the respective data from the World Bank (World Bank 2022b). Lastly, I include EU membership as a dummy variable since the EU has adopted several legal acts, such as the Habitats directive, that relate to the Ramsar objectives.

4.5 Analyses and results

Table 4-4 summarizes the descriptive statistics. I first conduct bivariate regressions to get a first impression of the effects of the independent variables. Table 4-5 reports the results. For alle six multi-level structure variables, I find positive coefficients. All effects, except for financial decentralisation, are statistically significant.

Table 4-4 **Descriptive statistics**

	N	Missing	Mean	Median	SD	Min	Max
Ramsar implementation	165	0	3.451	3.570	0.636	0.2800	4.780
Subnational autonomy	165	0	2.689	2.728	1.488	0.0000	6.795
Subnational accountability	165	0	3.714	4.000	2.281	0.0000	9.020
Policy decentralisation	165	0	2.247	2.000	1.637	0.0000	6.160
Financial decentralisation	127	38	0.336	0.308	0.171	0.0620	0.762
Bicameralism	100	65	2.39	2.80	1.13	1.0	4.0
Intergovernmen-tal mechanisms	165	0	0.460	0.0	0.731	0.0	2.0
GDP per capita	165	0	29419.7	25466.1	20936.2	897.6	112417.9
Horizontal veto-players	165	0	0.471	0.498	0.114	0.0968	0.710
Size	165	0	$1.20e^{+6}$	230000.0	$2.51e^{+6}$	320.0	$9.16e^{+6}$
EU membership	165	0	0.588	1	0.494	0	1

Notes: N=165 national reports, clustered in 44 countries. OECD data on sub-national expenditure are available for 34 countries, Lijphart's Bicameralism Index is available for 27 countries. For this reason, the number of cases included in the analyses of the effects of fiscal decentralization and bicameralism is <165.

Next, I run six models to test the effects of multi-level structures on the implementation of the Ramsar Convention. To avoid problems of multicollinearity,[3] I conduct the tests separately. The results are reported in Table 4-6.

Table 4-5 **Bivariate analyses**

	Ramsar Convention implementation (Environmental Convention Index)		
	Estimate (SE)	**R^2**	**Intersec**
Subnational autonomy	0.153 *** (0.0313)	0.127	3.040 *** (0.0961)
Subnational accountability	0.103 *** (0.0203)	0.136	3.069 *** (0.0885)
Policy decentralisation	0.147 *** (0.0282)	0.142	3.121 *** (0.0783)
Financial decentralisation	0.287 (0.325)	0.00620	3.424 *** (0.122)
Bicameralism	0.204 *** (0.0645)	0.0924	2.982 *** (0.1703)
Intergovernmen-tal mechanisms	0.166 ** (0.0669)	0.0362	3.375 *** (0.0577)
GDP per capita	$-8.81e^{-7}$ ($2.38e^{-6}$)	$8.40e^{-4}$	3.48 *** (0.0859)
Horizontal veto-players	0.443 (0.437)	0.00627	3.242 *** (0.212)
Size	$4.25e^{-8}$ ** ($1.96e^{-8}$)	0.0281	3.40 *** (0.0543)
EU membership	-0.146 (0.1003)	0.0128	3.536 *** (0.0769)

Notes: * p<0.1; ** p<0.05; *** p<0.01.

Model 1 through 6 test the explanatory power of the individual multi-level structure variables while including the control variables. Models 1 and 2 indicate highly significant and robust effects of federalism on the implementation of the Ramsar Convention. Both sub-regional autonomy from the central level and the existence of independent legislative and executive institutions at the sub-national level have a positive impact on fulfilling the Ramsar obligations. These results thus contradict the general wisdom that federalism is bad for treaty implementation.

[3] I ran collinearity tests resulting in high variance inflation factor (VIF) values (> 4) for regional accountability, regional autonomy, and regional policy competences.

Table 4-6 **Multi-level structures and the implementation of the Ramsar Convention**

	Ramsar Convention implementation (Environmental Convention Index)					
	Federalism		**Decentral governance**		**Joint decision-making**	
	Sub-national autonomy	*Sub-national accounta-bility*	*Policy decentral-isation*	*Financial decentral-isation*	*Bicam-eralism*	*Intergovern-mental mechanisms*
	Model 1	*Model 2*	*Model 3*	*Model 4*	*Model 5*	*Model 6*
Multi-level structure variable	0.162 *** (0.0480)	0.0997 *** (0.0304)	0.1534 *** (0.0451)	0.2973 (0.549)	0.2105 * (0.115)	0.1770 (0.120)
Controls						
GDP per capita	$-1.66e^{-6}$ ($3.21e^{-6}$)	$-2.14e^{-6}$ ($3.15e^{-6}$)	$-2.97e^{-6}$ (3.17e-6)	$-7.66e^{-6}$ * ($3.98e^{-6}$)	$-3.92e^{-6}$ ($5.36e^{-6}$)	$-3.84e^{-6}$ ($3.60e^{-6}$)
Horizontal veto-players	0.284 (0.4151)	0.2898 (0.4166)	0.2661 (0.4155)	0.7010 (0.668)	1.2821 (0.805)	0.2183 (0.426)
Size	$4.50e^{-9}$ ($3.37e^{-8}$)	$1.21e^{-8}$ ($3.26e^{-8}$)	$1.16e^{-9}$ ($3.37e^{-8}$)	$4.50e^{-8}$ ($4.01e^{-8}$)	$1.17e^{-8}$ ($5.26e^{-8}$)	$1.53e^{-8}$ ($3.97e^{-8}$)
EU membership	-0.113 (0.1577)	-0.0992 (0.1551)	-0.0529 (0.1560)	-0.0380 (0.183)	-0.0306 (0.252)	-0.0829 (0.173)
Intercept	2.974 *** (0.2686)	3.0331 *** (0.2609)	3.0800 *** (0.2553)	3.3208 *** (0.345)	2.4767 *** (0.529)	3.3890 *** (0.258)
N	165	165	165	127	100	165
AIC	290.176	290.933	290.068	234.2303	217.063	299.3338
BIC	381.336	383.149	381.454	316.4495	297.754	387.8265
Log-likelihood	-170.244	-171.151	-170.303	-138.8480	-130.456	-173.4895

Notes: * p<0.1; ** p<0.05; *** p<0.01. Standard errors in parentheses.

Models 3 and 4 test the effects of decentral governance. While a decentralised distribution of policy competences has a highly significant positive effect, the impact of financial decentralisation is positive, but not significant.

Lastly, models 5 and 6 examine the impact of joint decision-making on implementation. The coefficients for bicameralism and the institutionalisation of intergovernmental cooperation are positive. However, only the effects of bicameralism are significant.

4.6 Discussion

My results provide evidence for the optimistic approach regarding the effects of multi-level structures on the implementation of international agreements in the area of environmental

conservation. With all coefficients being positive and four variables having significant effects, the findings indicate high levels of robustness. Particularly, my analysis has produced robust results for the proposition that federalism positively influences implementation. The results for both sub-national decision-making autonomy from the central level and accountability to the sub-national electorate are positive and significant. In contrast to fears formulated by the pessimist school, I do not find evidence that sub-national decision-making autonomy creates hurdles for implementation – at least not in the area of environmental conservation. The positive effect can be interpreted as an indication of the general willingness of the sub-national level to contribute to the implementation of international agreements without requiring enforcement from the central level. Moreover, business interests seeking to limit environmental action do not appear to relevantly obstruct the implementation process. It can be assumed that the question of wetland protection is not free of business interests, including the areas of housing development or agriculture which might be negatively affected by wetland zones. However, in line with Poloni-Staudinger (2008), pro-environmental voices seem to prevail in this issue.

The findings for decentral governance and joint decision-making are less robust and require further research as only policy decentralisation and bicameralism show statically significant results. However, they also point to the limits of the pessimistic school for which no confirmation could be found. The finding that policy decentralisation has a positive and significant effect on the implementation of the Ramsar Convention, while financial decentralisation does not seem to influence implementation significantly could be a result of several plausible reasons. For instance, the management of wetland zones can be expected to be less cost-intensive than other measures of environmental protection, such as emission mitigation. Also, even if the creation and management of wetlands is handled by sub-national entities, specific funding is potentially provided by other sources, including the central government. Consequently, the availability of financial resources may be of secondary importance in this policy field.

The results generally suggest that more players in the game do not necessarily hinder implementation. While more players do not necessarily mean more veto-players, bicameralism does generally increase the number of actors with veto power. Veto-player absorption (Tsebelis 2002) does not suffice as an explanation for the positive coefficient.

Adding more players is not neutralised due to the overlapping of preferences, but bicameralism actually genuinely has a positive and significant effect. This result could be an indication that systems in which sub-national voices are constantly heard at the central level through their representation in one of the parliamentary chambers are better apt to take regional interests into account. Bicameralism, as the strongest and most institutionalised form of sub-national presence at the central level, can also be an indicator for sub-national involvement in international negotiations. As Paquin (2010) or Freudlsperger (2018) would argue, including sub-national entities whose action is required for implementation in the making of the international agreement should have a positive impact on their commitment to implementation.

4.7 Conclusion

There is a lingering myth in the international compliance literature that domestic multi-level structures have a negative impact on the fulfilment of international commitments. This paper argues that this literature has lacked the understanding of multi-level structures as a multi-layered concept. Instead of viewing multi-level governance as a one-dimensional concept or a mere system of veto-players, I propose to study the effects of the individual dimensions, i.e., federalism, decentral governance, and joint decision-making, and to consider the specific policy issue as a relevant contextual condition. From a theoretical perspective, this paper has attempted to bring insights from federal studies and multi-level governance research into the international compliance and implementation literature. On this basis, I have shown that multi-level structures do not necessarily hinder the implementation of environmental agreements. I find that states in which sub-national decision-makers act autonomously from the central level, are accountable to their local electorate or have policy-making competences and have a bicameral system can be better placed to produce implementation measures – at least in the area of environmental conservation.

The argument of this paper and the empirical findings do not contradict the pessimistic school but demonstrate that multi-level structures can also have positive effects. Ideally, the analysis of the Ramsar Convention would have been conducted in comparison to another international environmental agreement from a policy issue other than conservation, such as

climate mitigation, for which the distributive effects and levels of contestation can be expected to be higher. However, data on the extent to which parties to an international convention are meeting their obligations is rare. The Environmental Convention Index project has only recently begun, and coding of reports related to other conventions is ongoing, including the implementation of commitments under the United Nations Framework Convention on Climate Change (UNFCCC).

Future research is thus required to further study the specific features of an international agreement whose implementation can either benefit or suffer from multi-level structures. In terms of internal validity, also a qualitative approach to study the causal mechanisms at play would provide further insights in how sub-national autonomy, accountability, policy competency and bicameralism impact implementation. For instance, the positive effect of bicameral systems could be a result of sub-national involvement in the negotiation of the international agreement or of their role in the implementation process. While future research is required, this paper has served to establish that multi-level structures are not necessarily bad news for implementation.

5. Article #2: Opening the black box. Sub-federal resistance to the implementation of international agreements

Federal governments regularly depend on sub-federal goodwill to successfully fulfill their international obligations. However, sub-federal commitment to the implementation of international agreements cannot be taken for granted. This paper opens the black box of federalism in the context of implementation and asks under which conditions sub-federal governments resist or support the implementation of an international agreement. Drawing on international compliance theory and federal studies, I develop a set of hypotheses explaining sub-federal resistance to and support for implementation. I conduct a Comparative Qualitative Analysis (fsQCA) of sub-federal governments' roles in the implementation of the Paris Climate Agreement in Australia, Canada, and the EU. I find that the combination of sub-federal capacity and willingness sufficiently explains sub-federal support. However, this does not tell the whole story. Cooperation between the federal and sub-federal governments during international negotiations and the implementation process can compensate for the lack of sub-federal capacity or willingness and bring sub-federal governments on board with implementation, at least in the case of weak sub-federal entities. Conversely, not being involved in the negotiation or implementation process facilitates resistance to implementation by unwilling sub-federal governments. Theoretically, this paper seeks to bridge international compliance literature and the field of comparative federalism.

Keywords: Federalism, Implementation, Paris Agreement, Australia, Canada, European Union, fsQCA

5.1 Introduction

Federal systems and states that have undergone a process of decentralisation or devolution are generally perceived to be less apt to effectively meet their international obligations (König and Luetgert 2009; Borghetto, Franchino, and Giannetti 2006; Linos 2007; Mbaye 2001; Thomson 2007; Raustiala and Victor 1998; M. A. Levy, Young, and Zürn 1995; Jacobson and Brown Weiss 1995). Especially in federal systems, in which the sub-federal level enjoys a considerable degree of autonomy vis-à-vis the central level (Keman 2000), the successful fulfilment of international commitments regularly depends on the good will of

the sub-federal governments (Gordon and Macdonald 2014, 155; Macdonald 2014; Wälti 2004, 602). Governments of sub-federal entities have indeed multiple venues to influence the accomplishment of international obligations, both positively and negatively (Michelmann 2009). In cases in which sub-federal jurisdiction is concerned, sub-federal governments can affect the implementation process through their immediate action. If the international commitment falls entirely in their jurisdiction, sub-federal governments can be considered the gatekeepers of successful implementation (Paquin 2010; Mbaye 2001). If the policy fields in question are so-called shared competences, implementation does not necessarily fully depend on the sub-federal entities, but sub-federal governments can make significant contributions to implementation or create critical hurdles. Moreover, sub-federal governments can influence the implementation process through parliamentary chambers. In integrated federal systems, such as Germany or the EU, in which sub-federal governments are directly involved in federal decision-making, they can substantially shape decisions regarding implementation measures by means of their voting rights or veto powers (Linos 2007; Haverland 2000). Lastly, sub-federal governments can also have an indirect impact on the implementation of international agreements, regardless of their formal role in the decision-making process. As political actors, they can engage in public discourse. They can use their public role to complicate the implementation process by criticizing or discrediting the commitment or the implementation measures, or they can support it by creating public pressure in favour of effective implementation.

Sub-federal support for implementation can be particularly crucial for the fulfilment of an international commitment if individual sub-federal entities have a large political influence in the respective policy area. For instance, concerning the implementation of the Basel III Accord on requirements for banks, the Canadian government depends on provincial action as credit unions fall in provincial jurisdiction. With most Canadian credit unions being based in Québec, the role of Québec's government is critical to successful implementation (Hessou and Lai 2017). Similarly, without the contribution of the most polluting provinces, Canada will have a hard time fulfilling its international climate obligations resulting from the Paris Agreement (Macdonald 2020). The active opposition of Kenney's and Fords' governments in Alberta and Ontario to contributing to implementing the Paris Agreement represents a decisive obstacle for the federal government in its efforts to reach its Paris climate targets.

I refer to such instances, in which sub-federal governments act to obstruct the implementation of international obligations, as *sub-federal resistance*. The Biden administration has also faced headwinds from multiple states, including Texas under the Abbott government, since the US re-joined to the Paris Agreement (Durkee 2021; Svitek 2021). The EU is not spared such opposition either. The Polish government in particular has been at the forefront of member states' opposition since the PiS party came to power (Khan 2019; Toplensky 2019). Sub-federal resistance also occurs in other policy fields. For instance, in the aftermath of the negotiation of the Canada-Mexico-US trade agreement in 2018, the governments of Ontario and Québec have publicly criticized certain provisions of the new deal to put pressure on the federal government (Loewen 2018; McGregor 2018a). In Australia in the 1990s, the Tasmanian government refused to abolish a law that prohibited homosexual acts between adult men. This led the UN Human Rights Committee to decide that Australia was not complying with the international human rights norms to which it had committed itself (Galligan and Wright 2002, 161). It was also the Tasmanian government that intended to build a dam, which would have violated Australia's obligation under the UN World Heritage Convention (Galligan and Wright 2002, 160).

Resistance thus cuts across policy areas and federal systems. Neither integrated federal systems characterized by interlocking levels of government, such as the EU, nor divided systems, which show a clear separation between levels of government, such as Canada, are immune to sub-federal resistance (Schultze 1990). Also, Australia, which constitutionally follows the divided model but has developed relevant cooperative mechanisms in practice (Painter 1998), has faced such challenges. These observations also show that resistance can emerge both in full-fledged states and in federation-like international organizations.

While sub-federal contribution to the implementation of an international agreement can be central, it cannot be taken for granted. Nevertheless, we know little about the causes of sub-federal resistance or support. Against this backdrop, this paper asks the following research question:

> Under which conditions do sub-federal governments resist or support the implementation of an international agreement?

While sub-federal governments can relevantly affect the implementation process and have regularly used their power to resist implementation, the actual dynamics within a federal system have generally remained a black box. This paper seeks to open the black box and shed light on sub-federal conduct in the implementation process using the Paris Agreement from 2015, in which parties to the United Nations Convention on Climate Change committed to the mitigation of greenhouse gas emissions, as a case study.

Plausible explanations from related research areas can provide initial clues, but do not seem to capture the whole picture. This includes the expectation that sub-federal resistance or support is a result of convergence or divergence between the goals of the international agreement and the policy preferences of political parties in power. Specifically, governments comprising political parties with a climate action agenda can be expected to be supporters of the implementation of the Paris Agreement (Jensen and Spoon 2011; Knill, Debus, and Heichel 2010). However, as we will see, the Danish government under Rasmussen or the South Australian government under Marshal supported the implementation of the Paris Agreement despite the lack of a climate action agenda. On the other hand, Merkel's Germany, which long was considered a climate leader within the EU, or Alberta's government under Notley, who won the provincial elections 2015 with a strong commitment to climate action, have both been reluctant players in the implementation process. Similarly, one might suspect that sub-federal governments, faced with limited domestic implementation capacity, resist implementation (Chayes, Chayes, and Mitchell 1998; Jacobson and Brown Weiss 1995, 141; Simmons 1998, 83; Hille and Knill 2006). However, several sub-federal governments that are confronted with implementation obstacles still support implementation; and other sub-federal governments that would be fully capable resist. For instance, Western Australia's economy is strongly informed by its mining sector and is by far Australia's biggest polluter. The McGowan's government has nevertheless emerged as a strong supporter of the accomplishment of Australia's Paris obligations. In the EU, member states with levels of economic development below the average have taken leadership positions in the EU's Paris implementation, including Portugal under Costa or the Baltic states, such as Latvia under Kariņš. Conversely, governments such as Ford's in Ontario that face no implementation capacity problems have strongly opposed the implementation of the Paris Agreement.

This paper proposes to use a configural approach to develop a comprehensive theoretical framework that accounts for the role sub-federal governments play in the process of implementing an international agreement. More specifically, based on the subsequent study of sub-federal support for and resistance to the implementation of the Paris Agreement, I develop a two-fold argument. First, the combination of sub-federal capacity and willingness explains a large part of sub-federal conduct in the context of the implementation process. However, it does not tell the whole story. Cooperation between the federal and sub-federal governments during the international negotiations and the implementation process can compensate for the lack of sub-federal capacity or willingness and bring sub-federal governments on board with implementation – especially in the case of weak sub-federal governments. Conversely, not being involved in the negotiation or implementation process makes it easier for unwilling sub-federal governments to resist implementation.

By opening the black box of federalism in the context of implementation, this papers contributes to the emerging research field of sub-federal and regional governments (Kleider and Toubeau 2022; Eaton and Schakel 2022; Giraudy and Niedzwiecki 2022; Schreurs 2008). Within this context, it also complements existing literature on the role sub-federal governments play in the negotiation of international agreements (Broschek 2023; Freudlsperger 2018; Paquin 2010). With my focus on sub-national governments, I also add a new element to the two-level games literature (Putnam 1988; Evans, Jacobson, and Putnam 1993; Lehman and McCoy 1992; Zangl 1995) that has rightfully argued to take the domestic level seriously and pointed to the interactions between the domestic and the international level when it comes to the negotiation and implementation of international agreements.

The remainder of this article is organized as follows. I will first conceptualize the outcomes I seek to explain, i.e., resistance to and support for implementation, and develop my theoretical framework drawing on international relations and comparative federalism research. I subsequently introduce my methodological approach, including method, case selection, data and operationalisation. I then conduct a fuzzy-set qualitative comparative analysis (fsQCA), in which I compare the role sub-federal governments have played in the implementation of the Paris Agreement in Australia, Canada and the EU. The following section discusses the results by focussing on typical and deviant cases and refers to

alternative explanations. I conclude by summarizing my findings, discussing political implications, and proposing a research agenda.

5.2 Defining and mapping sub-federal resistance to and support for the implementation of international agreements

This section serves to define the outcomes I seek to explain, i.e., the resistance to and support for the implementation of international agreements at the sub-federal level, and to introduce my data on sub-federal governments' roles in the implementation of the Paris Agreement.[4]

In general terms, I conceptualize sub-federal resistance to implementation as a sub-federal government's action that seeks to obstruct the implementation process of an international agreement. Sub-federal governments can resist the implementation of international agreements in multiple ways and to different degrees. For instance, Alberta under Kenny or Saskatchewan under Wall and Moe have publicly criticized, discredited, and legally challenged policies adopted by the Trudeau government to implement the Paris Agreement. Multiple sub-federal executives in the European Union, including Hungary's Orbán government, have retarded decisions in intergovernmental decision-making processes or set conditions for their agreement to joint action. The Polish government under Morawiecki has opted-out from the EU's target of net-zero emissions by 2050, which follows the Paris Agreement's objective of climate neutrality in the second half of the current century. In Canada, several provinces have opted-out from the Pan Canadian Framework for Clean Growth and Climate Change (PCF), one of the cornerstone pillars of Canada's plan to accomplish its Paris obligations. Other governments, such as Varadkar's in Ireland or Pallister's in Manitoba have complicated the implementation of the Paris Agreement by not taking climate action within their jurisdiction.[5]

Conversely, supporting the implementation of an international agreement is understood as the opposite of resistance and therefore refers to the positive contribution sub-federal

[4] Case selection, operationalization of the outcomes, data collection, data analysis and calibration are explained in the methodological section.
[5] See Table 9-2 in annex for all Australian, Canadian and EU governments conduct in the process of implementing the Paris Agreement.

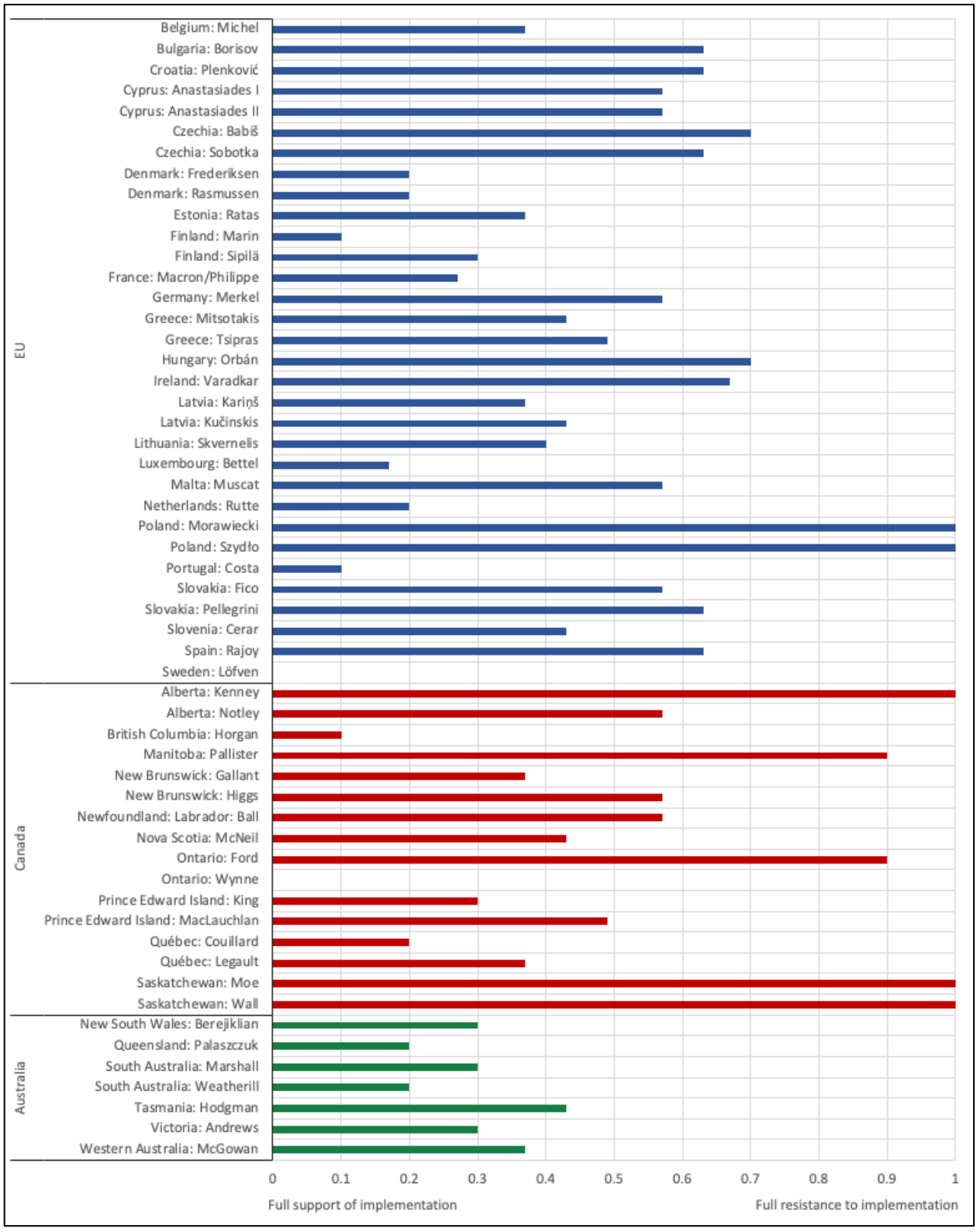
governments make to the implementation process. For instance, the Swedish government under Löfven or the Portuguese government under Costa have adopted multiple climate measures to contribute to the implementation of the EU's commitment under the Paris Agreement, have urged the European Commission to propose higher emission mitigation targets and have attempted to persuade other member states to do more. In Canada, British Columbia under Horgan has set ambitious provincial targets and adopted a sharp climate plan to achieve them. Multiple Australian states have adopted targets and measures that go beyond the federal government's climate commitments and have publicly asked effective implementation of the Commonwealth government.

Based on these empirical observations, I propose a three-dimensional conceptualization of sub-federal resistance to and support for the implementation of an international agreement (see Table 5-1). I first refer to resistance as a sub-federal government's obstruction of the federal government's implementation policies. Such obstruction attempts include publicly attacking the federal government, criticizing its actions, legally challenging federal implementation measures or conditioning sub-federal support for federal action. Second, a sub-federal government can hamper or impede inter-governmental cooperation between the sub-federal and federal governments. Sub-federal executives can block or delay decisions in intergovernmental processes, attempt to water down joint targets and instruments or opt-out from joint commitments, strategies, and policies. Lastly, sub-federal governments can decide not to contribute to the implementation process by not taking meaningful action in areas of their jurisdiction. Notably, they can refuse to adopt new policies or withdraw existing policies that were in line with the obligations under the international agreement

Table 5-1 **Conceptualization of resistance to and support for implementation**

Dimension	Resistance	Support
Reaction to federal action	Obstruction of federal government to adopt and implement policies to meet international obligation: • Public criticism or discreditation of federal strategies and measures • Legal contestation of federal action in court • Demand of side-payments for support for federal action	Backing of federal government's measures to meet international obligation: • Public support and appraisal of federal action • Defense of the federal action against other sub-federal executives • Urging federal government to act
Acting in intergovernmental formats	Obstruction of intergovernmental implementation decisions and measures: • Non-commitment to joint fulfilment of obligation • Opting out from collective strategies, targets or actions • Blocking or weakening of joint actions by using veto right or mobilizing other sub-federal governments	Trailblazer and avant-garde in intergovernmental negotiations: • Commitment to joint fulfilment of obligation • Active participation in collective strategies, targets or actions • Constructive and leading role in intergovernmental negotiations and compromise finding
Sub-federal action	Inexpedient or poor action at the sub-federal level: • Criticism or contestation of the international agreement • Non-adoption of sub-federal implementation strategies and targets • Adoption and implementation of sub-federal measures and policies contrary to the obligation, or lack of action	Adoption and implementation of sub-federal measures to contribute to the implementation process: • Independent support of and commitment to international treaty • Adoption of sub-federal implementation strategies and targets in line with international obligation • Adoption and implementation of policies contributing to the implementation process

Figure 5-1 **Sub-federal governments' resistance to the implementation of the Paris Agreement**



Accordingly, supporting the implementation of an international agreement includes, first, backing federal implementation through public support for federal measures or calls for

action in case the federal government has not adopted and implemented sufficient policies. Second, sub-federal executives can assume leading roles in intergovernmental negotiations. They can actively contribute to compromise solutions and push for joint commitments, strategies, and instruments. Third, a sub-federal government can support the implementation process by committing itself to the objectives of the international agreement and adopting the necessary strategies, targets, and policies within its jurisdiction.

Figure 5-1 gives an overview of the resistance sub-federal governments in Australia, Canada and the European Union have shown regarding the implementation of the Paris Agreement. There is a strong variation between and within the three federal systems, albeit to a lesser degree within Australia. The cases that have resisted the strongest are the Polish governments under Szydło and Morawiecki in the EU, and Alberta under Kenney and Saskatchewan under Wall and Moe in Canada. The five governments have used the bulk of the tools at their disposal to obstruct the Paris implementation. The sub-federal governments that have shown the strongest support for implementing the Paris Agreement have been Lövfen in Sweden and Wynne in Ontario. They have been active and constructive participants in intergovernmental deliberations, have supported federal implementation initiatives or have pushed for more ambition and have adopted and implemented a broad range of climate policies within their jurisdiction.

5.3 Explaining sub-federal resistance to and support for the implementation of international agreements

In this section, I will draw on international relations and comparative politics literature to present a set of hypotheses identifying five plausible explanations for sub-federal resistance and support. Since no comprehensive theoretical framework exists on the role sub-federal governments play in the implementation process of international agreements, I take a middle course between deductive and inductive reasoning. I will theorize the effects of the five conditions individually before using my empirical analysis to identify patterns of necessity and sufficiency as well as causal interactions among the conditions, which will contribute to further theorizing about the causes of resistance to and support for implementation.

My starting point is the conviction that the combination of international relations and comparative politics helps us explain intergovernmental relations and processes in federal systems. This combination of political science sub-disciplines to study dynamics within federal systems follows a tradition established in Canadian politics (Simeon 1972) and embraces the debate within the field of EU studies about whether international relations or comparative politics approaches are more suitable for studying EU integration and politics (Hix 1994; Hurrell and Menon 1996). I specifically draw on literature, theories and studies on compliance and implementation, on the one hand, and comparative federalism and multi-level governance, on the other hand, as well as factual knowledge of multiple cases to propose five sets of hypotheses to explain a sub-federal government's resistance to or support for implementation.

In the following, I introduce the five causal conditions and theorize the direction of their effect individually. Nevertheless, as indicated in the introduction, I expect them to be individually necessary or jointly sufficient for resistance or support, or to be so-called INUS conditions, which are "an *insufficient* but *necessary* part of a condition which is itself *unnecessary* but *sufficient* for the result" (Mackie 1965, 245 original emphases). My empirical analysis will help identify and further theorize the individual and joint effects of the proposed conditions.

5.3.1 Policy convergence between sub-federal preferences and international agreement

The management school within the international compliance literature has argued that national governments can generally be assumed to be willing to comply with their international obligations (Chayes and Chayes 1993). In contrast to national governments, their sub-federal counterparts were not necessarily involved in the negotiation of the respective international agreement. As a result, sub-federal governments cannot be expected to share the policy goals inherent to an international agreement. Their position regarding the policy field which the agreement concerns can thus be theorized to be one of the causes leading to sub-federal resistance to or support for implementation. In the international compliance literature, the so-called enforcement school has argued that the national governments' willingness to comply with their international commitments is a function of a calculation of domestic costs and benefits (Downs, Rocke, and Barsoom 1996).

Especially research on compliance with EU law has identified partisan policy positions as a direct indicator of a national government's willingness to implement a specific supranational decision (Treib 2014, 22) and has shown that the policy preference of the ruling party has a relevant effect on the accomplishment of international obligations (Treib 2003; Jensen and Spoon 2011). The underlying causal mechanism refers to the electoral incentives ruling political parties have to implement policies in line with the positions they campaigned with (Jensen and Spoon 2011, 303).

In federal systems, sub-federal governments are accountable to their local electorate. Translating the insights from compliance research, we should thus expect sub-federal governments to only support the implementation of agreements that overlap with their policy positions. To avoid displeasing their constituents, sub-federal governments will oppose the implementation of international agreements that run counter to their policy preferences.

HT 1a: If a sub-federal government's policy preferences diverge from the commitment under an international agreement, it will resist implementation.

HT 1b: If a sub-federal government's policy preferences converge with the commitment under an international agreement, it will support implementation.

5.3.2 Sub-federal implementation capacity

Following the international compliance literature, I identify the extent to which a sub-federal government is capable of contributing to the implementation process as the second potential condition explaining sub-federal resistance and support. The management school has underlined the lack of a country's capacity as a key explanation for its lack of compliance with its international obligations (Chayes and Chayes 1998; Chayes, Chayes, and Mitchell 1998). Capacity has especially referred to the resources necessary for implementation, especially administrative capacity and personnel, expertise, financial resources and regulatory authority (Chayes, Chayes, and Mitchell 1998; Jacobson and Brown Weiss 1995, 141; Simmons 1998, 83; Hille and Knill 2006). States lacking these capacities will have harder times meeting their commitments – even if they want to. I suggest that the presence or absence capacity not only explains the level of compliance with an international obligation.

Capacity also helps us understand how sub-federal governments act as part of the implementation process.

Next to resources, domestic structures can be theorized to be an essential component of a sub-federal government's implementation capacity. Sub-federal governments are susceptible to domestic interests, such as business lobby groups or trade unions, and will attempt to act in their favor in the context of the implementation of international agreement. They will especially be responsive to economic interests (see for instance, Moravcsik 1993; Moravcsik and Schimmelfennig 2019). As a result, the economic structure of a sub-federal entity can become an obstacle to implementation. If the existing economic structures are affected by the implementation process in a way that results in potential benefit losses for domestic actors, such as businesses or workers, a sub-federal government engaged in the implementation process may face internal opposition. We can thus expect sub-federal governments to oppose international outcomes that produce domestic economic or social costs (Mayer 1992). In order to avoid economic losses and pressures from domestic interest groups, sub-federal governments will resist the implementation that strongly affect their economic structure.

Consequently, implementation capacity is here understood as the combination of having the required resources at one's disposal and not facing internal structural obstacles to implementation. Sub-federal governments need both components of capacity in order to actively support and contribute to the implementation of an agreement. If a sub-federal entity lacks resources or faces structural obstacles domestically, its government will be a hesitant player in intergovernmental negotiations on joint policies and targets, regularly request side-payments to overcome lacking resources or structural obstacles and fail to act in areas of their jurisdiction. Conversely, governments of entities that are capable of implementing the international obligations should have few incentives to obstruct the implementation process.

HT 2a: Governments of sub-federal entities lacking necessary implementation capacity resist implementation.

HT 2b: Governments of sub-federal entities possessing the necessary implementation capacity support implementation.

5.3.3 Power of sub-federal entity within the federal system

Third, sub-federal entities have different weights within a federal system, as nation states do at the international level. In principle, all federal systems are characterized by power asymmetries. Such different levels of power, in general, result from the entities' diverging sizes in terms of geography, population and economic wealth (Watts 1996, 57–60). The question of whether a sub-federal entity is in a relative position of power should affect the role its government plays in the implementation of an international agreement.

Drawing from international relations theory (especially, Keohane and Nye 1977), research on compliance within the European Union has argued that powerful member states are more likely to not comply with EU law (Börzel et al. 2010). The reasoning behind this argument is that powerful states can bear costs resulting from non-implementation, such as losses in reputation or financial sanctions stemming from enforcement processes, and resist pressure to implementation more easily than powerless states. Power thus correlates with the capability to resist social and material pressures.

I expect these dynamics to help explain the role that sub-federal governments play in implementing international agreements. Sub-federal governments can be pressured both vertically and horizontally. At the vertical level, the federal government may seek to use coercive measures, such as finger-pointing or withdrawal of funding, or to persuade sub-federal governments to participate in implementation, for example, through side-payments. Sub-federal entities can also be pressured by other sub-federal governments that intend to get all sub-federal entities on board with implementation, either out of conviction for the respective policy or to avoid free-rider situations. Governments of powerful sub-federal entities can decide to not support the implementation of an agreement, while being able to resist pressure from federal and other sub-federal governments. In contrast, weak sub-federal entities will have a harder time resisting these pressures.

HT 3a: Powerful sub-federal entities resist implementation.

HT 3b: Powerless sub-federal entities support implementation.

5.3.4 Sub-federal co-decision rights in the making of the international agreement

Fourth, federal systems differ in the extent to which the sub-federal level has co-decision rights in the negotiation of international agreements and the ratification process (Michelmann 2009; Paquin 2010). These co-decision rights are understood as the influence sub-federal governments can have on the definition of the international commitment. Depending on the federal system, these rights range from zero to being consulted by the central executive and having a veto-right in the definition of the negotiation position and the ratification of the agreement (Michelmann 2009). I propose that whether sub-federal governments had such co-decision rights in the making of an international agreement affects the role they play in the implementation process.

We know from the audience costs literature that governments that do not carry out pledges they made internationally risk suffering domestic audience costs, especially losing votes in the subsequent elections (Fearon 1994; Morrow 2000). According to this argument, voters punish political decision-makers who do not act in accordance with their international announcements for their incompetence (Smith 1998) and the damage they have caused to the country's reputation and credibility (Tomz 2007). In line with this literature, we can expect that sub-federal governments that have been part of the negotiation and ratification of an international agreement can be held accountable in the implementation process. Consequently, sub-federal governments that had a say in the making of an international agreement have strong incentives to do their part in the implementation process, while sub-federal governments that did not have such decision rights do not risk suffering audience costs since they cannot be held accountable for inaction.

HT 4a: Sub-federal governments that were not involved in the negotiation of the international agreement resist implementation.

HT 4b: Sub-federal governments that were involved in the negotiation of the international agreement support implementation.

5.3.5 Sub-federal involvement in the intergovernmental implementation process

Lastly, most federal systems feature processes of intergovernmental cooperation or coordination across the levels of government (Nicole Bolleyer 2009; Hueglin and Fenna 2015, 238–74; Poirier, Saunders, and Kincaid 2015). However, the extent to which these

mechanisms are institutionalized and used as part of the implementation of international agreements vary across federal systems (Michelmann 2009; Poirier, Saunders, and Kincaid 2015). Cooperation and coordination between the federal and the sub-federal levels can occur via irregular informal meetings or consultation processes between the federal and sub-federal executives, institutionalized bodies of extra-constitutional nature or second chambers at the federal level comprising representatives of the sub-federal executives (Poirier, Saunders, and Kincaid 2015; Schultze 1990). The existence of such cross-level intergovernmental institutions and their role in implementing international negotiations are suggested to affect whether sub-federal governments support or resist the implementation process.

Comparative federalism studies have observed that federal systems with institutionalized intergovernmental cooperation and coordination mechanisms perform better when it comes to the implementation of international agreements (Gordon and Macdonald 2014; Macdonald 2014; Winfield and Macdonald 2012). The rationale behind this observation is that these institutions positively affect the implementation process by serving as venues for information sharing, exchange of best-practice experience and general deliberation, which furthers knowledge, understanding and recognition of each government's capacities, concerns, and interests (see also Schertzer, McDougall, and Skogstad 2016). They also serve willing governments, federal or sub-federal, to persuade reluctant governments to participate in implementation. Such intergovernmental interactions ultimately contribute to finding compromise solutions and agreeing on joint strategies and action. We should thus expect that sub-federal governments that are involved in such cross-level intergovernmental mechanisms throughout the implementation process develop a sense for collective action and will not resist the implementation of an international agreement.

HT 5a: Sub-federal governments that have not been involved in the implementation of the international agreement through institutions of intergovernmental cooperation resist implementation.

HT 5b: Sub-federal governments involved in the implementation of the international agreement through institutions of intergovernmental cooperation support implementation.

These five sets of hypotheses grasp both differences between federal systems, i.e., the co-decision rights of sub-federal governments in the making of an international commitment

and the involvement of sub-federal governments in the implementation process, and the differences between sub-federal entities and governments, i.e., the sub-federal governments' policy preferences and the sub-federal entities' capacities and power. The expected causal effects of the five conditions are summarized in Table 5-2.

Table 5-2 **Theorized causal effects of conditions on outcomes**[6]

Condition	**Causal effect on resistance**	**Causal effect on support**
Policy convergence with agreement	-	+
Implementation capacity	-	+
Power within federal system	+	-
Co-decision rights in agreement-making	-	+
Involvement in implementation	-	+

While I theorized the effect of each condition due to the lack of a theoretical basis individually, I expect the causal explanations of resistance and support to be more complex. As the examples in the introduction indicated, multiple pathways to resisting or supporting the implementation process exist. Furthermore, several conditions can be expected to not affect the role sub-federal governments play in the implementation process individually. For instance, a powerful sub-federal government will not necessarily resist implementation, but power might be necessary for an unwilling sub-federal government to put its resistance into action. Based on empirical observations, it can also be anticipated that conditions explaining resistance do not necessarily lead to support in cases where they are absent. For instance, lacking implementation capacity might lead to resistance, but a sub-federal government possessing such capacity might not automatically support implementation if the sub-federal government is not generally willing to contribute to the implementation process. Qualitative Comparative Analysis, as a set-theoretical technique, is a suitable method to deal with this expected causal complexity and serves as an effective tool for research combining deduction and induction.

[6] The presence of a condition can lead to either the presence (+) or the absence (-) of an outcome.

5.4 Methodological framework

This section serves to introduce my methodological framework, including Qualitative Comparative Analysis (QCA) methodology, case selection as well as the operationalization and calibration of outcome and conditions.

5.4.1 Fuzzy-set qualitative comparative analysis

The aim of this paper is to identify the conditions that help explain why a sub-federal government resists or supports the implementation of an international agreement. QCA represents a particularly convenient tool for this study.

Following the main motivation of qualitative research, QCA is interested in explaining an observed outcome, not (average) effects of a specific independent variable, for which a statistical study would be suitable (Goertz and Mahoney 2012; Rubinson et al. 2019, 2). Specifically, QCA helps identify necessary and sufficient conditions explaining the presence and absence of an outcome. In line with my theoretical expectations, I am interested in the identification of causal conditions and combinations of conditions that have to be present or absent for sub-federal governments to support or resist the implementation process of an international agreement.

QCA, as a set-theoretical approach, embraces the methodological assumption of causal complexity (Mello 2021, 69–73; Rihoux 2003, 353; Schneider and Wagemann 2012, 1–8). Accordingly, QCA is susceptible to equifinality, i.e., different paths can lead to the same result, and to conjunctive causation, i.e., the combined presence of several conditions is required for an outcome to occur.[7] It also accounts for asymmetric causal relations and helps uncover situations in which the outcome and the negated outcome are not a result of the same causes (Goertz and Mahoney 2012, 64–74).

QCA has been described as a "middle path between quantitative and qualitative social sciences" (Ragin 2008, 1). It follows the logics of qualitative research (Goertz and Mahoney

[7] The combination of two condition is not to be confused with interaction effects of two independent variables in statistical research (Goertz and Mahoney 2012, 57–58). Moreover, unlike statistical methods, a potential dependence between the explanatory conditions does not compromise the analysis when performing a QCA (Rihoux 2003, 359).

2012), but possesses some benefits of quantitative analyses. Especially, it allows to analyze a higher number of cases than traditional case-oriented research and consequently enhances the possibility of generalization (Rihoux 2003, 353). QCA can thus be considered a combination of qualitative logic with a quantitative technique.

Today, multiple versions of QCA exist. I applied fuzzy-set QCA (fsQCA). It overcomes the strict dichotomization required in crisp-set QCA (csQCA), which has been a key critique of this approach (Rihoux 2003, 358; Schneider and Wagemann 2012, 24–25). "Fuzzy sets preserve the capability of establishing difference-in-kind between cases (qualitative difference) and add to this the ability to establish difference-in-degree (quantitative difference) between qualitatively identical cases" (Schneider and Wagemann 2012, 27). In comparison to csQCA, fsQCA has thus the advantage that it avoids a substantial loss of empirical information and it increases the robustness of the findings (Schneider and Wagemann 2012, 25). In addition, when using continuous data, fsQCA can serve as a test for the qualitative thresholds set by the researcher. It helps identify cases that are close to the cross-over point between membership and non-membership, which allows the assessment of the extent to which the results would have been different if another threshold had been used.

Critics have questioned the robustness of results produced by a QCA (for instance, Arel-Bundock 2022; Krogslund, Choi, and Poertner 2015). I drew primarily on two strategies to counter this criticism (see for instance, Mello 2021, 174–75; Schneider and Wagemann 2010). In keeping with the general requirement of QCA, I gathered sufficient knowledge about each case and did not limit myself to numerical data in interpreting the results. Instead, a close look at cases served to test the plausibility of the results. Furthermore, in what follows I transparently present and justify my decisions regarding case selection and calibration to facilitate replication and to prevent the perceived belief that QCA is prone to arbitrariness.

5.4.2 Case selection

In terms of case selection, I had two parameters to consider, namely which international agreement and which sub-federal governments to study. Since I am interested in testing the explanatory power of both institutional conditions and policy-specific domestic politics, I

consider focussing on one concrete policy field, i.e., climate action, the most appropriate approach. The Paris Agreement and the implementation of climate targets lend themselves to testing the plausibility of the proposed hypotheses and to further developing theories about the individual and joint effects of the proposed conditions. Achieving climate goals requires action in a wide range of policy areas, such as environmental protection, energy, natural resources, transport, and industry and economic development. Therefore, with the exception of highly centralized systems, climate policy goes hand in hand with sub-federal governments having relevant discretion to act and to shape the implementation process or even being necessary for the successful fulfillment of the international commitment (Wälti 2004). Moreover, unlike other environmental agreements, the Paris Agreement does not focus on technical issues and regulatory provisions. The topic's salience can be assumed to contribute to public awareness and political decision-makers developing an opinion on the issue. Also in contrast to other environmental agreements, the achievement of climate targets requires all parties to take implementation measures. No party already has sufficient climate change mitigation policies in place. Although the Paris Agreement was ratified by most of its parties in 2016 and only entered into effect in November 2016, the domestic deliberation and implementation process began shortly after the Paris negotiations had ended. This is why the implementation period I am interested in ranges from December 2015 to December 2021.

I chose to study sub-federal governments in Australia, Canada, and the European Union, which was the result of four theoretical and methodological considerations. First, in the three federal systems the states, provinces and member states are relevant actors in areas related to climate protection and have therefore a say and a considerable scope of action.[8]

[8] In the three cases, the sub-federal level has strong constitutional and de facto competences and financial means at their disposal (see for instance, Thorlakson 2003; Watts 1996). In Australia, despite tendencies of centralisation in practice, relevant powers remain at the state level (Galligan and Wright 2002). The residual power provides the states with relevant competences in multiple areas, such as environmental protection and transport. In the case of Canada, environmental protection is considered an area of shared competency (Mayrand and Rioux Collin 2017). Further, the provinces have exclusive or strong authority over natural resources, energy production and intra-provincial transport, and can shape their taxation system independently (Sections 92 and 92A, Constitution Acts). According to the EU treaty (Article 4 (2)), environmental protection, transport, trans-European networks and energy, amongst others, are areas of shared competency between the EU and its member states. Moreover, the principles

Second, I limited my analysis to federal systems that are economically developed and democratic. Including developing economies, such as Brazil or Mexico, or undemocratic states, such as Russia, would require controlling for contextual variables. Third, Australia, Canada and the EU participated in the negotiations of the Paris Agreement and committed to clearly defined climate mitigation targets. I did not study European federations, such as Austria, Belgium, and Germany, since they did not commit to international climate commitments independently but only as part of the EU's obligations under the Paris Agreement. I also excluded Switzerland as its climate policies are highly integrated in the EU's climate governance. Lastly, the USA was not part of my analysis. As I used a case-specific approach, a sufficient knowledge of each case was necessary for the analysis. Studying governments of 50 additional sub-federal entities would require an unfeasible collection and analysis of an excessive amount of data. Moreover, while the US generally follows the dual federal structure, which Australia and Canada cover, its political system differs fundamentally by combing federalism with a presidential system on both levels of government. In contrast to the horizontal power fusion in Australia, Canada and Europe, this horizontal separation of powers inherent to the US system would require taking into account both the incumbent governors and the composition of the state assemblies. Lastly, Trump's decision to withdraw from the Paris Agreement and to renounce the US climate commitment, which he announced as early as 2017, would further complicate a proper comparison with Australia, Canada, and the EU.

My units of analysis are the sub-federal governments that have been in power since the negotiation of the Paris Agreement. This made it possible to take into account the specific policy preferences of each government. I limited my analysis to governments that were in power for at least 24 months in order to be able to adequately identify the extent to which they supported or opposed the implementation of the Paris Agreement.[9] I further understand governments as their party components and the head of the executive, not as

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of conferral, subsidiarity and proportionality guarantee substantial power to the member states (Article 5, Treaty on European Union).

[9] In Cyprus, the positions of head of state and head of government are one and the same, but the president is elected independently, and the terms of parliament and president do not coincide. I used the presidential mandate as point of reference. For the case of semi-presidential France, I referred to the prime minister's term.

the individual cabinet members at ministerial level that might change more regularly. As a result, my analysis entails a total of 55 cases, including seven Australian, 16 Canadian and 32 EU governments. These cases cover most of the sub-federal entities in Australia, Canada, and the EU. Only Austria and Italy are not part of my sample since these countries did witness the same national government in power in two consecutive years in the period of interest. Amongst the 55 cases, 32 governments supported the implementation of the Paris Agreement, while 23 resisted the implementation process (see Figure 5-1).

The final case selection provides sufficient variation in the five theorized conditions and outcome while ruling out other possible variables, such as low levels of democracy quality. At the same time, due to the medium-high number of cases and the requirement for case-specific knowledge, QCA allows case peculiarities and alternative explanations to be identified and taken into account in the course of the analysis. Such potential influencing factors will be discussed in the following sections.

5.4.3 Operationalization and calibration of outcomes and conditions

The outcomes I seek to explain are sub-federal resistance to and support for the implementation of the Paris Agreement. Resistance is operationalized as the positive outcome, i.e., the basic phenomenon to explain. As support has been conceptualized as the opposite of resistance, it is accordingly operationalized as the negated outcome, i.e., the absence of resistance.

Following set-theoretic reasoning, when applying QCA, one has to decide, based on the conceptualization of the explanatory conditions and the outcome, whether a case is a member or not of the respective concept (Goertz and Mahoney 2012). Practically, every case is attributed a membership score between 0 and 1 for the positive outcome and each condition. In contrast to csQCA, fsQCA "allow[s] researchers to calibrate partial membership in sets using values in the interval between 0.0 (non-membership) and 1.0 (full membership) without abandoning core set theoretic principles and operations" (Ragin 2008, 29). To do so, one has to define three qualitative anchors, i.e., the thresholds for membership (1.) and non-membership (0.0) and the cross-over point (0.5) (Ragin 2008, 33; Schneider and Wagemann 2012, 28). Ideally, these decisions are based on external criteria, such as theoretical considerations or empirical knowledge of specific cases (Ragin 2008, 82).

However, such knowledge does not necessarily exist (Ragin 2008, 86). When quantitative data is used, one possible solution is to detect prominent gaps in the data between two successive cases, which may point to a qualitative difference between two groups of cases (Schneider and Wagemann 2012, 33–38).

Based on the qualitative coding I conducted, I assigned membership scores to the outcome and the conditions on policy convergence, sub-federal co-decision rights in the making of the agreement and sub-federal involvement in the implementation process manually. For the conditions for which I relied on quantitative data, i.e., capacity and power, I used the so-called "direct method of calibration" (Ragin 2008, 94–97). Here, based on my definitions of the three qualitative anchors, the raw data was transformed into membership scores by means of a logistic function (Schneider and Wagemann 2012, 35–40; Mello 2021, 91–94).

5.4.4 Sub-federal governments' resistance to and support for the implementation of the Paris Agreement

Sub-federal governments' resistance to and support for the implementation of the Paris Agreement represent the positive and the negated outcome I seek to explain. As support has been defined as the negation of resistance, the operationalization of the outcome is centred on resistance. I based my operationalization on my conceptualization of resistance and support (see Table 5-1), from which I deduced a list of empirical manifestations we should observe and not observe if a sub-federal government resists the implementation process (see Table 5-3).

In my search for these pieces of evidence, I used two kinds of sources. First, official documents from intergovernmental bodies, such as conclusions, *communiqués*, declarations, press statements, reports and joint strategies, helped identify the participation of sub-federal governments in joint actions, their commitment to joint strategies and targets and moments of opt-outs (see List 9-1). For the Australian case, I looked at meetings of the Council of Australian Governments (COAG) at the level of the prime minister and the premiers, the National Cabinet, which replaced COAG in 2020, and the COAG meetings at the ministerial level in the areas of energy, and transport and infrastructure, which have recently been substituted by the National Cabinet Reform Committees on Energy, Infrastructure and Transport, and the Ministers' Meetings on Environment, Energy, and

Transport and Infrastructure. With respect to Canada, I scanned the First Ministers Meetings (FFM), which gather the heads of the federal, provincial and territorial executives, and the meetings of the Canadian Council of Ministers of the Environment (CCME). As for the EU, I studied the output and outcomes of the meetings of the European Council, whose members are the 27 member states' heads of state or government and the presidents of the European Council and the European Commission, and the key decisions and deliberations in the Councils of environment and energy ministers.

Second, I searched Factiva and Google News for news articles. In total, my analysis included 915 news articles that I used to detect evidence of public opposition to and support for the Paris Agreement and implementation measures, sub-federal actions and policies supporting or hindering the implementation process, and the actual role sub-federal governments played in intergovernmental meetings. In this process, I limited my search for evidence to the time periods during which the respective sub-federal government was in power between December 2015 and December 2021. I applied a data saturation strategy (Morse et al. 2002; Faulkner and Trotter 2017), i.e., I collected as many articles per sub-federal government until I could not find any more additional information. On average, this was the case after ten to 20 articles, depending on the government.[10] To guide my search for moments of (non-) resistance, I identified the key moments and issues of intergovernmental deliberation and the main implementation initiatives proposed by the Australian Commonwealth government, the Canadian federal government, and the European Commission (see Table 9-3).

I used the evidence I found to code the outcome along the three conceptual dimensions, i.e., reaction to federal action, acting in intergovernmental formats and sub-federal action (see Table 9-2). Per dimension, each case was assigned a score on a four-value scale, i.e., 1.0 (for strong resistance), 0.7 (for more resistance than no-resistance), 0.3 (more non-resistance than resistance) and 0.0 (no resistance). Only highly ambiguous cases were coded 0.5. The average of the values assigned to the three dimensions represents the case's total resistance membership score (see Figure 5-1).

[10] For only four sub-federal governments, I found less than ten pertinent news articles: Plenković (Croatia), Ratas (Estonia), Kučinskis (Latvia) and Fico (Slovakia).

Support was operationalized as the absence of resistance, i.e., the membership scores for the negated outcome are the opposite values of the resistance scores.

Table 5-3 **Operationalization of resistance to the implementation of the Paris Agreement**

Dimension	Guiding question	Empirical manifestations	
Reaction to federal action	To what extent does the sub-federal government obstruct measures proposed or adopted by the federal executive branch as part of the implementation of the Paris Agreement?	Evidence of: • Public criticism or discreditation of federal strategies and measures[11] • Legal contestation of federal action in court • Demand of side-payments for support for federal action	No evidence of: • Public support and appraisal of federal action • Defense of the federal action against other sub-federal executives • Urging federal government to act
Acting in intergovernmental formats	To what extent does the sub-federal government refuse to cooperate or hinder cooperation between the federal government and other sub-federal governments in implementing the Paris Agreement?	Evidence of: • Non-commitment to joint fulfilment of Paris obligations • Opting out from collective strategies, targets or actions • Blocking or weakening of joint actions by using veto right or mobilizing other sub-federal governments	No evidence of: • Commitment to joint fulfilment of Paris obligations • Active participation in collective strategies, targets or actions • Constructive and leading role in intergovernmental negotiations and compromise finding
Sub-federal action	To what extent does the sub-federal government refuse to take measures within its jurisdiction in accordance with the Paris Agreement?	Evidence of: • Criticism or contestation of Paris Agreement • Non-adoption of sub-federal implementation strategies and targets • Adoption and implementation of sub-federal measures and policies contrary to Paris obligations or lack of action	No evidence of: • Independent support of and commitment to Paris Agreement • Adoption of sub-federal implementation strategies and targets in line with Paris obligations • Adoption and implementation of policies contributing to the implementation process

[11] Criticism of federal implementation measures are not per se acts of resistance. They were not coded as resistance in case the sub-federal government's criticism referred to the insufficient or inadequate nature of the measure or to other effective implementation alternatives to accomplish the Paris commitments. For instance, several Australian states' critical comments were accompanied by demands for more action and were thus not considered as pieces of evidence for resistance. On the other hand, cases such as Alberta under Kenney criticized the federal carbon pricing mechanism without presenting serious alternatives. Their attacks towards the federal government's action were consequently regarded as examples of resistance.

5.4.5 Policy convergence between sub-federal preferences and international agreement

As the Paris Agreement's key objective is to limit global warming to 1.5 to 2.0 degrees Celsius, I understand convergence between sub-federal preferences and the agreement as the sub-government's willingness to adopt and implement policies that intend to reduce the production of greenhouse gas emissions. I decided to disregard other elements of the Paris Agreement, such as resilience to climate change and funding for climate projects in other countries. I thus measured the policy preference of a sub-federal government to carry out climate measures to reduce emissions, and I defined a sub-federal government's policy preference as the position of the ruling political party.

A standard indicator for party policy preferences has been the Manifesto Project. For the purpose of this study, however, their data posed two challenges. First, party platforms are only coded according to the text quantity they dedicate to a policy field, for instance environmental protection. The coding process does not account for the actual content, such as the specific policy instruments proposed by the respective party. Second, and more importantly, the Manifesto Project does not consider party platforms at the sub-federal level. To my knowledge, no such database exists. While in some federal systems, it could be reasonable to use the federal party's platform as a proxy indicator for the sub-federal party's policy positions, this approach is only appropriate in systems with high levels of party integration across the levels of government (Thorlakson 2013). In Canada, in particular, there are only weak links between the federal and the provincial parties.

To overcome these challenges, I coded the electoral platforms of the cases I study manually. In case of a coalition government, I limited my coding process to the senior ruling party. On the one hand, this was a practical necessity, as it would have not been feasible to code all platforms of all parties that were in power in the 55 cases. On the other hand, it is reasonable to assume that the head of government and representative of the largest governing party has sufficient influence on far-reaching decisions on climate issues. The prominent elements of executive federalism in all three federal systems are another indication of the strong role the heads of government play in this process.

The party platforms of political parties in the EU were available at the website of the Manifesto Project (Lehmann et al. 2022). I found most of the platforms of sub-federal parties in Australia and Canada online. I requested those I could not find by email at the parties' headquarters. If a government was in office for several terms, I coded each election platform until their last re-election. In total, I code 69 pieces.[12]

I conducted a first round of reading to develop clear coding criteria.[13] On this basis, I propose a three-dimensional coding guideline to account for the political parties' climate action agenda (see Table 5-4). I first identified the extent to which a political party integrated climate change as guiding theme in their platform and committed themselves coherently to act to mitigate climate change. Second, I looked for the proposition of specific and relevant climate change mitigation targets and a catalogue of concrete measures to achieve these targets. Third, I assessed how the political party perceives the link between climate action and other areas of concern, especially the economy and industrial interests, and the extent to which the party proposes to interfere in other areas for the sake of climate protection. I assigned each party per dimension a score on a four-value scale. The calibrated total score equals the average (see Table 9-4).

[12] See Table 9-5- for remarks on the coding and calibration challenges concerning specific cases, and see Table 9-6 for list of elections covered.

[13] I read Dutch, English, German, French, Portuguese, and Spanish. I used DeepL Pro to translate the platforms written in other languages. Since semantics and other linguistic details are of no relevance for my study, I consider this a sufficiently good solution.

Table 5-4 **Calibration of policy dimensions**

Dimension	1.0	0.7	0.3	0.0
Position on climate change	Climate change as guiding theme and commitment to climate action	Coherent self-commitment to act	Marginal and neutral reference to climate change	No reference to or denial of climate change
Climate target and policy propositions	Proposition of relevant climate targets and broad programme of specific policies	Listing of individual climate policy measures	No or only minimal proposals on climate policy or contradictory policy proposals	Proposition to dismantle existing climate policies or targets
Link between climate action and other policy fields and priorities	Cross-cutting nature of the climate action plan	Advocacy of regulatory intervention in the economy for the sake of climate protection	Call for balance between the continuation of the polluting sectors and climate change mitigation	Prioritisation and support of polluting sectors over climate protection

Following Jensen's and Spoon's (2011) finding that the presence of a green party in a coalition government relevantly affects a government's climate action, I included this as a fourth aspect in the coding process. This is plausible since from a veto-player perspective, a green party in government would block active measures to resist the implementation process. If a green party was part of the ruling coalition, I added 0.3 to the calculated score. If a minority government had a formalized support agreement with a green party in parliament, I added 0.2.

5.4.6 Sub-federal implementation capacity

I identified two relevant characteristics a sub-federal government must have in order to be considered sufficiently capable of implementing a commitment in the area of climate action. First, the availability of economic and financial resources to carry out the necessary investments and decarbonize the electricity, transport and industrial sectors are critical. Sub-federal entities deprived of these resources will find it more difficult to contribute to implementing an international agreement and, consequently, will not play an active role in the implementation process. From such a resource-based perspective, GDP per capita has been the common indicator to account for capacity (Börzel 2021, 75).

Second, I consider structural challenges a sub-federal government faces domestically when it comes to the implementation of international commitments as an integral part of its implementation capacity. With respect to climate commitments, sub-federal entities in which economic sectors that are hard to decarbonise are of great economic and social importance face strong structural obstacles for implementation. Sectors, such as energy-intensive and manufacturing industries and agriculture, have a high risk of carbon leakage, i.e., production, including jobs and profits, might be relocated to other parts of the world with more relaxed climate policies (Key and Tallard 2012; Åhman, Nilsson, and Johansson 2017). Similar concerns apply to regions with relevant energy and mining industries, where business interests and workers' unions can be expected to fear economic losses. Governments of such sub-federal entities can be assumed to have strong incentives to resist implementation. Consequently, I consider looking at the composition of the economic structure of a sub-federal entity as a suitable indicator for structural obstacles.

I calibrated these two features separately before combining them. The GDP data comes from the World Bank (2022a) for the EU member states, and from the Australian Bureau of Statistics (2021g) for the Australian states and Statistics Canada (2021a; 2021b) and for the Canadian provinces. The European Union represents the most heterogeneous entity among the three federal systems. Due to the generally high level of economic development of Australia and Canada and the relatively small differences between their sub-federal units, I set the cross-over point between membership and non-membership so that only EU member states lie below this threshold point. Comparing EU member states in order of their GDP per capita, the largest gap exists between Spain and France (see Table 9-8), excluding Luxembourg's colossal GDP per capita. I therefore set the anchor for the 0.5 threshold at $30,000 USD, as we can assume that there is qualitative difference between the group of sub-federal entities situated above and those situated below this gap. Upon adding the Canadian provinces and Australians states to this comparison, we can detect a relevant difference between Spain's and Prince Edward Island's GDP per capita, which confirms the selected anchor. To avoid too much distortion from the extreme values for Western Australia and Luxembourg, I then set the anchor for full membership at $70,000 USD. Since no EU member state can be considered to completely lack financial resources, I set the

anchor for full non-membership below the case with the lowest GDP per capita at $5,000 USD.

Regarding structural obstacles, I used the GDP share of the manufacturing, agricultural, and mining and oil and gas extraction sectors (see Table 9-7). I retrieved the necessary data from the Australian Bureau of Statistics (2021a; 2021b; 2021c; 2021d; 2021e; 2021f), Eurostat (2022b) and Statistics Canada (2022).[14] Since there is no theoretical argument for specific thresholds, I based my definition of the qualitative thresholds on the data (see Table 9-7). There are relevant gaps between Alberta (25.09%) and Québec (16.95%) in Canada and between Western Australia (42.4%) and Tasmania (21.5%) in Australia, which divide the Canadian provinces and the Australian states in two groups respectively. It is reasonable to assume that this division roughly reflects the structural interests within Canada and Australia. I therefore set the point of indifference at 22%.

To combine financial resources and structural obstacles in one indicator, I used the negated value of structural obstacles so that both sub-indicators ran in the same direction. I combined them by means of a logical conjunction, i.e., only sub-federal governments with both financial resources and no structural obstacles were considered capable of implementation.

5.4.7 Power of sub-federal entity within the federal system

Power has been defined as a sub-federal entity's capacity to resist costs resulting from pressures to contribute to the implementation pressure. Following the existing literature (Börzel et al. 2010, 1375), I use economic power as an indicator for such resistance capacity. Specifically, I operationalized economic power within a federal system as the share of the sub-federal entity's GDP of the entire system's GDP. I also added the share of a sub-federal entity's population within a federal system as a second potential source of power to the formula.

[14] Formally, the three statistical offices use different reporting models for their economic data. However, the Australian and New Zealand Standard Industrial Classification (ANZSIC), the North American Industry Classification System (NAICS) and the Statistical Classification of Economic Activities in the European Community (NACE) follow the same conceptualization of categories in the concerned areas. For further question of comparability, see also Eurostat (2008).

Before creating this power indicator that takes into account both population and the GDP, I first calibrated population and GDP separately. Since power refers to power in relation to the other sub-federal units of the same federal system, I calibrated the two sub-indicators per federal system. For this, I used data from the Australian Bureau of Statistics (2021g; 2022), Eurostat (2022a; 2022c) and Statistics Canada (2021a; 2021b).[15]

To define the cross-over points between membership and non-membership, I looked for relevant gaps between the population and GDP figures of the sub-federal entities of the same system (see Table 9-9). This approach, based on the empirical data, was guided by the assumption that clear gaps indicate a qualitative bifurcation of the sub-federal units into strong and weak ones. As a matter of fact, such a division can be found in all federal systems. In terms of population, there is a relevant gap between Queensland and Western Australia, Alberta and Manitoba, and Poland and Romania. Regarding economic power, there are clear gaps between Western Australia and South Australia, British Columbia and Saskatchewan, and the Netherlands and Poland. The data also confirm that it is pertinent to look at both the economy and the population, which are not strictly proportional to each other. The qualitative anchors for full membership and full non-membership were set just above the highest and just below the lowest values per indicator and federal system. All thresholds are reported in Table 5-5.

To combine population and GDP in one indicator, I used a logical disjunction. The higher calibrated value is thus set as the indicator for power.

5.4.8 Sub-federal co-decision rights in the making of the international agreement

I operationalized the involvement of sub-federal governments in the negotiation of the Paris Agreement in terms of their role in the definition of the *intended Nationally Determined Contribution* (iNDC). iNDC are the climate change mitigation pledges UNFCCC parties submitted in the run-up to the negotiations in Paris 2015. In their iNDC, each party defined

[15] I used the GDP data for the year 2015, the year of the Paris negotiations. Regarding the population data, I used the available numbers closest to December 2015. The Australian Bureau of Statistics reports population numbers always in reference to the month of December, Eurostat in reference to January and July.

the level of emission reduction it would commit to in case the Paris negotiations lead to an international climate agreement.

As I conceptualized the condition based on the question whether a sub-federal government can be held accountable for its (non-) action in the implementation process, I propose a combined indicator of two factors. First, I looked at the institutionalized intergovernmental processes that were used in the three federal systems to adopt the iNDC. If the sub-federal entities had veto-power over the iNDC, they are assigned full membership (1.0); if they were consulted by the federal executive via an institutionalized process, I considered them more in than out (0.7); and if they were not involved at all in the definition of the iNDC, they were categorized as full non-members (0.0). In the context of a formalized consultation process, sub-federal governments have the opportunity to express their concerns or opposition to the envisaged pledge. Since they become indirect participants in the decision-making process, which can have an impact on potential audience costs, I considered consultations to be closer to membership than non-membership. Theoretically, a fourth option (0.3) would be consultation by means of an informal process, which empirically does not exist.

Second, I took into account whether the specific sub-federal government was in office during the definition of the iNDC. I used a four-value scale. Full membership was assigned to cases in which the same government, understood as its party components and the head of government, was in office during the definition of the iNDC (1.0). For instance, Merkel governed Germany in a coalition of the same three parties in two consecutive terms from 2013 to 2021. Since the same head of government and the same senior and junior coalition parties were in power for the definition of the EU's iNDC and during the implementation process, I coded the Merkel government as 1.0 despite personnel changes within the government. I further distinguished between governments that changed slightly since the adoption of the iNDC (0.7), i.e., through a change of the person heading the government or of the junior coalition party,[16] governments that changed essentially (0.3), i.e., only the

[16] In Czechia, the senior and junior coalition parties changed roles 2017 between the governments of Sobotka and Babiš. I therefore coded the case of the Babiš government as 0.7.

junior coalition party remained in power with a different coalition partner,[17] and governments that changed completely (0.0), i.e., no party in office was in power when the iNDC was adopted. For instance, in 2017 Berejiklian became the new head of government of New South Wales with the Liberal Party remaining the only party in government. This is why New South Wales under Berejiklian was coded 0.7. In Québec, the government changed completely in 2018 from a Liberal government under Couillard to a government of the Coalition Avenir Québec under Legault in 2018. I therefore coded Québec under Legault as 0.0.

The moment of the iNDC definition was different in the three federal systems. The EU officially submitted its iNDC in March 2015 (Government of Latvia & European Commission 2015), but the decision to enter the Paris negotiations with the pledge of reducing the EU's emissions by 40% by 2030 relative to 1990 levels was already taken by the European Council in October 2014 (European Council 2014). I therefore use the European Council summit as the moment of iNDC adoption. In Australia, the Commonwealth government launched a consultation procedure between March and July 2015 (Australian Government 2015a; 2015b) before submitting its iNDC in August 2015 (Australian Government 2015c). Canada submitted its iNDC in May 2015 (Government of Canada 2015), but did not involve the provinces in the process.

I then applied a logical conjunction to merge both factors in one indicator. This approach takes into account situations in which the sub-federal level is generally involved in defining an international negotiating position, but the specific sub-federal government was not in office when the negotiating position was adopted. This is important because in such situations a sub-federal government can avoid incurring potential audience costs.

[17] This includes cases in which the senior party leading the government during the iNDC adoption became the junior party in a new coalition government (for instance, Finland under Sipilä), and situations in which the junior party of a former government became the senior party of the new government (for instance, Croatia under Plenković).

5.4.9 Sub-federal involvement in the intergovernmental implementation of the international agreement

Institutions of cross-level intergovernmental cooperation exist in Australia, Canada, and the European Union. However, they vary in their level of institutionalization, the output they produce and the extent to which they have been used in the implementation process of the Paris Agreement. I distinguished between systems of joint decision-making (1.0), in which the sub-federal representatives are essential players with voting or veto-rights on binding implementation decisions for the whole federal system; systems with coordination and cooperation mechanisms (0.7), which produce joint implementation strategies and action plans, with flexible participation of the sub-federal entities; and systems without any relevant cooperation or decision-taking in terms of implementation across the levels of government (0.0).

The EU was coded as 1.0 due to the member states' roles in the European Council, where the general guidelines and the objectives are adopted, and the Council, which has to approve all EU legislative projects. Australia and Canada are more complex cases than the EU. Australia has developed a permanent system of intergovernmental cooperation despite its nature as a dual federal system (Painter 1998). By contrast, the existing bodies in Canada are only used in phases, mostly upon the initiative of the federal Prime Minister (Bakvis and Skogstad 2020). While Australia has highly institutionalized its cross-level mechanisms of cooperation, the existing institutions leave an essential room for manoeuvre for the actors in office in both cases. In order to identify the actual role of Australian and Canadian intergovernmental bodies during the Paris implementation I relied on official documents they produced (see List 9-1).[18]

The Australian intergovernmental institutions, especially the Council of Australian Governments (COAG), the COAG Energy Council and the COAG Transport und Infrastructure Council have regularly dealt with issues and adopted joint strategies and action plans relevant for the Paris implementation. Issues covered include emission reduction, energy efficiency, low-emission vehicles, renewable energies, and low energy buildings. I thus

[18] See also section on the operationalization of the outcome for the list of intergovernmental institutions and official documents I considered.

coded Australian cases throughout the considered time period 0.7. Conversely, in Canada, the phase of substantial deliberation and development between the federal and provincial governments was limited to the first year after the adoption of the Paris Agreement, including in particular the Vancouver Declaration in March 2016 (First Ministers' Meeting 2016a) and culminating in the adoption of the PCF in December 2016 (First Ministers' Meeting 2016b). While the Canadian Council of Ministers of the Environment (CCME) has also discussed climate change issues after the development of the PCF, its main purpose was to exchange information. I thus coded Canadian provincial involvement as 0.7 before December 2016 and 0 thereafter.

As the intergovernmental institutions in Canada have not been consistently used throughout the period of interest, I again applied a logical conjunction to take into account whether the respective provincial government was in office, while the intergovernmental implementation cooperation was occurring. I used the same formula as for the previous condition.

5.4.10 Overview of calibration process and outcomes

The indicators and the calibration process are summarized in Table 5-5.

Table 5-5 **Operationalization and calibration of conditions**

Condition (abbreviation)	**Indicator** (source)	**Calibration**
Policy convergence with agreement (policy)	Climate policy agenda in party platform (Source: Table 9-6)	Policy = average of: • 0.0-1.0: Position on climate change • 0.0-1.0: Climate target and policy propositions • 0.0-1.0: Link between climate action and other policy fields and political priorities
Implementation capacity (capacity)	Share of mining, agricultural and manufacturing sectors in GDP (sectshare) (Sources: Australian Bureau of Statistics 2021a; 2021b; 2021c; 2021d; 2021e; 2021f; Eurostat 2022b; Statistics Canada 2022) and GDP per capita (GDPcap) (Sources: Australian Bureau of Statistics 2021g; Statistics Canada 2021a; 2021b; World Bank 2022a)	Capacity = Resources AND ~Structure • Resources = calibrate (GDPcap,70.000, 30.000, 5.000) • Structure = calibrate (sectshare, 0.45, 0.22, 0.0)
Power within federal system	Combination of share of population (popshare) and GDP	Power = Population OR GDP • Australian cases:

(power)	(gdpshare) within federal system (Sources: Australian Bureau of Statistics 2021g; 2022; Eurostat 2022a; 2022c; Statistics Canada 2021a; 2021b)	Population = calibrate (popshare, 0.35, 0.15, 0.0) GDP = calibrate (gdpshare, 0.35, 0.11, 0.0) • Canadian cases: Population = calibrate (popshare, 0.4, 0.08, 0.0) GDP = calibrate (gdpshare, 0.4, 0.08, 0.0) • EU cases: Population = calibrate (popshare, 0.2, 0.07, 0.0) GDP = calibrate (gdpshare, 0.25, 0.05, 0.0)
Co-decision rights in negotiation (negotiation)	Role of sub-federal government in definition of iNDC for Paris negotiations (Source: List 9-1)	Involvement = InvNego AND GovNego • Involvement of sub-federal entities in iNDC definition (InvNego): 1.0: Veto-power of sub-federal entities 0.7: Consultation of sub-federal entities 0.0: No involvement of sub-federal entities • Sub-federal government in power during iNDC adoption (GovNego): 1.0: Yes 0.7: Senior coalition partner or prime minister in power 0.3: Junior coalition partner in power 0.0: No
Involvement in implementation (implementation)	Use of intergovernmental institutions as part of implementation process (Source: List 9-1)	Implementation = InvImpl AND GovImpl • Involvement of sub-federal entities in implementation process (InvImpl): 1.0: Joint decision-making 0.7: Intergovernmental coordination and cooperation 0.0: No involvement • Sub-federal government in power during involvement process (GovImpl): 1.0: Yes 0.7: Senior coalition partner or prime minister in power 0.3: Junior coalition partner in power 0.0: No

The calibrated values of the outcome and the six conditions are reported in Table 5-6.

Table 5-6: **Calibrated fuzzy-set scores**

GOVERN-MENT	POLICY	CAPACITY	POWER	NEGOTI-ATION	IMPLEMEN-TATION	RESISTANCE
NSW Berejiklian	0.4	0.81	0.93	0.7	0.7	0.3
Queensland Palaszczuk	0.7	0.55	0.72	0.7	0.7	0.2
S. Australia Marshall	0.4	0.6	0.2	0	0.7	0.3
S. Australia Weatherill	0.63	0.6	0.2	0.7	0.7	0.2
Tasmania Hodgman	0.6	0.52	0.07	0.7	0.7	0.43
Victoria Andrews	0.8	0.77	0.83	0.7	0.7	0.3
W. Australia McGowan	0.63	0.07	0.67	0	0.7	0.37
Alberta Kenney	0.17	0.4	0.71	0	0	1
Alberta Notley	0.51	0.4	0.71	0	0.7	0.57
BC Horgan	1	0.69	0.62	0	0	0.1
Manitoba Pallister	0.49	0.67	0.16	0	0.7	0.9
N. Brunswick Gallant	0.43	0.57	0.1	0	0.7	0.37
N. Brunswick Higgs	0.43	0.57	0.1	0	0	0.57
N. & L. Ball	0.43	0.4	0.09	0	0.7	0.57
Nova Scotia McNeil	0.51	0.56	0.12	0	0.7	0.43
Ontario Ford	0.2	0.72	0.95	0	0	0.9
Ontario Wynne	0.9	0.72	0.95	0	0.7	0
PEI King	0.43	0.54	0.05	0	0	0.3
PEI MacLauchlan	0.43	0.54	0.05	0	0.7	0.49
Québec Couillard	0.63	0.62	0.8	0	0.7	0.2
Québec Legault	0.43	0.62	0.8	0	0	0.37
Saska. Moe	0.2	0.18	0.2	0	0	1
Saska. Wall	0.17	0.18	0.2	0	0.7	1
Belgium Michel	0.51	0.7	0.27	1	1	0.37
Bulgaria	0.57	0.06	0.09	0	1	0.63

Borisov						
Croatia Plenković	0.57	0.1	0.07	0.3	1	0.63
Cyprus Anastas. I	0.2	0.31	0.05	1	1	0.57
Cyprus Anastas. II	0.2	0.31	0.05	0.7	1	0.57
Czechia Babiš	0.27	0.19	0.12	0.7	1	0.7
Czechia Sobotka	0.43	0.19	0.12	1	1	0.63
Denmark Frederiksen	1	0.68	0.16	0.7	1	0.2
Denmark Rasmussen	0.2	0.68	0.16	0	1	0.2
Estonia Ratas	0.57	0.18	0.05	0.3	1	0.37
Finland Marin	1	0.54	0.12	0.3	1	0.1
Finland Sipilä	0.63	0.54	0.12	0.3	1	0.3
France Macron	0.57	0.62	0.88	0.3	1	0.27
Germany Merkel	0.57	0.44	0.95	1	1	0.57
Greecec Mitsotakis	0.49	0.19	0.12	0.7	1	0.43
Greece Tsipras	0.51	0.19	0.12	0	1	0.49
Hungary Orbán	0.1	0.11	0.11	1	1	0.7
Ireland Varadkar	0.43	0.17	0.14	0.7	1	0.67
Latvia Kariņš	0.51	0.13	0.06	0.7	1	0.37
Latvia Kučinskis	0.49	0.13	0.06	0.3	1	0.43
Lithuania Skvernelis	0.8	0.13	0.06	0.3	1	0.4
Luxembourg Bettel	0.93	0.89	0.06	1	1	0.17
Malta Muscat	0.63	0.35	0.05	1	1	0.57
Netherlands Rutte	0.63	0.7	0.53	0.7	1	0.2
Poland Morawiecki	0.37	0.11	0.59	0	1	1
Poland Szydło	0.1	0.11	0.59	0	1	1
Portugal Costa	1	0.22	0.12	0	1	0.1
Slovakia Fico	0.2	0.16	0.08	0.7	1	0.57

Slovakia Pellegrini	0.2	0.16	0.08	0.7	1	0.63
Slovenia Cerar	0.57	0.25	0.06	1	1	0.43
Spain Rajoy	0.63	0.37	0.69	1	1	0.63
Sweden Löfven	1	0.66	0.3	1	1	0

5.5 Analyses and results

In this section, I will present and explain how I proceeded in my QCA, describe the findings of my analysis, and refer to cases and issues that require further discussion in the next section. When reporting my analyses and findings, I will follow the guidelines suggested by Schneider and Wagemann (2010).

QCA is used to analyze set relations (Schneider and Wagemann 2012, 56–90). If an outcome only occurs when a condition or combination of conditions is present, the corresponding conditions are necessary for the outcome. In such cases, the conditions are a superset of the outcome, i.e., the outcome does not occur without the presence of these conditions, but the conditions do not necessarily always lead to the outcome. If the outcome occurs as soon as a condition or combination of conditions is present, the conditions are considered sufficient for the outcome. The outcome is then a superset of the conditions, i.e., the presence of the conditions always leads to the outcome, although not exclusively.

I first analyzed whether one of the proposed conditions is necessary for the outcome to occur before I intended to detect combinations of conditions which can sufficiently explain the outcomes.[19]

5.5.1 Test for necessity

In a first step, I ran a test for necessity for both resistance and support, i.e., the negation of resistance, and for both the presence and absence of the conditions. The results are reported in Table 5-7.

[19] I used the fsQCA 4.0 package for Mac (Ragin and Davey 2022).

Table 5-7 **Test for necessity**

Condition		Outcome: Resistance to implementation			
		Present		Absent	
		Consistency	Coverage	Consistency	Coverage
Policy	**Present**	0.665114	0.603521	0.846049	0.870775
	Absent	0.857586	0.830827	0.614780	0.675564
Capacity	**Present**	0.536671	0.604722	0.691413	0.883690
	Absent	0.896779	0.719266	0.690729	0.628385
Power	**Present**	0.421808	0.629780	0.418064	0.707996
	Absent	0.804424	0.549285	0.781389	0.605193
Negotiation	**Present**	0.476523	0.560731	0.523093	0.698174
	Absent	0.743500	0.578852	0.670886	0.592447
Implemen-tation	**Present**	0.816065	0.486806	0.885050	0.598843
	Absent	0.327513	0.715254	0.241533	0.598305

The consistency value describes the extent to which the respective condition is a superset of the outcome with 1.0 indicating a perfect consistency of the set-relation (Schneider and Wagemann 2012, 139–43). In general, a consistency value of 0.9 has been established as a minimal threshold for a condition to be considered veritably necessary for an outcome (Mello 2021, 124; Schneider and Wagemann 2012, 143). However, methodological literature has conceded that lower thresholds are acceptable for analyses with more than 50 cases (Mello 2021, 110). Coverage is a key indicator for the empirical relevance of the result. It specifies the size of the outcome set in relation to the condition set.[20] In other words, coverage describes the relative number of cases in which both the condition and the outcome are present. Consequently, low levels of coverage indicate the empirical trivialness of a condition in terms of necessity (Ragin 2008, 61–63; Schneider and Wagemann 2012, 144–47).

As for sub-federal resistance, the lack of implementation capacity has the highest consistency value, i.e., 0.896779, and can thus be considered quasi-necessary for the

[20] Further formulas to assess the relevance of a necessary condition are Goertz' (2006) 'trivialness of necessity' and Schneider and Wagemann's (2012, 235–37) 'relevance of necessity' indicators. Since they are not yet included in common QCA software packages (Kahwati and Kane 2020, 122), they are not reported in Table 5-7. However, I will discuss them by interpreting the XY plots of necessary conditions and outcomes.

outcome. Moreover, the divergence of the sub-federal government's policy preference to the objectives of the Paris Agreement reaches a consistency value of 0.857586, which indicates that the condition is close to being a necessary condition for resistance to implementation. The relatively high coverage of policy divergence points to the empirical relevance of the condition's co-variation with the outcome. In other words, almost every time a sub-federal government resists the implementation process of the Paris Agreement, the respective government lacks a pro-climate action agenda.

Subsequently, I tested whether a condition is necessary for the opposite outcome, i.e., the support for the implementation process (see Table 5-7). The convergence of the policy preference with the objectives of the Paris Agreement and involvement of the sub-federal government in the implementation process have the highest consistency values with 0.846049 and 0.885050, respectively. All of these four conditions have coverage values above the standard threshold of 0.5 (Mello 2021, 127). The comparatively low coverage of *IMPLEMENTATION* indicates its lower empirical relevance, which requires further attention. The fact that *CAPACITY* is not a necessary condition for SUPPORT while *~CAPACITY* is for *RESISTANCE* confirms the presumption that the causal links are not symmetrical.

For further analyses, I plotted the conditions with the highest consistency values with the respective outcome (see Figure 5-2). If a condition were to be absolutely necessary, we should not observe any cases in which the outcome occurs without the presence of the respective condition (the quadrant on the top left). The existence of such cases points to the non-absolute necessity of these three conditions.

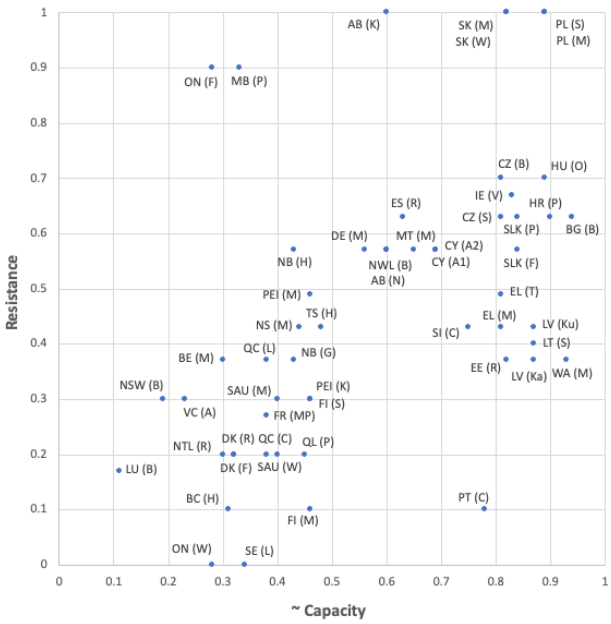
Plotting *~CAPACITY* and *~POLICY* with *RESISTANCE*, and *POLICY* with *SUPPORT* confirms the, albeit imperfect, explanatory power of these conditions. The number of deviant cases is generally low. Especially, *~CAPACITY* is confirmed as a quasi-necessary condition for *RESISTANCE* with only three cases contradicting this claim. Moreover, with the exception of Ontario under Ford and Manitoba under Pallister (*~CAPACITY-RESISTANCE* plot), and Denmark under Rasmussen (*POLICY-SUPPORT* plot), the deviant cases are relatively close to the thresholds (0.5 on both axes), which limits the inconsistency of the respective set-relations. The three plots also illustrate that most cases are located close to the upward diagonal. This distribution confirms, in addition to the high levels of coverage, the empirical

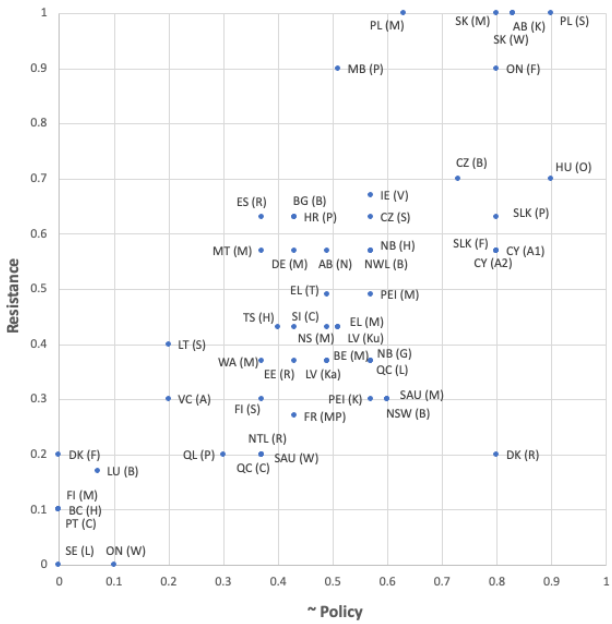
relevance of these conditions as almost necessary, i.e., their lack of "trivialness" (Braumoeller and Goertz 2003; Goertz 2006).

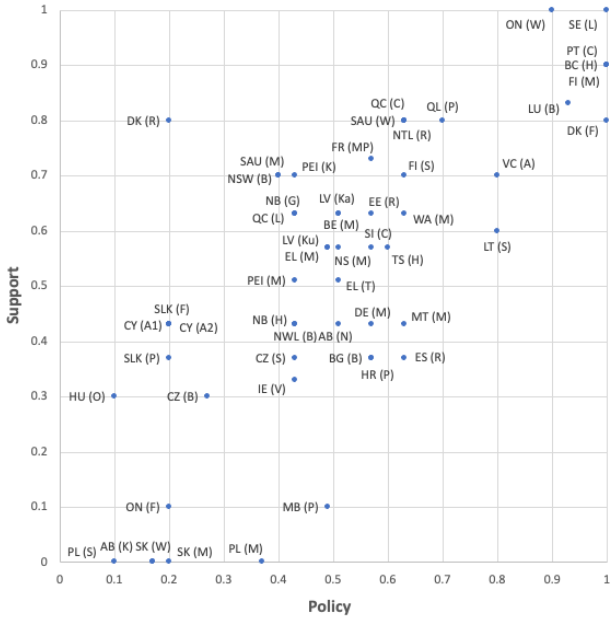
While the test of necessity also resulted in a high consistency score for the relation between *IMPLEMENTATION* and *SUPPORT*, the graph confirms the relatively low level of coverage and consequently relatively low empirical relevance. A significant share of governments, including Orbán's in Hungary, Pallister's in Manitoba, and Morawiecki's in Poland, do not support implementation despite their involvement in the implementation process (the quadrant on the bottom right). The graph also illustrates the little variation of the *IMPLEMENTATION* condition. Only seven cases were not involved in the implementation process, including Legault (Québec) and Horgan (British Columbia). Such a distribution of cases, where most cases lie near the right vertical axis, indicates that the level of empirical relevance of *IMPLEMENTATION* as a necessary condition is limited (Braumoeller and Goertz 2003; Goertz 2006; Mello 2021, 120–21, 126), and explains the relatively high consistency value of the set-relation between *IMPLEMENTATION* and *RESISTANCE* (see Table 5-7). This observation will also have to be taken into account in the test for sufficiency.

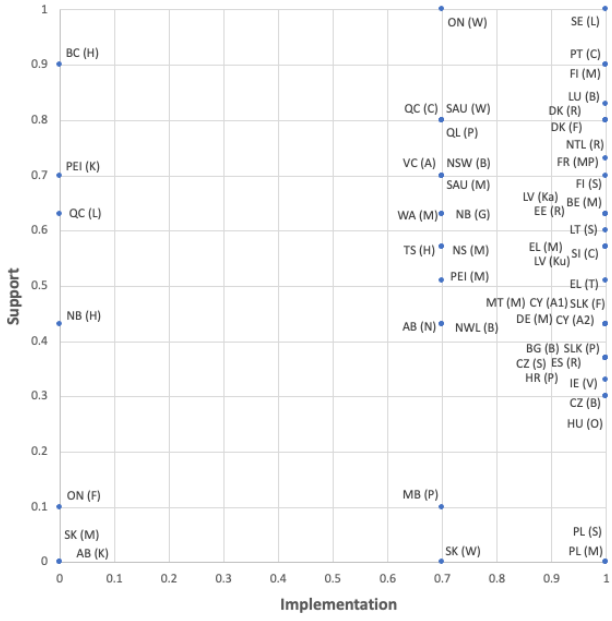
Lastly, the four plots also demonstrate that none of these conditions is sufficient for the outcome by itself. In each plot, we find cases in which the outcome is not produced despite the presence of the condition (the quadrant on the bottom right). Especially, the outlier cases, such as Portugal under Costa and Denmark under Rasmussen, suggest that further investigation is required. Accordingly, in the next step I tested whether any combinations of conditions sufficiently explain resistance to or support for implementation.

Figure 5-2 **XY Plots of necessity test**









5.5.2 Test for sufficiency

Sufficiency tests are based on truth table algorithms. A truth table is a list of all theoretically possible combinations of the conditions (Schneider and Wagemann 2012, 91–115).[21] Empirically, 18 out of 32 theoretically possible combinations of the five conditions exist (see Table 5-8; Table 5-10). I first ran a sufficiency test for the original outcome before I looked for paths leading to the negated outcome.

5.5.3 Recipes for resistance to implementation

For the analysis, I set the frequency threshold at 1, i.e., I included every configuration of conditions that exists empirically at least once. The level of raw consistency indicates the extent to which the outcome is a superset of the configuration of conditions. The literature recommends a minimum of 0.75 or 0.8, to identify a significant empirical gap in consistency between two rows and to take into account logical contradictions, i.e., the presence of cases with both positive and negative outcome memberships in the same row (Rubinson et al. 2019, 4–5; Schneider and Wagemann 2012, 278–79; Mello 2021, 134). In addition, the PRI (proportional reduction in inconsistency) consistency should be considered when defining the rows of the truth table that shall be part of the logical minimization process. Low PRI values point to potential skewed set-memberships, i.e., a combination of explanatory conditions is both a sub-set of the positive and the negated outcome. Ignoring the PRI scores could lead to false causal inferences from high raw consistency scores by wrongly interpreting a combination of conditions as sufficient for either outcome (Greckhamer et al. 2018, 489; Schneider and Wagemann 2012, 238–44). To avoid such false claims, the literature recommends to only consider truth table rows with PRI values above 0.5 (Greckhamer et al. 2018, 489), to pay special attention to rows in which PRI and the raw consistency value differ relevantly (Mello 2021, 117–19) or to take a more case-oriented approach (Schneider and Wagemann 2012, 244). Taking these recommendations into account, I set the raw and PRI consistency cut-offs at 0.89417 and 0.619355 respectively. Especially, the PRI consistency gap below 0.619355 is a clear indication for this choice.

[21] The complete truth tables are reported in the annex (see Table 9-10 and Table 9-11).

By applying "Boolean minimization", the software eliminates conditions for which it does not identify any patterned effect on the outcome and proposes so-called solution terms, i.e., combinations of conditions sufficiently leading to the outcome. fsQCA generates three types of solution terms: complex (or conservative), parsimonious and intermediate solutions (Mello 2021, 134–36; Schneider and Wagemann 2012, 151–77). The parsimonious term takes into account configurations of conditions which cannot be found empirically by applying assumptions on the theoretical effect of those combinations on the outcome. The complex solution precludes including such assumptions in the analysis and identifies solution terms exclusively based on the empirically existing cases above the set consistency thresholds. I used the intermediate solution term, which takes a middle course by only including, next to actually existing cases, the "plausible counterfactuals" (Mello 2021, 136) in the analysis.[22] It therefore represents an effective compromise between robust sufficiency and parsimony (Dușa 2022).

[22] The parsimonious and complex solutions are reported in the annex (see Table 9-12, Table 9-13, Table 9-14 and Table 9-15).

Table 5-8 **Truth table (resistance to implementation)**

POLICY	CAPAC-ITY	POWER	NEGOTI-ATION	IMPLE-MENT.	No. of cases: cases (membership in configuration and resistance)	RESIST-ANCE[23]	raw consistency	PRI consistency	SYM consistency
0	0	0	0	0	1: SAK (M) (0.80,1.00)	1	0.937997	0.80303	0.80303
0	0	1	0	0	1: AB (K) (0.60,1.00)	1	0.930958	0.800001	0.8
0	0	0	0	1	3: NWL (B) (0.57,0.57), SAK (W) (0.70,1.00), LV (Ku) (0.51,0.43)	1	0.929899	0.707747	0.707746
0	1	0	0	0	2: NB (H) (0.57,0.57), PEI (K) (0.54,0.30)	1	0.915162	0.678082	0.678082
0	0	1	0	1	2: PL (M) (0.59,1.00), PL (S) (0.59,1.00)	1	0.910077	0.721154	0.721154
0	1	1	0	0	2: ON (F) (0.72,0.90), QC (L) (0.57,0.37)	1	0.894958	0.742268	0.742268
0	0	0	1	1	9: CY (A1) (0.69,0.57), CY (A2) (0.69,0.57), CZ (B) (0.70,0.70), CZ (S) (0.57,0.63), EL (M) (0.51,0.43), HU (O) (0.89,0.70), IE (V) (0.57,0.67), SLK (F) (0.70,0.57), SLK (P) (0.70,0.63)	1	0.89417	0.619355	0.777328
0	1	1	1	1	1: NSW (B) (0.60,0.30)	0	0.868709	0	0
1	0	1	1	1	2: DE (M) (0.56,0.57), ES (R) (0.63,0.63)	0	0.866157	0.357798	0.357798
1	0	0	1	1	3: LV (Ka) (0.51,0.37), MT (M) (0.63,0.57), SI (C) (0.57,0.43)	0	0.839439	0.167598	0.17341
1	0	1	0	1	2: WA (M) (0.63,0.37), AB (N) (0.51,0.57)	0	0.838124	0.421621	0.421621

[23] The values in this column are the result of the raw consistence and PRI consistency thresholds defined by the researcher. '1' indicates that the respective row is included in the minimization process.

1	1	0	0	1	3: NS (M) (0.51,0.43), FI (M) (0.54,0.10), FI (S) (0.54,0.30)	0	0.836303	0.34375	0.34375
0	1	0	0	1	5: SAU (M) (0.60,0.30), MB (P) (0.51,0.90), NB (G) (0.57,0.37), PEI (M) (0.54,0.49), DK (R) (0.68,0.20)	0	0.830682	0.352174	0.356828
1	0	0	0	1	6: BG (B) (0.57,0.63), HR (P) (0.57,0.63), EE (R) (0.57,0.37), EL (T) (0.51,0.49), LT (S) (0.70,0.40), PT (C) (0.78,0.10)	0	0.815361	0.347945	0.357747
1	1	1	0	0	1: BC (H) (0.62,0.10)	0	0.774059	0.386363	0.386364
1	1	1	0	1	3: ON (W) (0.70,0.00), QC (C) (0.62,0.20), FR (MP) (0.57,0.27)	0	0.751497	0.209524	0.209524
1	1	1	1	1	3: QL (P) (0.55,0.20), VC (A) (0.70,0.30), NTL (R) (0.53,0.20)	0	0.738908	0.00649326	0.00649327
1	1	0	1	1	6: SAU (W) (0.60,0.20), TS (H) (0.52,0.43), BE (M) (0.51,0.37), DK (F) (0.68,0.20), LU (B) (0.89,0.17), SE (L) (0.66,0.00)	0	0.652968	0	0

The software detects two different intermediate solution terms for the positive outcome (see Table 5-9). The consistency and coverage of the overall intermediate solution amounts to 0.845945 and 0.8869, respectively. Differently from the necessity test, high consistency values in the sufficiency test are an indicator of the extent to which the outcome is a superset of the combination of conditions (Mello 2021, 108). Besides the levels of consistency, the software also calculates the raw and the unique coverage per pathway. Raw coverage refers to the extent to which the respective term covers the total range of cases in which the outcome is present. By contrast, unique coverage measures the degree of overlap of a given solution term with other configurations explaining the outcome. The lower the value for unique coverage, the greater the overlap between the recipes (Mello 2021, 114; Rubinson et al. 2019, 5).

Table 5-9 **Paths to resistance to implementation (intermediate solution)**[24]

Solution term		**Raw coverage**	**Unique coverage**	**Consistency**	**Cases covered (membership in term/outcome)**
1	**~POLICY * ~CAPACITY**	0.80714	0.544432	0.893471	HU (O) (0.89,0.7), PL (S) (0.89,1), SAK (W) (0.82,1), SAK (M) (0.8,1), SLK (F) (0.8,0.57), SLK (P) (0.8,0.63), CZ (B) (0.73,0.7), CY (A1) (0.69,0.57), CY (A2) (0.69,0.57), PL (M) (0.63,1), AB (K) (0.6,1), NWL (B) (0.57,0.57), CZ (S) (0.57,0.63), IE (V) (0.57,0.67), EL (M) (0.51,0.43), LV (Ku) (0.51,0.43)
2	**~POLICY * ~NEGOTIATION * ~IMPLEMENTATION**	0.301513	0.0388048	0.899306	AB (K) (0.83,1), ON (F) (0.8,0.9), SAK (M) (0.8,1), NB (H) (0.57,0.57), PEI (K) (0.57,0.3), QC (L) (0.57,0.37)
Solution coverage: 0.845945					
Solution consistency: 0.8869					

[24] "~" indicates the absence of a condition. The abbreviations used for the cases are listed in the annex (see Table 9-1).

All solution terms are plotted with *RESISTANCE* in Figure 5-3. No cases in which the combination of conditions is present should exist without the outcome being present if the respective solution term was perfectly sufficient (the quadrant on the bottom right).

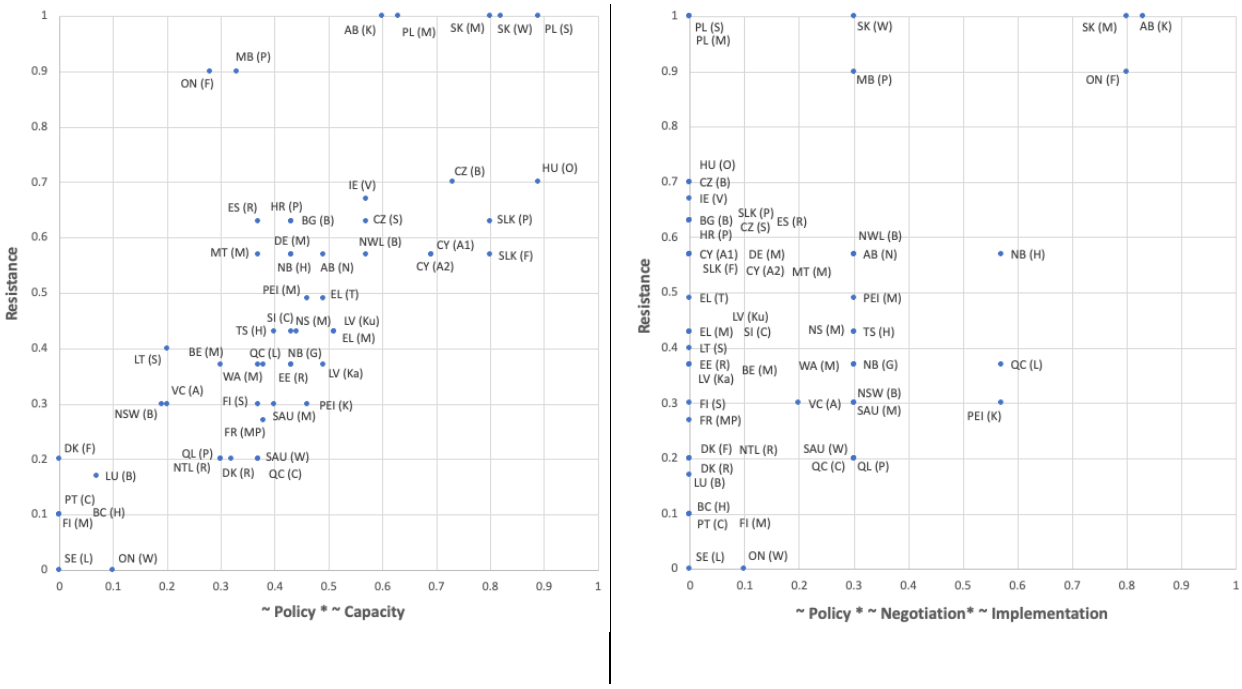
Both recipes contain *~POLICY*, which was identified before as an almost-necessary condition for *RESISTANCE*. The solution terms help us better understand the interplay between the individual conditions and the combinations in which *~POLICY* leads sufficiently to the *RESISTANCE*. While *~POLICY* is not entirely necessary and on its own not sufficient for *RESISTANCE*, it appears to be a relevant INUS condition. *~CAPACITY*, which had the highest consistency score as a necessary condition, features in interplay with *~POLICY* as a pathway that sufficiently leads to *RESISTANCE*.

Taken together, the two paths cover 16 of the 23 sub-federal governments that resist the implementation of the Paris Agreement. The seven cases that are not covered are members of truth table rows with low PRI consistency values and/or rows comprising cases with both the positive and the negated outcome. Their absence is a result of the raw consistency and PRI consistency thresholds. However, setting these thresholds lower would have led to a less consistent solution and to more contradictory solution terms.

The configuration *~POLICY*~CAPACITY* (path 1) has the highest coverage and explains 14 resistance cases. It is therefore the strongest empirical predictor of *RESISTANCE*. The recipe contains two logical contradictions. Mitsotakis (Greece) and Kučinskis (Latvia) are members of the solution term although they do not resist implementation. However, as they are both situated close to the cross-over points of both the combination of conditions and the outcome, they only represent 'soft contradictions'. Moreover, Figure 5-3 shows that Notley (Alberta), Borisov (Bulgaria), Plenković (Croatia), Merkel (Germany), Muscat (Malta) and Rajoy (Spain) are only slightly outside the set-memberships of both the solution term and the outcome. These cases do not appear in any of the two proposed solution terms since I coded their climate policy preference above the threshold of 0.5 (see Table 5-6). Although these cases require further analysis, they do not starkly contradict the relevance of *~POLICY*~CAPACITY* as an explanation for *RESISTANCE*.

This second solution term *~POLICY*~NEGOTIATION*~IMPLEMENTATION* covers four resisting cases and two logical contradictions. The low value of unique coverage indicates that the recipe overlaps with the first pathway. Nevertheless, in line with my expectations of equifinality, this second path to *RESISTANCE* underscores that lacking policy preference and implementation capacity are not the only recipe for sub-federal resistance. Ford (Ontario) and Higgs (New Brunswick) are not covered by *~POLICY*~CAPACITY* as neither of them lacks implementation capacity. Despite the low empirical relevance of this pathway, its potential theoretical implications will be discussed further. Furthermore, a look at the parsimonious solution terms (see Table 9-13) indicates that *~NEGOTIATION* is not necessarily an essential component of the configuration since *~POLICY*~IMPLEMENTATION* covers the same cases. This is plausible since empirically, no cases exist in which a sub-federal government was involved in the negotiation, but not in the implementation process. In other words, *~NEGOTIATION* is a sub-set of *~IMPLEMENTATION*. Whether *~NEGOTIATION* is irrelevant or an important contextual condition will be elaborated in the next section by having a closer look on the concerned cases. Also, the two logical contradictions, i.e., King (Prince Edward Island) and Legault (Québec) require further discussion.

Figure 5-3 **XY plots of sufficiency test (outcome: resistance)**



Manitoba (Pallister) is not covered by any pathway as it does not lack implementation capacity and has been involved in the implementation process. This case will also be further studied in the next section.

5.5.4 Recipes for support for implementation

Since I did not expect the causal relations to be symmetric, I applied the same procedure to the negation of the outcome, i.e., support for implementation. I set the frequency, raw consistency and PRI consistency cut-offs at 1, 0.857741 and 0.613636 (see Table 5-10). Alternatively, I could have set the PRI consistency threshold at 0.578378, which would have included the configuration covering Notley (Alberta) and McGowan (Western Australia) in the minimization process. I will refer to the effect of this choice when presenting the findings.

Table 5-10 **Truth table (support for implementation)**

POLICY	CAPAC-ITY	POWER	NEGOTI-ATION	IMPLE-MENT.	No. of cases: cases (membership in configuration and support)	SUP-PORT[25]	raw consistency	PRI consistency	SYM consistency
0	1	1	1	1	1: NSW (B) (0.60,0.70)	1	1	1	1
1	1	1	1	1	3: QL (P) (0.55,0.80), VC (A) (0.70,0.70), NTL (R) (0.53,0.80)	1	0.998293	0.993506	0.993506
1	1	0	1	1	6: SAU (W) (0.60,0.80), TS (H) (0.52,0.57), BE (M) (0.51,0.63), DK (F) (0.68,0.80), LU (B) (0.89,0.83), SE (L) (0.66,1.00)	1	0.993151	0.980263	1
1	0	0	1	1	3: LV (Ka) (0.51,0.63), MT (M) (0.63,0.43), SI (C) (0.57,0.57)	1	0.961207	0.798882	0.82659
1	1	1	0	1	3: ON (W) (0.70,1.00), QC (C) (0.62,0.80), FR (MP) (0.57,0.73)	1	0.934132	0.790476	0.790476
1	0	1	1	1	2: DE (M) (0.56,0.43), ES (R) (0.63,0.37)	1	0.92543	0.642201	0.642202
1	1	0	0	1	3: NS (M) (0.51,0.57), FI (M) (0.54,0.90), FI (S) (0.54,0.70)	1	0.914254	0.65625	0.65625
0	1	0	0	1	5: SAU (M) (0.60,0.70), MB (P) (0.51,0.10), NB (G) (0.57,0.63), PEI (M) (0.54,0.51), DK (R) (0.68,0.80)	1	0.904546	0.634783	0.643172
1	0	0	0	1	6: BG (B) (0.57,0.37), HR (P) (0.57,0.37), EE (R) (0.57,0.63), EL (T) (0.51,0.51), LT (S) (0.70,0.60), PT (C) (0.78,0.90)	1	0.893716	0.624657	0.642253
1	0	1	0	1	2: WA (M) (0.63,0.63), AB (N) (0.51,0.43)	0	0.881997	0.578378	0.578378

[25] The values in this column are the result of the raw consistence and PRI consistency thresholds defined by the researcher. '1' indicates that the respective row is included in the minimization process.

1	1	1	0	0	1: BC (H) (0.62,0.90)	1	0.857741	0.613636	0.613636
0	0	0	0	1	3: NWL (B) (0.57,0.43), SAK (W) (0.70,0.00), LV (Ku) (0.51,0.57)	0	0.830237	0.292254	0.292254
0	1	0	0	0	2: NB (H) (0.57,0.43), PEI (K) (0.54,0.70)	0	0.8213	0.321918	0.321918
0	0	0	1	1	9: CY (A1) (0.69,0.43), CY (A2) (0.69,0.43), CZ (B) (0.70,0.30), CZ (S) (0.57,0.37), EL (M) (0.51,0.57), HU (O) (0.89,0.30), IE (V) (0.57,0.33), SLK (F) (0.70,0.43), SLK (P) (0.70,0.37)	0	0.7713	0.17742	0.222672
0	0	1	0	1	2: PL (M) (0.59,0.00), PL (S) (0.59,0.00)	0	0.767442	0.278846	0.278846
0	0	0	0	0	1: SAK (M) (0.80,0.00)	0	0.747218	0.19697	0.19697
0	0	1	0	0	1: AB (K) (0.60,0.00)	0	0.723831	0.2	0.2
0	1	1	0	0	2: ON (F) (0.72,0.10), QC (L) (0.57,0.63)	0	0.697479	0.257732	0.257732

The software detects five intermediate solution terms that are sufficient for the negated outcome, i.e., *SUPPORT* (see Table 5-11). In total, 27 of the 32 sub-federal entities that support the implementation of the Paris Agreement are covered. The proposed solution terms do not account for the support by the governments of Mitsotakis (Greece), Kučinskis (Latvia), King (Prince Edward Island), Legault (Québec) and McGowan (Western Australia). These five cases are members of the truth table rows with contradictory outcomes, which also explains why Mitsotakis (Greece), Kučinskis (Latvia), King (Prince Edward Island) and Legault (Québec) appeared as logical contradictions in the recipes for *RESISTANCE*.

The overall coverage and consistency scores are 0.876839 and 0.883489. The pathways show how the previously identified, almost-necessary conditions *POLICY* and *IMPLEMENTATION* have to interplay with other conditions to sufficiently explain the negated outcome. The results also confirm my expectation of asymmetry since *SUPPORT* does not appear to be simply a result of the opposite of the causes of *RESISTANCE*. The five solutions terms are plotted with *SUPPORT* in Figure 5-4.

The solution term *POLICY*CAPACITY* (path 1) has the highest empirical relevance. It covers 18 of the 32 sub-federal governments that support the implementation of the Paris Agreement, and it does not contain any logical contradictions. As a configuration of two conditions, it does not represent a reflection of *~POLICY*~CAPACITY*. Consequently, the pathway does not simply cover the cases that are not explained by *~POLICY*~CAPACITY*.

The other four recipes account for sufficient pathways to *SUPPORT* for cases in which either *POLICY* or *CAPACITY* does not need to be present (paths 2-5). They indicate that sub-federal governments that are either willing or capable of contributing to the implementation of the Paris Agreement support the implementation process if they are either weak and involved in the implementation process, or if they have been involved in both the negotiation and the implementation processes.

Table 5-11 **Paths to support for implementation (intermediate solution)**

Solution term		Raw coverage	Unique coverage	Consistency	Cases covered (membership in term/outcome)
1	**POLICY * CAPACITY**	0.622306	0.121451	0.930435	LU (B) (0.89,0.83), VC (A) (0.77,0.7), ON (W) (0.72,1), BC (H) (0.69,0.9), DK (F) (0.68,0.8), SE (L) (0.66,1), NTL (R) (0.63,0.8), QC (C) (0.62,0.8), SAU (W) (0.6,0.8), FR (MP) (0.57,0.73), QL (P) (0.55,0.8), FI (M) (0.54,0.9), FI (S) (0.54,0.7), TS (H) (0.52,0.57), NS (M) (0.51,0.57), BE (M) (0.51,0.63)
2	**CAPACITY * ~POWER * IMPLEMENTATION**	0.479986	0.0325009	0.925462	LU (B) (0.89,0.83), BE (M) (0.7,0.63), DK (F) (0.68,0.8), DK (R) (0.68,0.8), MB (P) (0.67,0.1), SE (L) (0.66,1), SAU (M) (0.6,0.7), SAU (W) (0.6,0.8), NB (G) (0.57,0.63), NS (M) (0.56,0.57), PEI (M) (0.54,0.51), FI (M) (0.54,0.9), FI (S) (0.54,0.7), TS (H) (0.52,0.57)
3	**CAPACITY * NEGOTIATION * IMPLEMENTATION**	0.387615	0.0126583	0.987794	LU (B) (0.89,0.83), NSW (B) (0.7,0.7), VC (A) (0.7,0.7), BE (M) (0.7,0.63), NTL (R) (0.7,0.8), DK (F) (0.68,0.8), SE (L) (0.66,1), SAU (W) (0.6,0.8), QL (P) (0.55,0.8), TS (H) (0.52,0.57)
4	**POLICY * ~POWER * IMPLEMENTATION**	0.617516	0.100582	0.893122	LU (B) (0.93,0.83), FI (M) (0.88,0.9), PT (C) (0.88,0.9), DK (F) (0.84,0.8), LT (S) (0.8,0.6), SE (L) (0.7,1), SAU (W) (0.63,0.8), FI (S) (0.63,0.7), MT (M) (0.63,0.43), TS (H) (0.6,0.57), BG (B) (0.57,0.37), HR (P) (0.57,0.37), EE (R) (0.57,0.63), SI (C) (0.57,0.57), NS (M) (0.51,0.57), BE (M) (0.51,0.63), EL (T) (0.51,0.51), LV (Ka) (0.51,0.63)
5	**POLICY * NEGOTIATION ***	0.459802	0.0153951	0.937892	SE (L) (1,1), LU (B) (0.93,0.83), QL (P) (0.7,0.8),

	IMPLEMENTATION				VC (A) (0.7,0.7), DK (F) (0.7,0.8), SAU (W) (0.63,0.8), MT (M) (0.63,0.43), NTL (R) (0.63,0.8), ES (R) (0.63,0.37), TS (H) (0.6,0.57), DE (M) (0.57,0.43), SI (C) (0.57,0.57), BE (M) (0.51,0.63), LV (Ka) (0.51,0.63)
Solution coverage: 0.876839					
Solution consistency: 0.883489					

The most relevant path to *SUPPORT* of these configurations empirically is *POLICY*~POWER*IMPLEMENTATION* as it explains 15 of the supportive sub-federal governments, but it also covers three logical contradictions, i.e., Borisov (Bulgaria), Plenković (Croatia) and Muscat (Malta). *CAPACITY*~POWER*IMPLEMENTATION* covers 13 sub-federal governments that support the implementation of the Paris Agreement and Pallister (Manitoba) as a logical contradiction; *POLICY*NEGOTIATION*IMPLEMENTATION* effectively explains 11 cases and includes three logical contradictions, i.e., Merkel (Germany), Muscat (Malta) and Rajoy (Spain); and *CAPACITY*NEGOTIATION*IMPLEMENTATION* includes ten sub-federal governments without any logical contradiction.

Although these alternative pathways explain fewer cases than *POLICY*CAPACITY* and the covered cases partly overlap, they are of both theoretical and empirical relevance. They underline the prevalence of equifinality, and they all explain cases that are not covered by *POLICY*CAPACITY*. In sum, they account for 11 of the 16 sub-federal governments that have no membership in *POLICY*CAPACITY*. This includes, for instance, Rasmussen (Denmark) and Berejiklian (New South Wales) that lack climate policy preference but possess implementation capacity, or Costa (Portugal) that has a climate action agenda but lacks implementation capacity. The four recipes explain why these cases support the implementation of the Paris Agreement despite their lack of *POLICY* or *CAPACITY.*

As the test for necessity detected the skewed membership within *IMPLEMENTATION*, it is essential to verify whether this condition is a truly necessary component of the four

configurations identified as sufficient for *SUPPORT*. Let us start with the pathways in which the cases possess implementation capacity, but do not necessarily have climate policy preference (paths 2 and 3). The fact that the parsimonies solution (see Table 9-15) suggests *CAPACITY*IMPLEMENTATION* as a sufficient path, is an indication that *IMPLEMENTATION* has some explanatory value, when it interplays with *CAPACITY*. *CAPACITY*IMPLEMENTATION* explains 20 cases and includes Manitoba (Pallister) as logical contradiction, while *CAPACITY* alone covers 26 cases, including three contradictions. Including *IMPLEMENTATION* in the term thus positively affects the level of consistency.

If we eliminate *IMPLEMENTATION* from *CAPACITY*~POWER*IMPLEMENTATION*, the new term has a higher coverage as it also explains King (Prince Edward Island), but it also encompasses Higgs (New Brunswick) as a logical contradiction, which lowers it consistency. Having *IMPLEMENTATION* in the recipe thus makes a difference, albeit only a small one, in terms of coverage and consistency. In contrast, *CAPACITY*NEGOTIATION* covers the same cases as *CAPACITY*NEGOTIATION*IMPLEMENTATION*, i.e., ten sub-federal governments without any contradiction. This is a logical result of *NEGOTIATION* being a sub-set of *IMPLEMENTATION*. Therefore, technically, the combination of *CAPACITY* with *IMPLEMENTATION* or *NEGOTIATION* reduces the number of logical contradictions and helps to explain cases without *POLICY*. Whether there is also an actual qualitative effect will be discussed more in-depth in the next section by looking at the concerned cases.

Conversely, a closer look at the pathways entailing cases with *POLICY*, but not necessarily *CAPACITY* (paths 4-5), points to *IMPLEMENTATION* as a potentially irrelevant component of configurations explaining *SUPPORT* in which *POLICY* is present. If we eliminate *IMPLEMENTATION* from *POLICY*~POWER*IMPLEMENTATION* and *POLICY*NEGOTIATION*IMPLEMENTATION*, as the parsimonious solution has also suggested (see Table 9-15), the list of cases covered, including the logical contradictions, remains unchanged. For the latter, as mentioned before, this is plausible since *NEGOTIATION* empirically always co-occurs with *IMPLEMENTATION*. Technically, the combinations of *POLICY* with *~POWER* and *NEGOTIATION* sufficiently explain *SUPPORT* without requiring the presence of *IMPLEMENTATION*.

Coming back to my decision regarding the PRI consistency threshold brings more clarity on the role of *IMPLEMENTATION*. Applying a lower PRI consistency cut-off of 0.578378 for the minimization process would result in an intermediate solution that is slightly more parsimonious than the one presented above. Specifically, it would merge *POLICY*~POWER*IMPLEMENTATION* and *POLICY*NEGOTIATION*IMPLEMENTATION* into *POLICY*IMPLEMENTATION* by keeping the other paths to *SUPPORT* unchanged. This alternative pathway would cover 28 cases in total, including the cases covered by the two previous configurations and 10 additional cases that are not covered by *POLICY*~POWER*IMPLEMENTATION* or *POLICY*NEGOTIATION*IMPLEMENTATION*. However, due to the distribution of cases within *IMPLEMENTATION*, the combination *POLICY*IMPLEMENTATION* would be of no added value in comparison to the single-condition explanation of *POLICY*, even on the contrary. Since Horgan (British Columbia) was not involved in the implementation process, *POLICY*IMPLEMENTATION* covers fewer cases than *POLICY.* Consequently, the increased coverage resulting from merging the two configurations (paths 4-5) would even reduce the explanatory power of the total solution term. This confirms my choice of the PRI consistency threshold but also the potential trivialness of *IMPLEMENTATION* in configurations in which *POLICY* is present (paths 4-5).

In purely technical terms, the role of *IMPLEMENTATION* as an INUS in the detected solution terms is ambiguous. The qualitative relevance of the condition requires further consideration by looking more in-depth into the concerned cases, which will help determine whether *IMPLEMENTATION* is irrelevant or an important scope condition.

Figure 5-4 **XY plots of sufficiency test (outcome: support)**

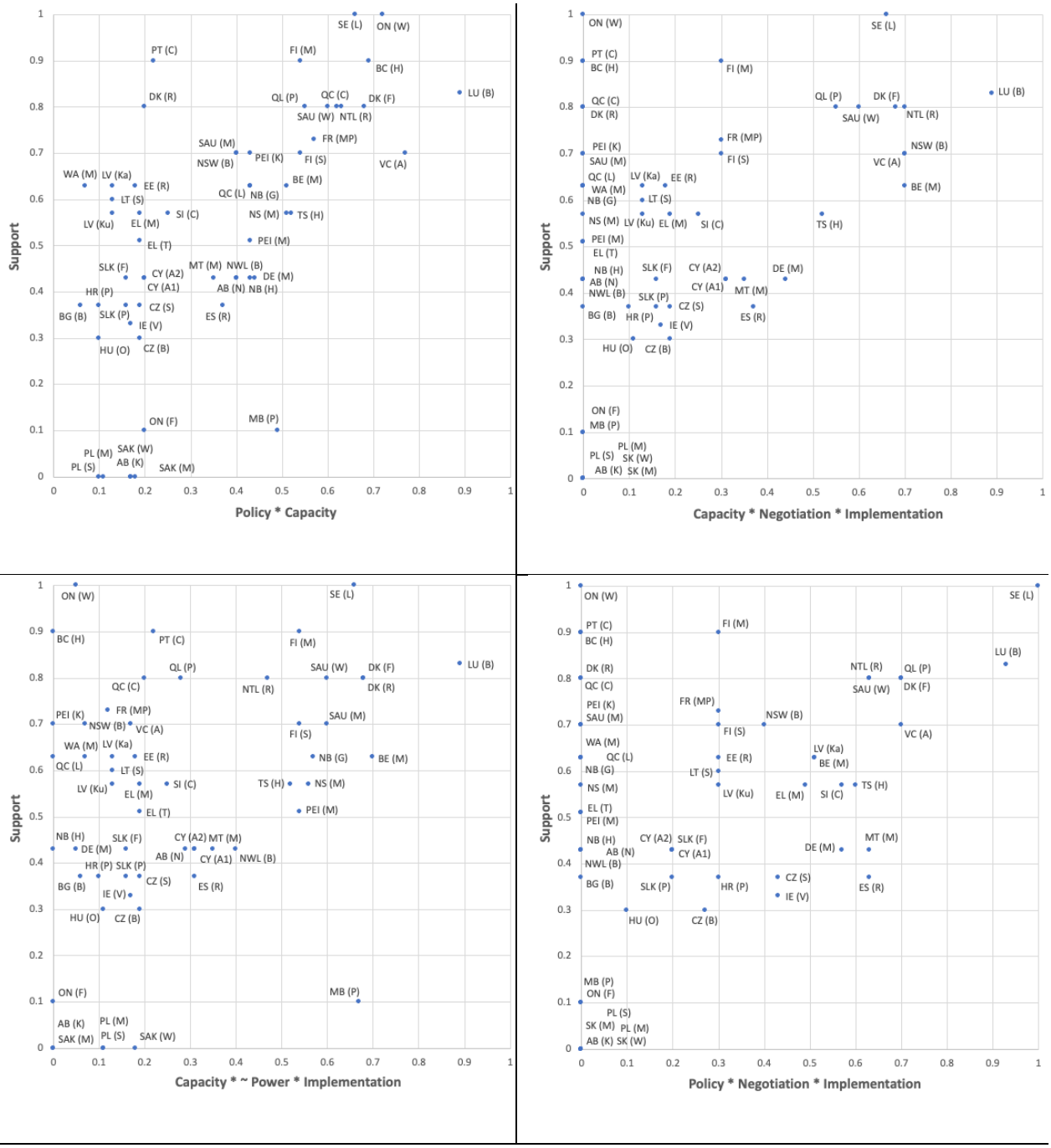
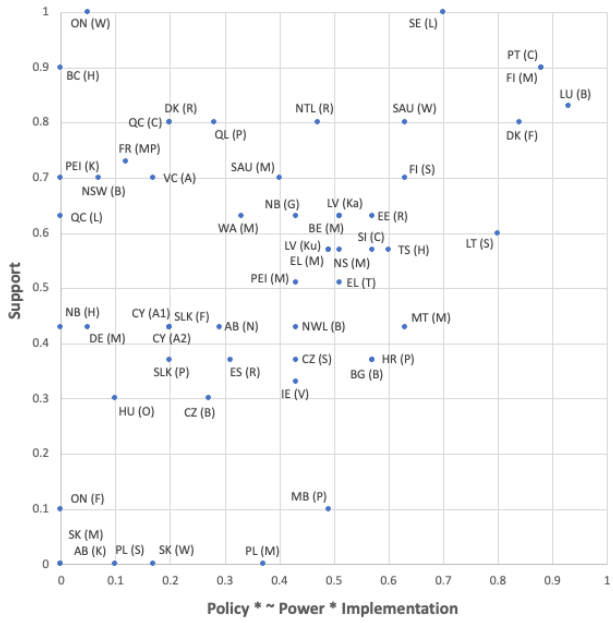


Figure 5-4 **XY plots of sufficiency test (outcome: support) (continued)**



To sum up, the fsQCA has helped identify the lack of climate policy preference and especially the lack of implementation capacity as almost-necessary conditions for a sub-federal government to resist the implementation of the Paris Agreement. Neither of these conditions explains sub-federal resistance sufficiently. If they occur in combination, they represent a sufficient explanation for resistance. In addition, sub-federal resistance can be observed in situations in which the sub-federal government does not pursue a climate action agenda and has not been involved in the implementation process.

On the other hand, sub-federal support for the implementation of the Paris Agreement does not occur only under the presence of a specific condition. Having a climate policy preference comes close to being a necessary condition, but multiple cases exist in which a sub-federal government supports implementation despite its policy preference diverging from the Paris Agreement. The sufficiency test has revealed that every sub-federal government that is capable and has a climate action agenda supports the implementation of the Paris Agreement. As neither of these two conditions are necessary, alternative pathways have shown that sub-federal governments support implementation, independently of their implementation capacity, in cases when they have a policy preference for climate action and are either powerless or were involved in the Paris negotiation process. Sub-federal

governments without a climate policy agenda support implementation if they are capable and were involved in the negotiation process, or if their entity is weak and they have been involved in the implementation process.

5.6 Discussion of findings

This section serves to discuss the results of the QCA. I will focus on the necessary conditions, the most relevant sufficient solution terms and the cases that were not covered by or logically contradicted the detected solution terms. The study of specific cases will help to illustrate the causal mechanisms at work and uncover and discuss potential alternative explanations.

The key argument inferred from the analysis is twofold. First, the explanatory dyad drawn from traditional compliance theory, i.e., capacity and willingness, explains a large part of the sub-federal conduct in the context of the implementation of the Paris Agreement. The two conditions can be considered the original roots of support for and resistance to implementation. Second, explanations drawn from federal studies complete the solution to the puzzle. Specifically, cooperation between the federal and sub-federal governments during international negotiations and the implementation process can compensate for the lack of sub-federal capacity or willingness and bring sub-federal governments on board with implementation – especially in the case of weak sub-federal governments. Conversely, not being involved in the negotiation or implementation process makes it easier for unwilling sub-federal governments to resist implementation.

5.6.1 The sources of resistance and support: the dyad of capacity and willingness

In line with compliance literature, sub-federal willingness, understood as the overlap of the sub-federal government's policy preference with the objectives of the international agreement, and sub-federal capacity, understood as the availability of financial resources and the lack of structural obstacles to implementation, provide a relevant explanation to sub-federal governments' conduct in the implementation process of an international agreement. As detected by the fsQCA, most sub-federal governments that resist implementation lack either willingness or capacity for implementation. Also, most sub-federal governments that support the implementation of the Paris Agreement, are either

willing or capable of implementation. At least one of these two conditions appears in all recipes leading to resistance and support, and, except for the presence of capacity, they were among the conditions with the highest consistency values in the necessity test.

Sub-federal governments that are both willing and capable emerge as natural allies in terms of implementation, independently of their power position and involvement in the negotiation or implementation of the international agreement. Canadian provincial governments, such as Horgan's in British Columbia, which pursues a climate agenda while not being hindered by relevant domestic obstacles, independently contribute to the implementation of the Paris Agreement although they have not been involved in intergovernmental processes of negotiation and implementation. Other willing and capable sub-federal governments in addition to action within their jurisdiction show initiative in intergovernmental institutions to enhance joint action to achieve the Paris commitments. Examples include Luxembourg under Bettel, Victoria under Andrews, or Ontario under Wynne.

Conversely, sub-federal governments without willingness and capacity resist implementation, regardless of the sub-federal government's power or involvement in negotiation or implementation. This group of cases thus ranges from Cyprus under Anastasiades and Saskatchewan under Moe and Wall to Poland under Szydło and Morawiecki and Alberta under Kenney.

The lack of capacity, which technically comes closest to being a necessary condition, is of particular importance to explain resistance. Only Pallister in Manitoba and Ford in Ontario, and barely Higgs in New Brunswick, oppose implementation, although they would be able to contribute to the implementation process. Moreover, my conceptualization of capacity that takes into account the policy-specific question of how easy a sub-national entity's economic structure can be decarbonised in addition to the widely used indicator of financial resources has proven pertinent. A limitation on financial resources would have hidden the obstacles that governments such as Varadkar's in Ireland or Kenney's in Alberta face. Despite their economic strength, these entities have a harder time to reduce their emissions as fundamental restructuring of or interventions in their economic systems are required. Such measures certainly provoke responses from the concerned sectors, such as heavy industry

or the oil-producing sector, from both business and social points of view. This makes it hard for sub-federal governments to contribute to implementation even in cases in which they generally support climate action, as the Notley government in Alberta illustrates. Compliance research is thus well advised to take capacity issues specific to the concerned policy field into consideration.

The issues of capacity and willingness provide a relevant part of the explanation of why sub-federal governments support or resist the implementation of the Paris Agreement. However, they do not tell the whole story.

5.6.2 The last piece of the puzzle: power and intergovernmental cooperation

Individually, capacity and willingness to implement are not sufficient for support, nor is the absence of capacity or willingness sufficient for resistance. There are pathways leading to resistance or support without the simultaneous absence or presence of capacity and willingness. Thus, explanations drawn from traditional compliance theory can be enriched with elements from other research areas. While capacity and willingness can be seen as the primordial sources of support and resistance, the other conditions seem to constitute scope conditions that influence whether capacity and willingness actually lead to support, or incapacity and unwillingness actually lead to resistance. On the one hand, the question of whether sub-federal governments have power and have been involved in the negotiation or implementation process helps explain why sub-federal governments, despite lacking capacity or willingness, have been brought on board with implementation. On the other hand, unwilling sub-federal governments, even if they are capable, can strategically use the fact that they have not been involved in the negotiation or implementation to talk themselves out of implementation.

There are multiple sub-federal governments that lack either a climate policy preference or capacity but still support implementation. In all three federal systems, governments exist that are capable of implementation and do not pursue a climate action agenda but still support the implementation of the Paris Agreement, for instance, Berejiklian (New South Wales), Marshall (South Australia), Gallant (New Brunswick), King (Prince Edward Island) and Rasmussen (Denmark). Similarly, there are numerous cases where there is a preference for climate policy, but a lack of capacity and nevertheless support for implementation, for

instance in the governments of Ratas (Estonia), Tsipras (Greece), Kariņš (Latvia) and Cerar (Slovenia). The common feature of all these governments is that they are either weak and have been involved in the implementation process or they have been involved in both the negotiation and implementation process through intergovernmental mechanisms. These patterns are consistent with comparative federalism literature that has highlighted the benefits of intergovernmental cooperation, which can provide effective venues of exchange of positions, interests, and experience but also of peer pressure, search for joint strategies and negotiation of compromise solutions and side-payments. The positive effect of the participation of the sub-federal governments in the making of the international agreement corresponds in particular to the expectations derived from audience costs theory. Hence, as long as sub-federal governments are either generally willing or capable to implement, intergovernmental cooperation through the international negotiation or implementation process can help bring these governments on board for implementation.

One question that arises here is why sub-federal governments without the respective policy preference that are involved in the international negotiations would not oppose the conclusion of the agreement. Possible reasons include peer pressure, issues of international and domestic reputation or public pressure. In other cases, the approval of the international agreement may also be due to the fact that the necessary implementation measures were not foreseeable in detail from the outset. This can result in governments that supported the international agreement in principle trying to soften implementation measures.

If sub-federal governments have not been included in the negotiation process, they can only be brought in on the condition that they have no power within the federal system. Sub-federal governments of powerful entities are difficult to persuade through intergovernmental deliberation if they lack capacity or willingness, as the examples of Alberta under Notley, Germany under Merkel, and Spain under Rajoy illustrate. In spite of the exception of the Western Australian government of McGowan, in line with the power argument in compliance research, weak sub-federal entities appear to be easier to incentivise or be pressured by their peers. While generally a sub-federal government has to be at least either capable or willing to implement, the cases of Greece under Mitsotakis and Latvia under Kučinskis demonstrate that sub-federal governments can be brought in with implementation despite lacking both willingness and capacity provided they are not in a

position of power within the federal system. This finding on the relance of power as a scope condition complements the comparative federalism literature that has identified intergovernmental implementation processes as an effective strategy to bring sub-federal governments on board.

The case of the Notley government shows that large, powerful entities are harder to bring on board by means of intergovernmental implementation processes than weak ones, while also pointing to the importance of compromise solutions and side-payments developed as part of the intergovernmental implementation process. The Trudeau government had pledged to support the Trans Mountain Pipeline extension project for Alberta's oil industry in turn for Alberta's government commitment to Canada's climate targets. As soon as a federal court stopped the pipeline project, Notley withdrew from the pan-Canadian implementation plan claiming that "without Alberta that plan isn't worth the paper it's written on" (Notley 2018, quoted in Tasker 2018) and thus underlining its power position.

This power argument also helps explain why the governments of Merkel (Germany) and Rajoy (Spain) contradict the combination of policy agenda and involvement in the international negotiations and implementation as a sufficient pathway. These two cases are the only powerful governments that were involved in the Paris negotiations and have deficient implementation capacities. While both governments have generally supported the Paris Agreement, they have been resisting players in the implementation process. For instance, the Merkel government tried on several occasions to water down ambitious measures or new requirements that concern sensitive sectors such as transportation and the car industry. This suggests that even willing governments that were involved in the negotiation process do not necessarily support implementation if they have capacity constraints and are in a power position. In such cases, power seems to condition the negative effect of lacking capacity. This insight contributes to literature that has argued that giving sub-federal government a 'voice' in international negotiations prevents them from 'exiting' the commitment (Freudlsperger 2018) by adding power as a relevant scope condition. It also adds to the compliance literature that implementation capacity reduces the negative effect of power (Börzel et al. 2010).

With respect to the identified explanations for resistance, we have observed that sub-federal governments do not have to lack both capacity and policy preference to resist the implementation of the Paris Accord. There are governments that have no climate action agenda but are capable of implementation and resist implementation, as the examples of New Brunswick under Higgs and Ontario under Ford indicate. They have in common that they were neither involved in the Paris negotiations nor in the implementation process. A closer look at other resisting governments provides further insights on the effects of not involving sub-federal entities in the negotiation and implementation processes: While non-involvement in the negotiation and implementation processes are neither sufficient nor necessary for resistance, it appears to facilitate resistance. After all, sub-federal governments that show the strongest resistance to the implementation of the Paris Agreement are all governments that were not involved in the Paris Agreement negotiations (see Table 5-6).

As the conduct of Canadian provincial governments illustrates, non-involvement allows sub-federal governments that do not want to contribute to the implementation to more easily openly resist and to use non-involvement as a way to talk themselves out of implementation by absolving themselves of the responsibility of implementing the agreement. For instance, Wall's government in Saskatchewan openly criticized the Trudeau government for ratifying the Paris Agreement (Fife 2016), and Ford (Ontario), Kenney (Alberta), Moe (Saskatchewan) and Pallister (Manitoba) attacked the federal government when it decided to increase its 2030 climate target and to commit to climate neutrality by 2050 as part of the implementation of the Paris Agreement (Kaufmann 2021; S. Taylor 2021; Varcoe 2021) for not communicating with the provinces first. Also, provincial leaders, especially Notley and Kenney from Alberta, have criticized the federal government for not consulting them before presenting implementation measures (Berthiaume 2021; Kaufmann 2021; Weber 2021). Similarly, the Polish government under Szydło that came into power after the EU had already adopted its emission reduction targets in preparation to the Paris negotiations has at several instances underlined that it was the previous Polish government that gave its consent to the EU's commitment, starting with its electoral manifesto in 2015.

As a general observation, only sub-federal governments that were involved in the negotiation or implementation process reached full support membership, i.e., Löfven's

government in Sweden and Wynne's governments in Ontario. British Columbia under the Horgan government, for instance, was not involved in the implementation process and has been less supportive of implementation than the Wynne government despite its strong climate policy agenda. And only sub-federal governments that were not involved in the international negotiations fully resist implementation, i.e., Szydło's and Morawiecki's government in Poland and Wall's and Moe's government in Saskatchewan. For example, Orbán's government in Hungary, which was part of the Paris negotiations, has shown less resistance to implementation than the two Polish governments despite similar levels of unwillingness and incapacity. While the latter example might be also a result of the power constellation, the empirical observations provide some indication that not-involving sub-federal governments reduces the positive effects of capacity and willingness and strengthens the negative effects of lacking capacity and willingness. However, further research is to be conducted on the influence of sub-federal involvement in implementation and negotiations on the causal relationship between capacity and willingness on the one hand and support and resistance on the other.

In all three federal systems, involvement in the negotiation or implementation has helped to bring sub-federal governments on board with implementation. And in both the EU and Canada, resisting governments have applied similar strategies to use non-involvement as a way to justify their resistance. Intergovernmental decision-making is inherent to the political system of the EU. Member states are thus key decision-makers in both the negotiation and the implementation of international agreements. In Canada, intergovernmental cooperation across the two levels of government has been limited to individual policy areas or time periods and has mostly depended on federal government's initiatives (Bakvis and Skogstad 2020; Schertzer, McDougall, and Skogstad 2016). Despite its constitutional similarity to Canada in terms of cross-level relations, Australia has developed a tradition of collaborative federalism in practice by means of permanent intergovernmental bodies (Phillimore and Fenna 2017; Phillimore and Harwood 2015). Despite these different constitutional and practical set-ups, the positive effects of intergovernmental cooperation during the international negotiations and the implementation process and the negative effects of non-cooperation have been witnessed across the three federal systems. The degree to which intergovernmental interaction has been institutionalised and internalised in a federal

system thus does not appear to condition the effect of such mechanisms. Nor does the question of whether intergovernmental cooperation depends on the discretion of the federal executive appear to play a role in sub-federal support or resistance. As the case of Poland indicates, it is more important whether the respective government was in power during the intergovernmental process.

To conclude, the fsQCA results presented above exposed that technically the presence of involvement in the negotiation or implementation process might be redundant in the recipes for support. However, a closer look at the cases has shown that the (non-)existence of intergovernmental mechanisms in the context of the negotiations of the Paris Agreement and the implementation process does indeed contribute to sub-federal support (resistance).

5.6.3 Explaining deviant cases: public opinion, electoral competition, and resistance alliances

As a result of the relatively high threshold levels I set when conducting the fsQCA, the overall consistency values of identified pathways to resistance and support are high in general, i.e., the number of logical contradictions is limited, and most logical contradictions are situated close to the threshold of the cross-over points of 0.5. Such 'soft' contradictions include Greece under Mitsotakis and Latvia under Kučinskis that support implementation despite their lack of capacity and willingness, or Malta under Muscat and Croatia under Plenković that resist implementation despite their willingness, lack of power and being involved in the implementation process. Other cases contradict the identified solution terms more strongly or are not covered by any pathway at all. For instance, Manitoba's Pallister government resists implementation starkly despite its capacity, lack of power and involvement in the implementation process. Legault's government in Québec and King's government in Prince Edward Island lack willingness and were not part of the Paris negotiations or of the implementation process and nevertheless support implementation. These cases require further qualitative in-depth research to fully grasp the causal conditions and mechanism at play. Here, I will only refer to the most conspicuous cases to uncover potential explanations that were not taken into account in the fsQCA.

The governments of Legault (Québec) and King (Prince Edward Island) are not covered by any path to support and appear as logical contradictions in the recipes for resistance. The

case of Legault shares a truth table row with Ford (Ontario) and King with Higgs (New Brunswick). Both Québec and Prince Edward Island are to some extent extraordinary with respect to climate change and climate action. Québec has long considered itself a pioneer in environmental protection, especially because of its tradition of hydropower (Macdonald 2020). This tradition has also manifested itself in the public discourse in the context of the Paris negotiations and implementation. For instance, when Prime Minister Trudeau summed up Canada's new international climate engagement in 2015 with the phrase "Canada is back", the then Premier of Québec Couillard reacted with "But Quebec has always been there" (Authier 2015), underlining that Québec was also committed to tackling climate change during Harper's federal government from 2006 to 2015. In a similar vein, Legault has publicly denoted Alberta's oil as "dirty energy" for which there was no "social acceptability" in Québec (Montreal Gazette 2018). In Prince Edward Island, climate change is a salient issue as the island has already experienced some impacts such as coastal erosion first hand (Welsh 2019). As a result, Prince Edward Island is the province with the highest share of citizens within Canada estimated to who have already felt negative effects from climate change and are supportive of carbon pricing mechanisms (Mildenberger et al. 2019). This is in line with research that exposure to the effects of climate change increases issue salience and public support for mitigation measures (Demski et al. 2017). Similar dynamics can be expected in sub-federal entities that are particularly vulnerable to rising sea levels, such as the Netherlands, or Australian states that have witnessed an increased severity of bushfires.

What cases such as Québec and Prince Edward Island have in common is that their specific situations can appear to result in a more climate-demanding and thus Paris Agreement-friendly environment overall. Such intra-entity circumstances can thus be assumed to create relevant incentives for the respective governments to contribute to the implementation of the Paris Agreement independently from the governing party's policy position.

As Legault's Québec, the government of Berejiklian in New South Wales is another interesting case due to the combination of holding a powerful position within the federation and lacking a climate action agenda. In the course of the New South Wales electoral campaign in 2019, the governing Liberal party experienced relevant public pressure regarding its climate agenda and the fulfilment of Australia's climate obligations. With the

state Labour Party gaining ground with its more progressive climate action agenda, the elected Liberal government under Berejiklian appears to have been forced to a stronger climate commitment than they had pledged in the run-up to the elections (Davies 2019; Glanville 2019). While the case of Berejiklian also suggests the potential relevance of public opinion, it also, more specifically, points to the importance of the electorate's preferences and the extent to which a 'greener' opposition represents a risk in the context of electoral competition.

Similar courses of events could be observed in New Brunswick and Prince Edward Island. While Higgs' government in New Brunswick was at no moment as actively resistant to the implementation process as other Canadian governments, such as Kenney's in Alberta, it nevertheless expressed its opposition openly. Only after the re-election of Trudeau's federal government and electoral gains of the Green Party in New Brunswick in 2019, the provincial government shifted from open opposition to a more conciliary approach. Prince Edward Island's King government finds itself in a similar position. In addition to public awareness of the climate crisis, the provincial government has strong incentives to not ignore demands for climate action and for respecting the Paris commitments as it almost lost the elections in 2019 against the Green Party, which since then has formed the official opposition in the provincial parliament. These cases can be understood as illustrations of political parties' basic interest and strategy, i.e., political parties do not only seek the implementation of their policy preferences, but also election (Strom 1990).

Public preferences have been identified as not relevant when it comes to the implementation of international commitments (for instance, Jensen and Spoon 2011). With the Paris Agreement having had a relevant effect on public opinion regarding the need to reduce emissions (Tingley and Tomz 2020), the dynamics seem to have changed. However, including public opinion in the study of sub-federal entities faces the decisive challenge of finding data for comparative analyses across federal systems. While there are surveys that have studied sub-federal public opinion on climate change issues in Australia, Canada and the EU, the questions used and the methodology applied differ substantially. Nevertheless, accounting for public opinion – and the existence of opposition parties with credible willingness to implement the agreement more effectively – is a task for future research.

Another case that merits further attention is the Pallister government in Manitoba, which is not covered by any recipe for resistance. The provincial government resists implementation although it has implementation capacity, was involved in the implementation process, and lacks power. It thus contradicts the pathway to support which covers other cases of the same truth table row such as South Australia under Marshall and Denmark under Rasmussen. While the Pallister government has generally resisted the implementation of the Paris Agreement, a closer look reveals different phases of its role in the implementation process. For instance, it first refused to be part of the PCF in 2016, then joined the pan-Canadian framework in 2018 before withdrawing again de facto some months later. This points to the need for a more dynamic explanation of resistance and support. Manitoba's resistance only solidified once other larger provinces became members of the group of resisting provinces, especially after the election of Ford in Ontario and the withdrawal from the PCF of Notley's government in Alberta in summer 2018. This alliance of resisting provinces was further strengthened through the election of Kenney in Alberta in 2019. Before these events, Pallister had shown more openness to cooperation with the federal government and its provincial counterparts. On the one hand, these observations indicate that the relevance of the formation of horizontal alliances requires further academic attention to fully understand the role sub-federal governments play in the implementation of international agreements. On the other hand, power seems to enable resistance not only by powerful sub-federal governments such as Germany under Merkel, Spain under Rajoy, or Alberta under Notley. It also indirectly permits weak governments that manage to become part of a resistance alliance with powerful sub-federal governments, such as Manitoba's Pallister, to resist.

5.6.4 Alternative explanations: a look beyond

The previous discussion was based on the findings of the fsQCA and the cases the fsQCa could not explain. This section serves to acknowledge potential explanations for which the fsQCA did not identify any clear patterns, but which can be considered plausible alternatives. I will focus here on three differences between Australia, Canada and the EU that could be hypothesised to have an effect on the sub-federal governments' role in the implementation process.

First, the level of party integration differs across federal systems (Thorlakson 2013). One could suspect that in federal systems in which political parties are vertically integrated, sub-federal governments of the same political couleur as the federal government that committed to the international agreement to be supportive of the implementation. Among the federal systems considered here, the one with the highest level of party integration is Australia. While indeed all states governments in my sample support the implementation of the Paris Agreement, there is no indication that sub-federal Liberal governments support the implementation more than governments of the Labour party whose federal counterpart was in the opposition in the considered time period. Moreover, one of the strongest cross-level intergovernmental tensions observed during the implementation process occurred between the Liberal Commonwealth and the Liberal states governments, including Berejiklian in New South Wales. While the effect of party integration cannot be refuted here in general, the data at hand does not provide any affirmation either.

Second, federal systems differ regarding the federal level's authority to interfere in sub-federal competences when it comes to the implementation of international agreements. In Australia, rulings of the High Court have assigned the Commonwealth government the right to legislate in areas of state jurisdiction if they are subject to international commitments (Galligan and Wright 2002, 159–60). This right is, however, in principle a last resort if a state does not adopt measures in accordance with the international agreement on its own (Twomey 2009, 49–50). Two arguments contradict the hypothesis that this legal right of the Australian federal government has contributed to the state government's support of the implementation of the Paris Agreement. On the one hand, unwilling or incapable Australian state governments could express their opposition to implementing the Paris Agreement and attempt to obstruct the implementation process, as Canadian provincial governments do, despite the existence of such an enforcement mechanism. In the past, there have been multiple examples of Australian states adopting policies that disrespected Australia's international commitments despite the legal authority of the federal government to interfere to establish international compliance (Galligan and Wright 2002). While the Canadian federal government does not have an Australia-like authority to interfere with provincial jurisdiction to implement an international agreement, the constitutional principle of "peace, order, and good government" allows the federal government to enact legislation

outside its jurisdiction on matters of national concern. The Supreme Court of Canada, for instance, invoked this principle when ruling on the constitutionality of the federal government's Greenhouse Gas Pollution Pricing Act in 2021 (Supreme Court of Canada 2021). This federal right did not prevent provincial governments from openly resisting the implementation of the Paris Agreement. One could even say that it fueled the resistance. On the other hand, Australian state governments not only support the implementation of the Paris Agreement but even have state targets set that in sum are higher than Australia's commitment (Climate Works Australia 2021). This overachieving is unlikely to be a result of the states' fear of the federal government's enforcement authority.

Third, I did not include the level of the climate change mitigation target the federal system committed to as part of the Paris Agreement in the analysis. It is difficult to compare emission reduction targets due to varying starting points, structural obstacles, and the question of what a fair share of emissions reduction per party to the Paris Agreement would mean. However, this exercise is also not necessary as I conceptualized resistance and support based on the general objective of the Paris Agreement to reduce greenhouse gas emissions as quickly as possible and to become climate neutral in the second half of the current century. Australia's new government under Albanese, whose predecessor Morrison was considered a generally unambitious climate actor (Christoff 2021), has increased its climate commitments within the Paris Agreement in 2022 from an emission reduction of 26-28% under 2005 levels by 2030 to 43% (Australian Government 2022). A future study of the reaction of the state governments could serve as a test of whether the federal government's position affects the sub-federal governments' role in the implementation process. However, the fact that sub-federal policies have already gone beyond the previous target and almost contribute sufficiently to the new one, indicates that the general distinction between supportive and resistant sub-federal entities is not substantially affected by the exact level of the federal commitment. Similarly, in the EU and Canada, no fundamental change in the position of sub-federal governments in the implementation process was observed when climate commitments were increased in 2020 and 2021, respectively.

5.7 Conclusion

This section concludes by summarizing the main findings, referring to this paper's contributions, discussing political implications, and proposing a research agenda.

5.7.1 Summary

This paper has started from two observations: Sub-federal governments can be essential players when it comes to the implementation of international agreements; and it is not uncommon that sub-federal governments resist contributing to implementation. Against this backdrop, this paper has sought to identify the conditions that help explain why sub-federal governments resist or support the implementation process. Based on a set of hypotheses I drew from compliance theory and comparative federalism, I conducted an fsQCA to study the role of sub-federal governments in the implementation of the Paris Agreement in Australia, Canada, and the EU. I have found that a large part of support and resistance to implementation can be explained by the combination of willingness and capacity, and unwillingness and incapacity to implementation respectively. Sub-federal governments that are unwilling but capable of contributing to the implementation process can talk their way out of implementation. If they were not part of the negotiation and/or implementation process, they can strategically assign the responsibility for implementation to the federal government. Furthermore, sub-federal governments that lack either capacity or willingness still support implementation if they were involved in the negotiation and implementation processes or if they are involved in the implementation process and are in a weak power position within their federal system.

5.7.2 Contributions

By opening the black box of federalism regarding the implementation of international agreements, this paper has made a four-fold contribution. Firstly, on an empirical level, this paper has mapped the levels of resistance that sub-federal governments demonstrate regarding the implementation of an international agreement. By means of a thorough analysis of 915 news articles and 77 official documents, I created an index of the role 55 sub-federal governments in Australia, Canada and the EU have played in the implementation of the Paris Agreement. The range of the index from full support to full

resistance confirms that the sub-federal level should be taken seriously in terms of implementation and that the sub-federal go-along should not be taken for granted.

Thus, secondly, this paper has also added theoretically to the literature that emphasizes the importance of taking domestic dynamics and interests seriously when it comes to negotiating and implementing international agreements (see inter alia Putnam 1988) and the new research field of comparative sub-national governments (Giraudy and Niedzwiecki 2022; Giraudy, Moncada, and Snyder 2019). As no comprehensive theoretical foundation for the explanation of the role of sub-federal governments existed so far, I borrowed from international relations and comparative federalism. Bridging these two research fields has helped to produce a comprehensive framework to understand the role sub-federal governments play in the process of implementing an international agreement. This exercise, in conjunction with the QCA, has provided a relevant piece to the puzzle of understanding internal dynamics and implementation capability of federal systems and has thus contributed to theorisation of an under-researched research field.

Thirdly, this paper has sought to make a contribution to the discipline of EU studies by testing the value of the 'comparative turn' (Müller Gómez, Hoppe, and Beaulieu-Guay 2022) in ways we study the EU. From an International Relations perspective, we should have expected more resistance from unwilling governments within the EU than in consolidated federations. Especially Canada, which has had a hard time to implement the Paris Agreement due to sub-federal resistance, exemplifies the limited powers federal governments can have to meet their international obligations. With the exception of the strongly opposed Polish government since 2015, the EU with its institutional structures and decision-making procedures, seems better placed to coordinate divergent policy positions and overcoming regional structural challenges than other federal systems – despite its lack of statehood. These observations provide fruitful input to the way we think of the EU as a political system and our definitions in political science, international relations, and federal studies (see for instance, Fossum and Jachtenfuchs 2017; Hurrell and Menon 1996; Hix 1994).

Fourth, in terms of political implications, the findings of this paper are good and bad news for implementation. Knowing the conditions under which sub-federal entities resist and

support the implementation of an international agreement can help design effective strategies to bring them on board. Cases that are unwilling or incapable are not necessarily lost causes and can be brought on board with implementation, especially if they lack power within their federal system. On the other hand, there are also lost causes. Cases that lack capacity and willingness resist implementation, regardless of their role in the negotiation and implementation processes. Unwilling and incapable governments of powerful sub-federal entities appear to be particularly resistant to implementation.

5.7.3 Methodological issues

This paper has relied on Qualitative Comparative Analysis as the main methodology, which was supplemented with a qualitative look on typical, deviant, and unexplained cases. This semi-deductive-inductive use of QCA has proven fruitful to enhance our empirical knowledge and to further theorisation. Despite its critics (for instance, Tanner 2014), QCA has helped to explore the data and discover recurring patterns unveiling conditions and combinations of conditions that help us better understand why sub-federal entities are resistant to or supportive of the implementation of the Paris Agreement. Good knowledge of the cases and the identification of typical and deviant cases by the QCA has provided further clues enhancing our understanding of sub-federal conduct in the context of implementation. A closer look at the cases has allowed us to test the plausibility of the results produced by the QCA and to detect explanatory conditions that were not considered in the analysis. Moreover, the choice of fsQCA over csQCA has made it possible to verify to what extent cases are strong or soft contradictions to the general findings, which would not have been possible in a csQCA. For instance, the pertinence of the combination of capacity and willingness as a strong predictor was confirmed by determining that the deviant cases are located very close to the thresholds and thus represent only soft contradictions.

The use of QCA, however, has its limits. One of the most serious ones is the static nature of the analysis (Rihoux 2003, 360). As every case is assigned a fixed membership score for each condition, it is not possible to take into account evolutions within cases or the contexts they are situated in. A closer look at deviant cases, for instance, indicated that the emergence of resistance alliances and of climate action as a public concern complement the identified explanations for sub-federal support or resistance.

5.7.4 Future research

Building on this work, I propose two major avenues of future research. First, to increase the internal and external validity of this study, I suggest building directly on this research. While the discussion of several cases within the scope of this paper has allowed me to test the plausibility of the relevance of the identified conditions and configurations, further thorough analysis centred on the causal links are required. A process-tracing analysis of individual cases would make it possible to verify the pertinence of the QCA findings, to entirely reveal the causal mechanisms at play and to make stronger causal inferences (Schneider and Rohlfing 2013; Schneider and Wagemann 2010; Goertz and Mahoney 2012, 102–3). A more in-depth study of the detected moderating effects of intergovernmental cooperation as part of the implementation and negotiation processes on the effects of capacity and willingness would be of special interest. Also, as the variation of cases in this present study is limited, a look at cases in which the unwilling or incapable powerful governments have been involved in the negotiation process is required in order to study how they use their power to shape the international commitment and how this affects their role in the implementation process (Börzel et al. 2010). For example, it would be highly speculative to make claims about how the involvement of current governments in Poland or Alberta in setting the Paris climate targets would have affected their role in the implementation process.

While the focus on the Paris Agreement proved to be convenient to test policy-specific conditions, further research is needed to increase the external validity and to test the generalisability of the arguments developed here. The Paris Agreement could be considered a particular case since it requires comprehensive action and its implementation is accompanied by relevant distribution effects, while many other environmental agreements, for instance those concerning chemicals or waste management, mostly only necessitate regulatory measures. Consequently, I suggest conducting studies including other policy fields or other kinds of international agreements, for instance by means of case studies, another QCA or statistical analyses. The latter would, however, require a thorough reflection on the epistemological compatibility with the theoretical claims I developed.

A second research axe I wish to propose concerns research questions and puzzles that are related to the role of sub-federal governments in the implementation of international agreements but go beyond the sources of sub-federal support and resistance. For instance, the use and effectiveness of strategies federal executives can apply to bring about sub-federal implementation has been under-researched. While I found that intergovernmental cooperation as part of the implementation process helps to bring sub-federal governments on board, the study of the specific measures, such as financial incentives or finger-pointing, goes beyond the scope of this article. Especially the developments in the EU and Canada point to the importance of so-called 'side-payments' (Cappelletti, Fischer, and Sciarini 2014; Kabir 2019) to persuade sub-federal governments. Which strategies do the federal government or willing sub-federal governments use to persuade resisting governments? Under which conditions are these strategies successful? Also, examples such as the exit of the Canadian government under Harper or of the US government under Trump have raised the question of how the withdrawal from an international agreement affects sub-federal commitment to the agreement's objectives. Some observations, such as the creation of the U.S. Climate Alliance under the leadership of the states of California, New York, and Washington in the aftermath of the US withdrawal from the Paris Agreement, or the climate leadership Québec has shown after Canada's withdrawal from the Kyoto Protocol indicate that federal exit can reinforce sub-federal action (Houle, Lachapelle, and Rabe 2014).

In sum, this paper has provided a first step of opening the back box of federal systems and of taking sub-federal governments seriously with respect to the implementation of international agreements. Empirically, methodologically, and theoretically, it has provided a fruitful basis for future research that seeks to better understand the role sub-federal governments play in the implementation of international agreements.

6. Article #3: Show Me the Money. Side-Payments and the Implementation of International Agreements in Federal Systems

Federal systems face specific challenges in fulfilling their international commitments. In cases of shared jurisdiction, the federal government needs the sub-federal level to contribute to the implementation process. Both Canada and the EU have used side-payments to bring and keep on board reluctant and opposing provinces and member states in the implementation of international agreements. However, both cases have experienced the limits of this strategy. This article aims to make a theoretical contribution by identifying the causal conditions and processes that help explain the success and failure of using side-payments to encourage sub-federal support for the implementation of an international agreement. Based on the study of the implementation of the Paris Agreement in Canada and the EU, I develop a two-fold argument. First, side-payments can be an effective tool to persuade sub-federal governments if they are generally interested in contributing to implementation. They do not work for governments of powerful entities that are unwilling to implement. Second, sub-federal governments react to other actors' conduct. Side-payments can keep reluctant governments of weak entities on board only as long as no alliance of powerful sub-federal entities is formed that resists the implementation of an international agreement.

Key words: Federalism, Side-payments, Implementation, Canada, European Union, Paris Agreement

6.1 Introduction

Federal and decentralized political systems have generally been considered less capable than unitary and centralized states of fulfilling their international commitments (König and Luetgert 2009; Borghetto, Franchino, and Giannetti 2006; Linos 2007; Mbaye 2001; Thomson 2007; Raustiala and Victor 1998; M. A. Levy, Young, and Zürn 1995; Jacobson and Brown Weiss 1995). Federal systems face specific challenges in fulfilling their international commitments. Especially in cases of shared or sub-federal jurisdiction, the federal government depends on the sub-federal level to contribute to the implementation process (Gordon and Macdonald 2014; Macdonald 2014; Paquin 2010).

As part of the 2015 Paris Agreement, Canada and the EU committed to reduce substantially their greenhouse gas (GHG) emissions. Both parties now face the challenge of keeping sub-federal authorities, i.e., their provinces and member states, on board with implementation. In cases of sub-federal resistance, federal governments need to find ways to ensure lower-level compliance with the Paris Agreement obligations. Forms of resistance include sub-federal refusal to adopt the necessary policies within their own jurisdiction and attempts to obstruct the intergovernmental implementation process or initiatives launched by federal institutions.

To counteract such instances of sub-federal resistance and to keep and bring sub-federal governments on board with implementation, both Canada and the EU have used "side-payments," i.e., instruments to induce actors to take actions that they consider to be a deterioration in the status quo (Cappelletti, Fischer, and Sciarini 2014; Kabir 2019; Scharpf 1988). In general terms, the implementation approaches of Canada and the EU allow for differentiated effort, i.e., sub-federal entities that are less capable of climate action have been expected to contribute less to the implementation process than others. In addition, means that provide financial support for climate action measures have been established, such as the EU's Modernisation Fund and Canada's Low Carbon Economy Fund. Lastly, Canada and the EU have used forms of bilateral concessions, including Nova Scotia's exemption from Canada's coal-phase-out plan and additional financial support or special treatment regarding the energy structure of EU member states in Central and Eastern Europe. Sub-federal resistance to implementation and the use of side-payments thus occur in both fully-fledged federations and federalized international organizations.

Despite these multiple attempts to encourage sub-federal support, several provincial and member-state governments have continued their resistance, including Alberta under Kenney, New Brunswick under Higgs, and Poland under Morawiecki. This observation suggests that the effectiveness of the side-payment strategies of Canada and the EU is limited. This article asks under what conditions side-payments are successful in keeping or bringing sub-federal governments on board with the implementation of an international agreement.

As side-payments may be particularly necessary in situations where reluctant actors have the right to veto a collective decision or the autonomy to refuse to cooperate or act (Scharpf 1988; P. Taylor 1980), their study has a firm place in international relations and federal studies literature. Scholars have addressed side-payments as a strategy to entice states into international cooperation arrangements and build alliances (Davis 2008; Kabir 2019; Poast 2012; Sælen 2016), and to promote certain policies in developing countries (Brandi, Morin, and Stender 2022). Others have also studied how side-payments are used to buy domestic support for international agreements that are thought to create intra-state losers (Hays, Ehrlich, and Peinhardt 2005; Mayer 1992). Similarly, existing literature in the fields of comparative federalism and EU politics has examined how side-payments have been used to persuade sub-federal entities to accept modifications in the division of tasks between the two levels of government (Cappelletti, Fischer, and Sciarini 2014; Anand and Green 2011), as well as EU policies and decisions towards greater integration (Carrubba 1997; Thielemann 2005; Moravcsik 1993; Scharpf 1988; P. Taylor 1980). Research on international cooperation has found that side-payments are particularly effective in cases of strong asymmetry between the actors involved (Barrett 2001; 2005; Fuentes-Albero and Rubio 2010; Sælen 2016). With respect to EU integration, it has been argued that only small, weak member states can be bought off (Moravcsik and Vachudova 2003, 27–30; Moravcsik 1991, 25–26).

This article contributes to this literature by identifying the conditional configuration under which side-payments are effective in federal systems. I study the implementation of the Paris Agreement to explore the causal conditions and processes that help explain the success and failure of side-payments used to persuade Canadian provinces and EU member states to contribute to the implementation process. Based on this analysis, I develop a dynamic, twofold argument. First, side-payments can be an effective tool to persuade the sub-federal government if they are generally interested in contributing to implementation. However, they do not work for the government of powerful entities that are unwilling to implement. Second, sub-federal governments react to other actors' conduct. Side-payments can keep reluctant governments of weak entities on board only as long as an alliance of powerful sub-federal entities that resist the implementation of an international agreement has not formed.

In the following sections, I first present my analytical framework before examining the developments on both sides of the Atlantic since the adoption of the Paris Agreement. I then develop a theoretical argument on the causal conditions and processes for side-payments to be effective. In the last section, I summarize my contributions and suggest future avenues of research.

6.2 Analytical approach

I understand side-payments in the broadest sense as instruments to induce actors to take actions that they consider to be a deterioration of the status quo (Cappelletti, Fischer, and Sciarini 2014; Kabir 2019; Scharpf 1988). This conceptualization thus entails multiple ways of incentivizing sub-federal governments to contribute to the implementation process, which I categorize into three strategies (see Table 6-1). Federal systems can persuade sub-federal governments to implement by explicitly supporting sub-federal implementation measures, for instance, by providing funding, by offering concessions to sub-federal governments in return for their contribution to implementation, or by making a political trade-off regarding expected contribution to implementation. As the empirical analysis below demonstrates, Canada and the EU have used all three strategies in the context of the implementation of the Paris Agreement. A side-payment strategy is considered effective if it succeeds in keeping or bringing sub-federal governments on board with implementation.

Table 6-1 **Side-payments in the Paris Agreement implementation in Canada and the EU**

Side-payment strategy	**Definition**	**Canadian examples**	**EU examples**
Implementation support	Instruments that explicitly support implementation measures in sub-federal entities, especially through financial means.	Low Carbon Economy Fund	Modernisation Fund, Just Transition Mechanism
Cross-policy agreement	Instruments that do not directly contribute to implementation but are an integral part of a cross-policy package to promote the implementation.	Federal support of pipeline extension	Watering down of rule-of-law mechanism
Burden-sharing measures	Instruments that relieve sub-federal governments of burdens, including exemptions from implementation policies or burden-sharing solutions.	Equivalency agreements, exemptions from coal phase-out, burden-sharing approach	Exemptions from coal subsidies phase-out, free ETS allowances, effort-sharing decision

To study the implementation of the Paris Agreement in Canada and the EU, I conduct a structured, focused comparison (George and Bennett 2005; George 1979). Combining in-depth analysis with a comparative approach is particularly fruitful in identifying relevant causal conditions. Unlike static comparisons, it is sufficiently sensitive to dynamic processes within the cases. Due to the lack of a comprehensive theoretical framework on the effectiveness of side-payments, I pursue an inductive approach. Literature in the areas of international compliance, comparative federalism, and Canadian and EU politics provide clues about potential explanatory conditions, which serve to formulate questions to structure the analysis of the two cases (see Table 6-2). I pay particular attention to the sub-federal willingness to implement in terms of policy preferences (Jensen and Spoon 2011; Treib 2003) and implementation incapacities and obstacles (Chayes and Chayes 1998; Chayes, Chayes, and Mitchell 1998). Moreover, besides the power argument introduced before, other research areas have also referred to power as an important condition to understand sub-federal conduct (Anand and Green 2011; Börzel et al. 2010; Raustiala and Victor 1998; Watts 1996, 57–60).

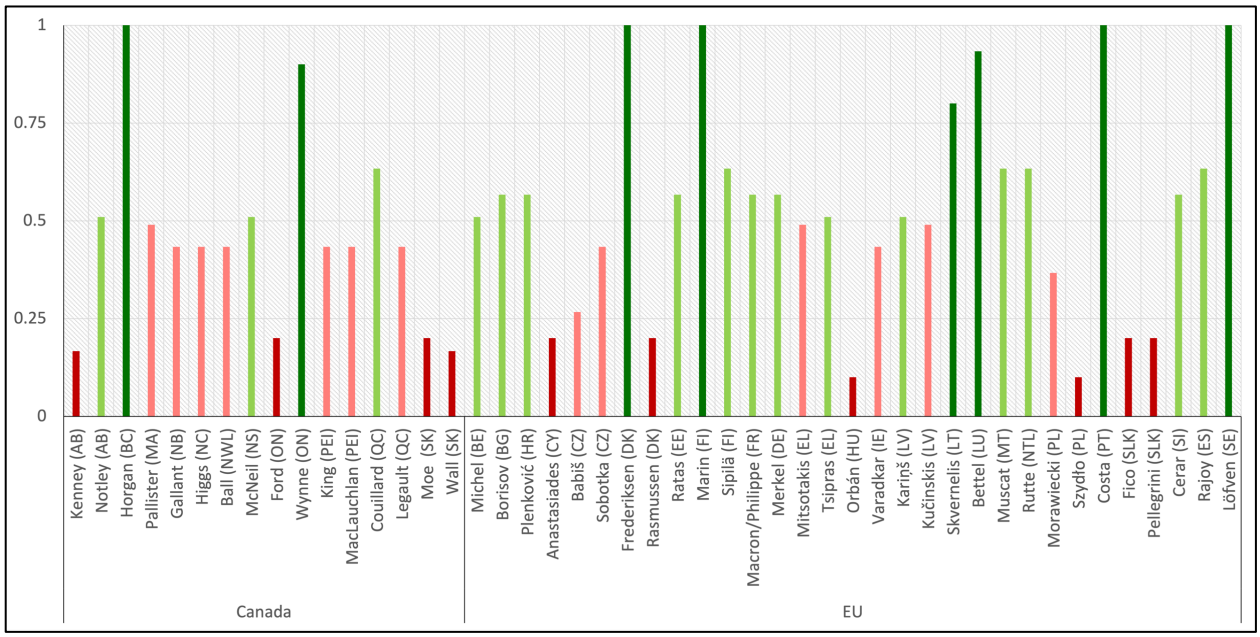
Table 6-2 **Guiding questions for structured, focused comparison**

Question	**Condition**	**Operationalization**
How does the sub-federal government's willingness to implement affect the effectiveness of side-payments?	Willingness to implement	Climate action agenda in the platform of the senior ruling party.
How do sub-federal implementation obstacles affect the effectiveness of side-payments?	Implementation obstacles	Share of the contribution of hard-to-decarbonize industries to GDP; lack of financial capacity in terms of GDP per capita.
How does the sub-federal entity's relative power position affect the effectiveness of side-payments?	Relative power position within the federal system	Share of population and GDP within Canada/the EU.

With regard to the implementation of the Paris Agreement, I operationalize these three conditions as the general willingness of sub-federal governments to engage in climate action, domestic implementation obstacles such as the social and economic relevance of hard-to-decarbonize industries or lack of financial capacity, and the relative power within the federal system resulting from a sub-federal unit's economic wealth or size in terms of population. More specifically, I coded the party platforms of the sub-federal governments in

power since the negotiation of the Paris Agreement in terms of their climate action agenda (see Figure 6-1). Concerning implementation obstacles, I take into account the economic relevance of polluting industries in the sub-federal entities and their financial capacity in terms of GDP per capita (see Figure 6-2; Figure 6-3). To account for their power position, I created a combined indicator considering the sub-federal entity's size in terms of GDP and population (see Figure 6-4).[26]

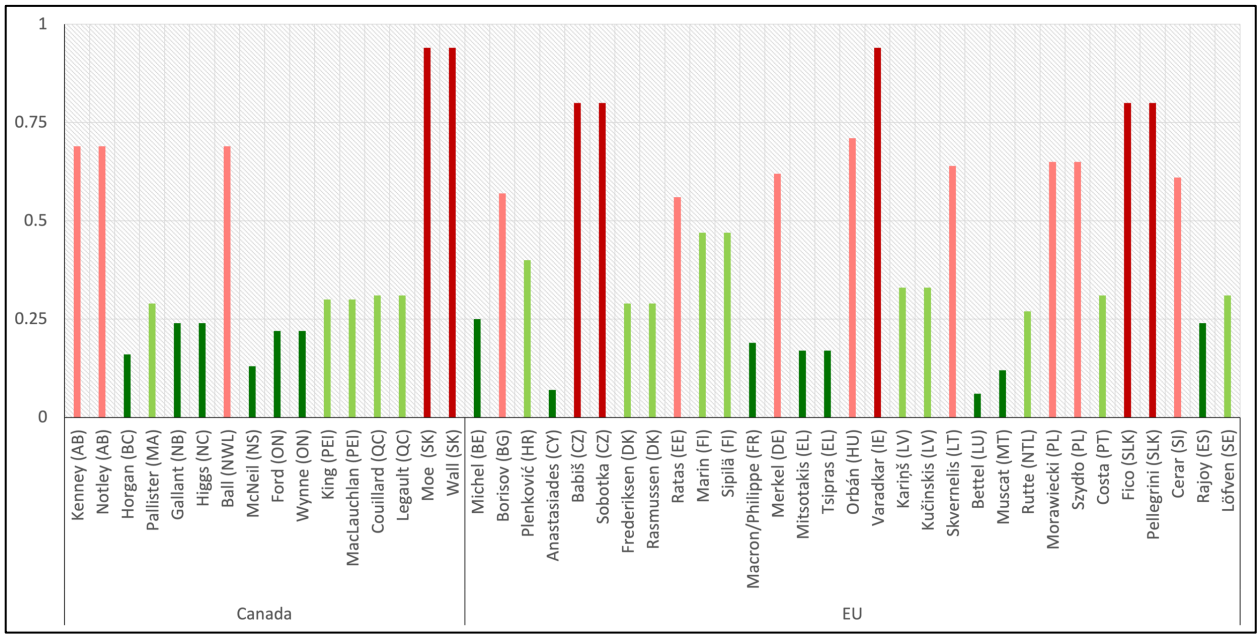
Figure 6-1 **Climate policy preferences of sub-federal governments in Canada and the EU**



Notes: The cases are labelled using the names of the heads of government; red = rejection of climate action and green = support of climate action.

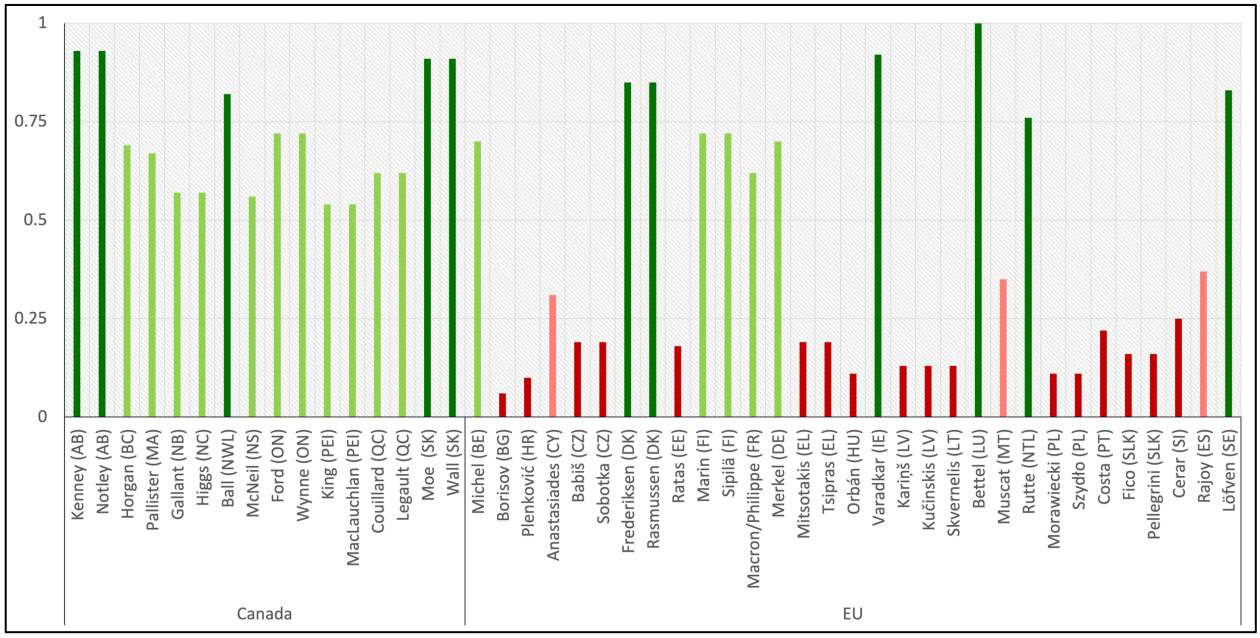
[26] The figures are limited to governments that have been in power for at least 24 months since the conclusion of the Paris Agreement. The data on policy preferences, financial capacity and power come from article# 2 (see 5.4.5; 5.4.6 5.3.3). The calibration of the relevance of polluting industries is explained in the annex (see Table 9-16).

Figure 6-2 **Relevance of polluting industries within sub-federal entities in Canada and the EU**



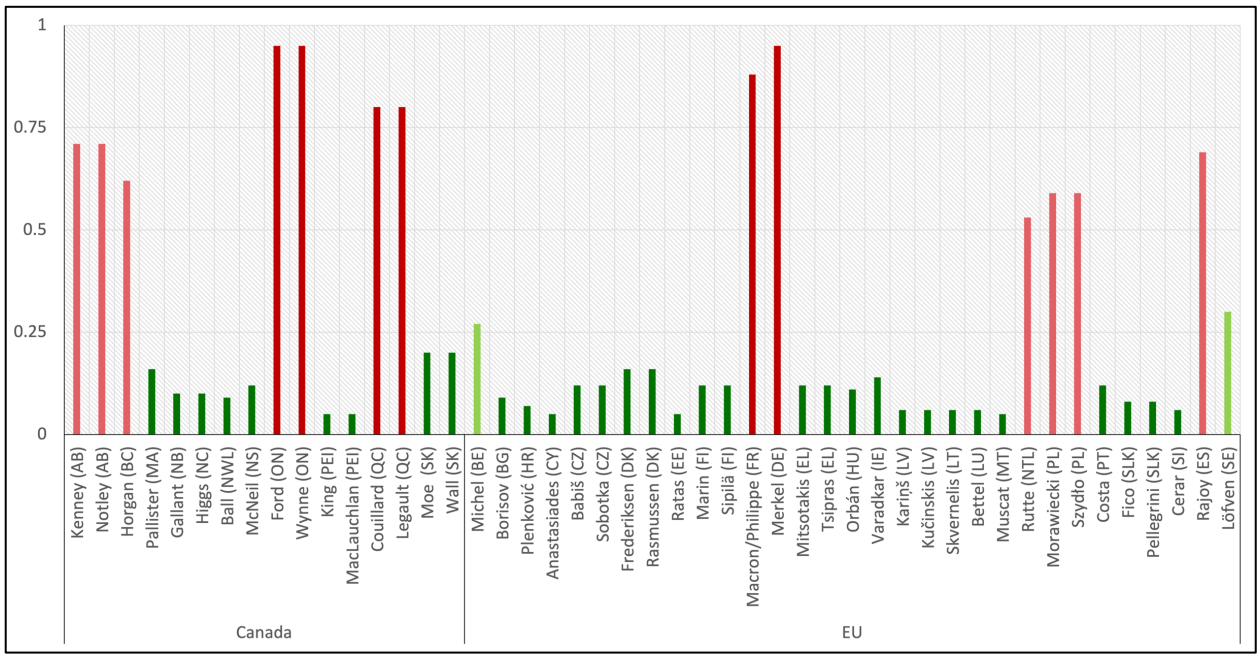
Note: Red = high relevance and green = low relevance.

Figure 6-3 **Financial capacity of sub-federal governments in Canada and the EU**



Note: Red = low capacity and green = high capacity.

Figure 6-4 **Power of sub-federal governments within Canada and the EU**



Note: Red = powerful position and green = weak position.

Studying Canada and the EU in parallel strengthens the causal inferences we may draw from the empirical analyses. Both federal systems have extensively used side-payments as a strategy to keep and bring sub-federal governments on board with implementation. Also, as the figures indicate, the governments of the Canadian provinces and EU member states differ in the conditions that can be expected to make side-payments necessary and potentially also affect their effectiveness. In more general terms, both Canada and the EU are characterized by a system of intergovernmental relations in which executives are key players in decision-making processes, operating based on consensus-based decision-making and the possibility of non-participation and opt-outs (Bakvis and Skogstad 2020; Fabbrini 2017; Fossum 2018). While the EU is not a fully-fledged federation, it can be understood as a federal system (Fossum and Jachtenfuchs 2017; Kelemen 2003). In the case of the Paris Agreement, the commitment to reduce GHG emissions was formulated at the EU level—not at the member state level, meaning that the EU as a whole is responsible for effective implementation. Furthermore, focusing on an international climate agreement implies a relevant role for sub-federal governments since climate policy requires action across a wide range of policy areas, including environmental protection, energy, natural resources, transportation, and industrial and economic development. Thus, it represents a policy field in which sub-federal governments cannot be ignored.

While the article focuses on identifying the relevant causal and contextual conditions, and not the causal mechanisms per se, grasping the processes at play is essential to understand the dynamics and interactions between the actors and the conditions. For data collection and analysis, I thus adopt tools from process-tracing methodology (Beach and Pedersen 2013). When collecting and analyzing my data, I focus on traces, accounts, and sequences of events (Beach and Pedersen 2013, 99–100), which helps deduce the relevant causal conditions and processes. As this article is interested in effectiveness, sequences are particularly important to trace effects back to their causes. For example, empirical fingerprints, such as instances where sub-federal governments exhibit support for implementation when offered side-payments or cases where their support diminishes upon their discontinuation, serve as compelling evidence highlighting the significant impact of these side-payments.

In order to ensure the internal validity of the analysis, I rely on triangulation using three different data sources. First, I studied official documents, including agreements, communications, conclusions, and communiqués of Canadian and EU intergovernmental meetings and press releases of executives on both sides of the Atlantic.[27] I considered a total of 46 documents. Second, I searched Factiva and Google News for news articles on the implementation processes in Canada and the EU and the conduct of the multiple sub-federal governments.[28] I applied a data saturation strategy (Morse et al. 2002; Faulkner and Trotter 2017), i.e., I collected articles until I could not find additional information. In total, I studied 510 articles. Third, I conducted eight semi-structured interviews and three background talks with officials from provincial and member state ministries working on climate action, energy, and intergovernmental relations, as well as practitioners from the federal and EU levels.[29] Several interview partners had worked for other sub-federal entities

[27] The official documents I studied are listed in the annex (see List 9-2).
[28] I searched for articles on events and developments on the EU and Canadian level and on the conduct of all member state and provincial governments that have been in power for at least two years since the adoption of the Paris Agreement. As search key words, I used a combination of the [name of the sub-federal entity OR name of the head of government] and [Paris Accord OR Paris Agreement OR climate].
[29] The interviews I conducted are listed in the annex (see List 9-3). The three background talks are not included as the interviewees asked for full confidentiality.

before their current positions, or had experience on both levels of government, i.e., they could provide insight beyond their current jurisdiction.

I study the collected data by focusing on the key decisions and frameworks that have led to particular sub-federal resistance and for which Canada and the EU have used side-payments to bring sub-federal governments on board. For the Canadian case, I concentrate on the Pan-Canadian Framework on Clean Growth and Climate Change (PCF) and the adoption of a carbon pricing mechanism. As for the EU, I examine the decisions on the EU's roadmaps for 2030 and 2050. My study thus centers on pan-Canadian and pan-European schemes rather than policies and measures adopted by the sub-federal governments within their jurisdictions. My period of interest ranges from December 2015, i.e., the adoption of the Paris Agreement, to December 2021

6.3 The Implementation of the Paris Agreement in Canada and the European Union

6.3.1 Canada

In order to achieve Canada's climate target effectively, Prime Minister Justin Trudeau initiated a process of intergovernmental cooperation between the federal and provincial governments. At the First Ministers' Meeting in March 2016, federal, provincial, and territorial government heads adopted the Vancouver Declaration (Office of the Prime Minister, 2016). They committed to meeting Canada's GHG mitigation target and agreed to strengthen intergovernmental coordination and cooperation in climate action. Based on the Vancouver Declaration, the federal and provincial environment ministers drafted the implementation strategy over the following months in the Canadian Council of Ministers of the Environment. In December 2016, the first ministers adopted the PCF (Government of Canada, 2016), designed as the collective basis for coordinated and effective Canadian climate action. Carbon pricing is a critical element of the PCF. Provinces were asked to introduce either a carbon tax or an emission trading system with a minimum price of 50 CAD/tonne. Alternatively, the federal government would introduce a pan-Canadian carbon price that would cover the provinces that do not have their own pricing mechanism. Furthermore, provinces formulated concrete provincial climate targets in the PCF.

The approach that asked provinces to define their climate targets independently allowed the challenging baselines of the energy-intensive provinces, namely Alberta and Saskatchewan, to be accommodated. Provinces that are able to do more, do more; those that face domestic challenges to implementation do less. This differentiated strategy was widely accepted. Besides signing the PCF, climate-progressive provinces, including British Columbia's Premier Christy Clark, have publicly spoken out in favor of such a differentiated approach. This procedure can be understood as a form of horizontal side-payment among the provinces.

Several provinces, such as British Columbia under John Horgan and Ontario under Kathleen Wynne, did not have to be persuaded. These provincial governments had a clear climate agenda and did not face significant internal implementation obstacles (see Figures 6-1, 6-2 and 6-3) and were, therefore, natural allies in the implementation process (Interviews 2 and 3). While the federal government managed to incorporate most provinces and territories in the pan-Canadian plan, Manitoba and Saskatchewan did not sign the PCF and consequently did not commit to any climate targets. However, Manitoba's Premier Brian Pallister decided to join the PCF in February 2018, leaving Saskatchewan under Premier Scott Moe, the only province outside the framework.

The federal government and parliament adopted several policies to support provincial implementation measures and incentivize the provincial leaders to support the implementation of the Paris Agreement. Funding was especially important. Several provinces had requested financial support to contribute to the Paris Agreement implementation, for instance, to promote renewable energies within their jurisdiction (Interview 7). As one interviewee put it pointedly, "the only way the federal government can compel provinces to do something the federal government wants them to do is to throw money at them" (Interview 5). Accordingly, the federal level created instruments such as the Low Carbon Economy Leadership Fund and the Low Carbon Economy Challenge. However, only provinces signed on to the PCF have access to the Leadership Fund, i.e., Saskatchewan has not been eligible for funding since the beginning. When the Manitoban government decided to join the PCF in 2018, it explicitly stated its wish to access the conditional funding mechanisms as its key motivation for joining the PCF (Government of Manitoba, 2018), indicating the effectiveness of this side-payment tool.

Multiple provinces that face structural challenges to implementation have received compensation from the federal government or have been exempted from federal provisions. For instance, the federal government negotiated equivalency agreements with Alberta, British Columbia, Nova Scotia, and Saskatchewan on exemptions from the federal coal phase-out plan or concerning the release of methane from the oil and gas sector in order to accommodate provincial peculiarities.

The federal government has also used exchanges across policy fields to obtain provincial support. A politically particularly relevant example of such bilateral side-payments has been the federal support for oil pipelines for Alberta. Notably, the approval of the Trans Mountain Pipeline expansion project in 2016 was a crucial concession by the Trudeau government in return for Rachel Notley's Alberta Climate Action Plan, which included a cap on emissions from the oil sands sector and a carbon price (Interview 8). In 2018, the federal government even acquired the pipeline system to ensure the completion of the expansion and to secure Alberta's support for the federal climate plan (Interviews 7 and 8).

Two specific events challenged the federal government's strategy to keep the provinces on board and the generally broad consensus among the provinces regarding the intergovernmental implementation process. With the election of Doug Ford over Wynne in Ontario in June 2018, Trudeau lost a strong advocate of his climate action and implementation strategy. In addition, a federal court halted the pipeline expansion project in Alberta. The election of Ford and the court ruling led to the governments of Alberta and Ontario deciding to withdraw from the PCF in the summer of 2018 (Interview 3). As a result, the largest province in terms of population and economy, Ontario, and the two main oil-producing and polluting provinces, Alberta and Saskatchewan—taken together responsible for three-quarters of Canada's GHG emissions—were no longer part of the PCF. Alberta, in particular, stated publicly the power position the province holds regarding the implementation process:

> So today I am announcing that with the Trans Mountain halted, and the work on it halted, until the federal government gets its act together; Alberta is pulling out of the federal climate plan. […] And let's be clear, without Alberta that plan isn't worth the paper it's written on (Notley 2018, quoted in Tasker 2018).

Notley's statement further indicates that the degree to which provinces have strong leverage in the Paris Agreement implementation context results not only from their size and economic power but also from their contribution to Canada's GHG emissions (Interviews 6 and 8).

With the materialization of this new group of resistance against the intergovernmental implementation plan, Manitoba's government also decided in October 2018 to leave the PCF. The election of Jason Kenney in Alberta in April 2019 further strengthened the group of opposing provinces, which became a veritable block of resistance against Trudeau's Paris Agreement implementation plan. These opposing governments have publicly discredited and attacked the Trudeau government and its climate policies, with Alberta emerging as the leading force of opposition. Open tensions between Alberta and the federal government had already begun at the end of Notley's tenure, despite her general willingness to contribute to implementing the Paris Agreement, and were exacerbated when Kenney came to power. Both premiers distanced themselves from Trudeau and his climate agenda, aware of the federal government's unpopularity in Alberta (Interviews 5 and 6). Besides public criticism and the lack of climate action within their jurisdictions, the "resisting" governments also actively challenged federal implementation measures. The strongest manifestation of this joint resistance occurred when Alberta, Ontario, and Saskatchewan contested the federal Greenhouse Gas Pollution Pricing Act at their respective provincial courts of appeal starting in 2018.

Unwilling governments of large provinces, especially Kenney's in Alberta and Ford's in Ontario, became lost causes for the Paris implementation (Interview 3). As a result, following the government changes, Prime Minister Justin Trudeau halted the multilateral intergovernmental implementation process with provincial premiers and focused on bilateral negotiations to bring reluctant provincial governments on board or to collaborate with willing provincial leaders (Interview 6).

Although generally less aggressive, after the provincial elections in 2018, New Brunswick also joined the resistance block under the new government of Blaine Higgs (Interview 5). Only after the federal elections in the fall of 2019 that confirmed Trudeau's government in power and resulted in a strong result for the Green Party in New Brunswick did the

provincial government start distancing itself from the resistance club. Hence, the Higgs government's abandoning its opposition to implementing the Paris Agreement was not a consequence of Canada's side-payment strategy. Rather, strategic considerations regarding elections led the government to become more willing to engage in climate policy.

Table 6-3 **Key events of the Canadian implementation process**

Date	Event
May 2015	Communication of Canada's intended emission reduction target to the UNFCCC
November/ December 2015	Paris Summit
March 2016	Initiation of implementation process with Vancouver Summit
November 2016	Approval of Trans Mountain expansion project by the federal government
December 2016	Adoption of Pan-Canadian Framework on Clean Growth and Climate Change (PCF), without Manitoba and Saskatchewan, including recognition of a differentiated implementation approach
June 2017	Establishment of Low Carbon Economy Fund (Low Carbon Economy Leadership Fund & Low Carbon Economy Challenge)
February 2018	Manitoba joins the PCF
March 2018	Adoption of federal Greenhouse Gas Pollution Pricing Act
From April 2018 onwards	Legal challenges of Greenhouse Gas Pollution Pricing Act at provincial courts of appeal and Supreme Court of Canada
May 2018	Purchase of Trans Mountain pipeline by federal government
June 2018	Change of government in Ontario
July 2018	Ontario's *de facto* withdrawal from the PCF
August 2018	Alberta's withdrawal from the PCF after ruling on pipeline project
October 2018	Manitoba's *de facto* withdrawal from the PCF
November 2018	Change of government in New Brunswick
April 2019	Change of government in Alberta
June 2019	Re-approval of Trans Mountain expansion project by federal government
2020	Entry into force of bilateral federal-provincial equivalency agreements
April 2021	Communication of Canada's new emission reduction target to the UNFCCC

Table 6-3 outlines the key implementation decisions, the side-payments instruments, and the moments of sub-federal resistance. Generally, we could observe an emergence and stabilization of the group of resisting provinces, which advanced substantially when the large provinces of Alberta and Ontario joined Saskatchewan in its opposition. Consequently, when Canada decided to increase its emission reduction target in April 2021, the largest and most polluting provinces had already abandoned the implementation process.

6.3.2 European Union

During the implementation process, the European Council, the institution of the EU's heads of state or government, has, in several instances, underlined that the EU and its member

states have to develop solidarity mechanisms. Such mechanisms should consider the different starting points of each member state and their capacities to contribute to the EU's overall commitment (for instance, European Council, 2020b).

Based on guidelines adopted by the European Council, the European Commission launched a process that has entailed both the definition of climate targets and the adoption of concrete legislation to set the EU on track to fulfill its 2030 climate commitment. Relevant communications of the Commission have been related to the goal of climate neutrality, the European Green Deal, and the increase of the EU's 2030 target from 40% to 55%. Also, regarding legislation, the Commission has proposed the relevant legislative acts, such as the new effort-sharing regulation, the Clean Energy for All Europeans package, including the regulation on Governance of the Energy Union and new renewable energy and energy efficiency directives, and more recently, the European Climate Law.

The EU has adopted several measures to implement its Paris Agreement target that consider the different national capacities and provide financial support to regions in need. Member states that are more economically developed and have already moved towards a more climate-friendly economy have been willing to support other member states in transitioning towards a more sustainable economic system. This assistance has been possible because several member states not only follow a climate action agenda but also face little internal structural obstacles to implementation, such as the governments of Xavier Bettel in Luxemburg and Stefan Löfven in Sweden (see Figures 6-1, 6-2 and 6-3). For instance, the new trading period of the EU's Emission Trading Scheme (ETS) includes the establishment of a Modernisation Fund and an Innovation Fund, both of which are financed by the ETS and aim to support the modernization of the energy systems of low-income member states and innovation in the area of low-carbon technologies, respectively. In addition, the Just Transition Mechanism, including the Just Transition Fund, was established to support regions most challenged by a transition to climate neutrality. To benefit from the fund, member states have to develop territorial just transition plans. Furthermore, as part of the new effort-sharing regulation, which addresses the reduction of emissions not covered by the EU-ETS, the member states agreed to mitigate their GHG emissions targets by considering each member state's capacity. This approach can also be understood as a form of side-payment for member states with lower levels of economic development. Such

mechanisms have enabled member states that are generally willing but lack financial resources, such as the governments of the three Baltic states or the Portuguese government under António Costa, to contribute to the implementation of the Paris Agreement by helping them to bear the implementation costs.

Poland has been a resistant member state from the beginning of the implementation process. The country saw a change of government right before the Paris Agreement negotiation with the PiS party taking power. On several occasions, the governments under Beata Szydło and Mateusz Morawiecki have attacked the European Commission's implementation strategy and the former Polish government that had agreed to the EU's Paris Agreement target. In the context of the implementation of Paris Agreement, the public discourse of the Polish government, but also other executives such as Hungary's, has become increasingly politicized.

Regarding multiple EU decisions in the European Council and the Council of the EU, Poland was joined in its opposition by other member states, including the governments of Boyko Borisov in Bulgaria, Andrej Babiš in Czechia, and Viktor Orbán in Hungary. While several member states have regularly attempted to water down specific pieces of legislation, the resistance alliance did not hold regarding the landmark decisions, such as the target for 2030 or climate neutrality. Most opposing member states have tied their support for decisions at the EU level to specific conditions and have asked for financial compensation at every implementation step. Specifically, the creation of the Just Transition Fund was fundamental for Orbán's and Babiš's consent to the 2030 climate targets. As a result, the European Council adopted the new 2030 climate targets and endorsed the Just Transition Fund in its meeting in December 2020 (European Council, 2020b). Besides recurring demands for funding, the Polish government has successfully insisted on maintaining the existing free allowances from the ETS and on an exemption clause regarding the phase-out of coal subsidies. These member state governments have also repeatedly urged the European Council to underscore the freedom of member states to determine their energy mix, including the demand to explicitly include nuclear energy as a climate-neutral technology or gas as a transition technology (European Council, 2019b, 2020b).

The endorsement of the increased 2030 climate target and the Just Transition Fund in December 2020 was part of the adoption of the EU's Multiannual Financial Framework for 2021 to 2027 and the Next Generation EU package (European Council, 2020b). The Hungarian and Polish governments had blocked the EU's budget and recovery plan as the use of EU funds was to be conditional upon the respect of the rule of law. The adoption of both financial schemes was of major importance for the implementation of the Paris Agreement, with 30% of the expenditure being dedicated to climate action. The blockage by the Hungarian and Polish governments could be overcome through two concessions that watered down the new rule of law mechanism. The European Council decided that the mechanism cannot be triggered in general breaches of the rule of law, but only when those breaches have an unambiguous and direct negative effect on the EU's financial interests. Moreover, the heads of state or government agreed to delay the mechanism's actual application. These concessions represented relevant side-payments that compelled the Hungarian and Polish governments to consent to the financial frameworks, including funding for climate action.

The accommodation of the multiple demands for funding and exemptions has thus substantially helped to keep or bring member states on board with implementation. In addition, the German government under Angela Merkel played an essential part in the stability of the alliance of resisting member states. While the German government did not become an active opponent of the implementation process, it was a reluctant actor in multiple instances and delayed substantial decisions. For instance, Chancellor Angela Merkel was one of the heads of government who prevented the endorsement of the 2050 climate neutrality objective in the European Council meeting in March 2019. Once Germany had decided to support this target after months of reluctance, smaller member states, such as Bulgaria, Czechia, and Hungary, followed suit and gave their consent at the European Council meeting in December 2019. Only Poland opted out (European Council, 2019b). In other words, the combination of side-payments in the form of funding and a German change of heart caused the collapse of the resistance club with regard to the 2050 objective.

Table 6-4 **Key events of the implementation process in the EU**

Date	Event
October 2014	European Council decision on the EU's 2030 Climate and Energy Framework, including the announcement of the Modernisation Fund
March 2015	Communication of the EU's intended emission reduction target to the UNFCCC
November 2015	Change of government in Poland
November/ December 2015	Paris Summit
March 2018	Adoption of ETS reform and creation of Modernisation Fund and Innovation Fund
May 2018	Adoption of Effort-sharing regulation (2021-2030)
November 2018	Commission proposal on climate neutrality by 2050
March & June 2019	European Council meetings without decision on climate neutrality due to resistance of multiple member states
June 2019	Adoption of regulation on internal market for electricity with exemption clause on phase-out of coal subsidies
December 2019	Endorsement of climate neutrality by 2050 by the European Council (without Poland), reference to the planned Just Transition Mechanism, and recognition of nuclear energy as a possible technology
January 2020	Commission communication on Sustainable Europe Investment Plan, including Just Transition Mechanism
December 2020	Endorsement of new 2030 target by the European Council, and conclusion on Multiannual Financial Framework and NextGenerationEU, including Just Transition Mechanism and rule of law mechanism
December 2020	Communication of the EU's new emission reduction target to the UNFCCC
June 2021	Establishment of Just Transition Fund

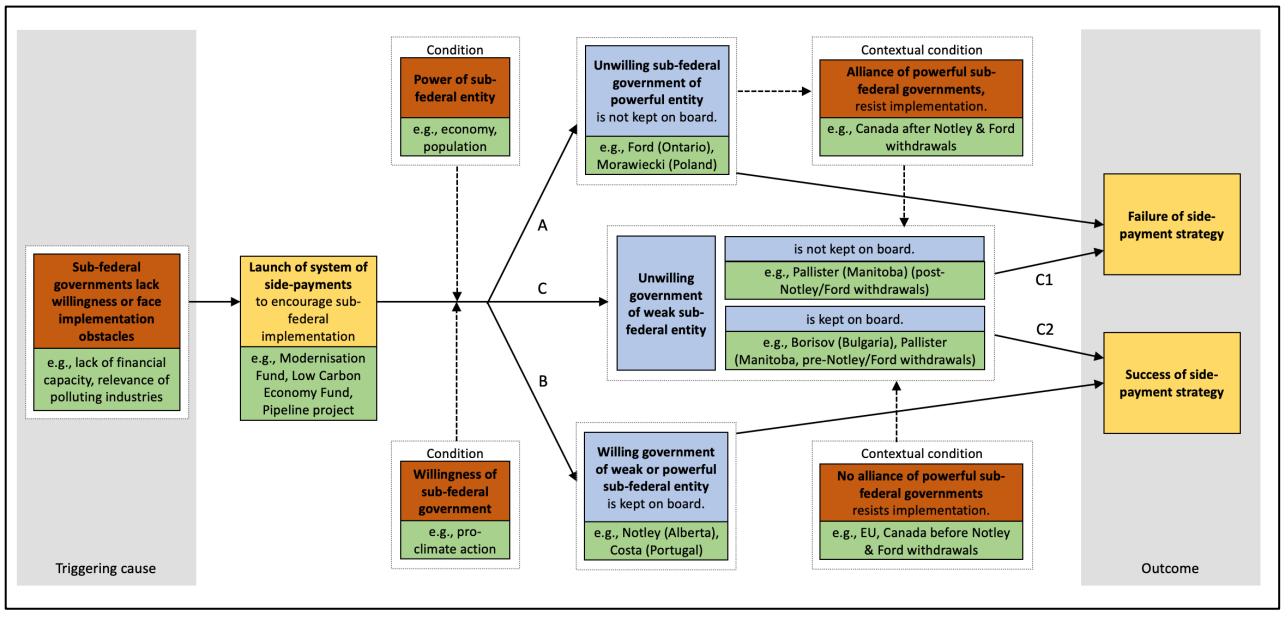
Table 6-4 summarizes the EU implementation process, including implementation measures, side-payments, and instances of member-state opposition. In contrast to the governments of Kenney and Ford in Canada, Szydło and Morawiecki could not establish a strong group of member states to support their opposition. The smaller hesitant member states with low capacity or willingness were brought back on board through financial incentives or gave up their resistance when large member states became advocates for an implementation measure.

6.4 From empirical evidence to theorization

In both Canada and the EU, several governments, which have shown political commitment to climate action and do not face domestic implementation obstacles, have supported the implementation of the Paris Agreement from the beginning. Examples include British Columbia and Sweden. Such cases did not require that they be incentivized through side-payments to support the implementation process and have contributed to the creation of mechanisms to bring other reluctant governments on board. We have also witnessed on

both sides of the Atlantic sub-federal governments that have been hesitant or even actively resistant to support the implementation of the Paris Agreement. This opposition has generally resulted from a sub-federal government's lack of willingness to engage in climate action or implementation obstacles. Implementation obstacles include the lack of financial strength (especially in the central and eastern European member states of the EU), the economic or social relevance of industries that are difficult to decarbonise or energy-intensive (such as the coal sector in Poland, the oilsands industry in Alberta, manufactory industries in Germany, or agriculture in the Canadian Prairies) or carbon-dependent energy production (as seen in Nova Scotia and Poland). Canada and the EU have launched systems of side-payments to keep or bring on board these reluctant governments that either lack the willingness or capacity to implement. Based on the empirical observations, I propose a two-fold argument regarding the effects of side-payments. The argument is dynamic and configurational as it accounts for how sub-federal actors react to a changing context, such as other actors' behavior, and how explanatory conditions jointly explain the effectiveness of side-payments. Figure 6-5 illustrates the causal conditions and the process, including their empirical manifestations, that help explain the success and failure of side-payments.

Figure 6-5 **Conditions and processes explaining failure and success of side-payments**



First, side-payments appear to work less effectively or not at all for large, powerful sub-federal entities whose governments lack the willingness to contribute to implementing the Paris Agreement (see path A in Figure 6-5). For example, Ontario and Alberta, major

economic powers within Canada, could not be persuaded to abandon their resistance to the implementation of the Paris Agreement under the new Ford and Kenney governments, which have no political interest in climate action. The fact that Ontario does not face any relevant domestic implementation obstacles, such as highly polluting economic structures, suggests that capacity issues trigger the launch of side-payment strategies but do not condition the effectiveness of side-payments. The opposition to the implementation of Saskatchewan, a rather small province in terms of economy and population, and its resistance to side-payments demonstrates that having a high GDP per capita can also be a source of power to resist implementation and dismiss financial incentives. In the EU, Poland, the EU's fifth most populous member state, governed by an unwilling government and facing domestic obstacles to implementation, is a player constantly impeding the implementation process, despite the EU's repeated attempts to bring member states with lower levels of economic development on board.

From the power perspective, it has been argued that governments of powerful entities can bear costs resulting from non-implementation, such as losses in reputation or non-access to financial instruments, and thus resist pressure to implement more easily than weak entities (Börzel et al. 2010). The empirical observations complement this power-based argument by pointing to situations in which powerful governments, such as Alberta, can actually gain reputational benefits from non-implementation. The governments of Alberta have strategically decided to oppose implementation to avoid being sanctioned by their electorate for cooperating with the Trudeau government—one that is unpopular in this province at this time. Such a calculus related to political capital regarding credibility (Bourdieu 1991; Jentges 2017) is a privilege for powerful sub-federal governments that can more easily resist social or material pressures from federal institutions or other provincial and national executives, including positive incentives such as side-payments. Similar dynamics could be observed in Poland, where the PiS government not only rejects an ambitious climate policy but also publicly positions itself as unwilling to cooperate with the EU institutions and member states.

In contrast, side-payments can help overcome low implementation capacity and keep or bring governments of both weak and powerful sub-federal entities on board with implementation as long as they are generally willing to act (path B). For instance, side-

payments have been an effective instrument for EU member states facing implementation challenges, such as low economic capacities or energy-intensive economies. Examples include the governments of Costa in Portugal and Jüri Ratas in Estonia. Similarly, Nova Scotia's opposition under the government of Stephen McNeil lessened after the federal government exempted the province from the coal phase-out plan. The Notley government in Alberta illustrates that side-payments can also work in cases where powerful entities face implementation obstacles, and the sub-federal government is generally willing to act. Alberta exited the implementation process as soon as the federal government's key side-payment, i.e., the Trans-Mountain Pipeline extension, was under threat of being withheld. This observation points to the importance of side-payments in keeping the Notley government on board, and that the role of sub-federal governments in the implementation process is dynamic and responsive to a changing context.

The second pattern concerns unwilling sub-federal governments of weak entities whose role in the implementation process is subject to a more complex chain of causal conditions and processes (path C). Several provincial and member state governments that have generally shown no interest in climate action have been kept on board and effectively engaged in the implementation process, or, if they deviated from the implementation process, regularly re-engaged. For instance, Croatia under Andrej Plenković or Czechia under Babiš agreed to the increase of the EU's 2030 emission mitigation target in line with the Paris Agreement in 2020 once their condition of financial compensation had been met by the European Council through the creation of the Just Transition Mechanism. However, while side-payments appear necessary to incentivize weak entities' governments that are reluctant to contribute to the implementation process, they do not represent a sufficient explanation as Manitoba under Pallister or New Brunswick under Higgs indicate. Based on the empirical evidence and the sequence of events presented above, the conduct of the powerful entities appears to impact the governments of weak member states and provinces substantially. The effectiveness of side-payments for small, reluctant sub-federal governments broke down as soon as a group of powerful governments resisted implementation (path C1). For instance, Palliser's government in Manitoba followed a back-and-forth strategy regarding its role in the implementation process. But once Alberta and Ontario had withdrawn from the intergovernmental implementation process, Pallister's government also permanently joined

the alliance of resisting provinces, i.e., side-payments, especially financial incentives, became ineffective. In the EU, we can also witness how the change of heart of a large member state towards support affected governments of small member states. Shortly after Germany under Merkel decided to no longer block the climate-neutrality objective in the European Council, small member states such as Hungary under Orbán or Bulgaria under Borisov also gave up their opposition and were persuaded by means of financial assistance (path C2).

If costs for implementation are neutralized through side-payments, other costs become important to consider, such as reputation losses. Small provinces or member states might have a harder time bearing these costs than powerful sub-federal entities or resisting pressure from their peers when they act alone. However, once an alliance of powerful entities that oppose implementation is formed, it becomes easier for governments of weak entities that are critical of the international agreement to manifest their opposition openly. They are then shielded by powerful entities, which can absorb much of the reputational damage and resist pressure from other actors.

6.5 Conclusion

When are side-payments effective at keeping sub-federal governments on board when it comes to implementing international agreements? The study of the implementation of the Paris Agreement in Canada and the EU has helped to develop a dynamic model that also addresses how the involved actors respond to each other's conduct. The comparative approach has specifically allowed for a better understanding of when sub-federal governments can be brought in through side-payments and has stimulated the development of a two-fold argument. First, if governments of powerful sub-federal entities do not want to contribute to the implementation of an international agreement, side-payments can be expected to have no effect on their opposition. On the other hand, willing sub-federal governments, whether weak or powerful, facing domestic implementation obstacles can be persuaded by means of side-payments. Second, unwilling governments of weak sub-federal entities can only be brought on board as long as there is no alliance of powerful entities resisting the implementation process.

On the one hand, this is good news for implementation. Side-payments can be an effective tool for hesitant sub-federal governments if they are generally willing to contribute to the implementation or are in a weak power situation. This limits the pertinence of the general assumption in the international compliance literature that federalism negatively affects compliance and implementation. Federalism has, for instance, allowed the Canadian government to work effectively on implementation with those sub-federal governments that are willing or that it has persuaded through side-payments. On the other hand, powerful, unwilling governments are "lost causes" that cannot be brought on board. Moreover, the support of small unwilling entities for the implementation process only holds as long as no alliance of powerful resisting governments is formed. Politically, this means that powerful, hesitant governments have a responsibility in that their behavior also affects the behavior of small sub-federal entities, as the effect of the reluctance of the German government to support implementation indicates.

In order to increase both the internal and external validity of this argument, further research is required. As a follow-up to my analysis, a second round of qualitative research should more specifically study the causal mechanisms at play, especially the calculations considering reputation, political capital, and implementation costs. Also, an analysis of additional policy fields would allow for testing the relevance of issue salience as a contextual condition and whether the argument also holds for regulatory agreements. Sub-federal resistance to the implementation of international agreements and the use of side-payments is, in fact, not specific to the Paris Agreement. For example, the Canadian government has responded to provincial opposition, especially from Québec, to the free trade agreements with the EU and the US and Mexico by creating several financial incentives mechanisms, such as the Dairy Processing Investment Fund and Dairy Direct Payment Program, to support the dairy industry against foreign competition (Government of Canada 2022a; 2022b; McGregor 2017; 2018b). Conducting a qualitative comparative analysis would provide one possible means to test the theoretical argument proposed here across federal systems and agreements.

The observations made suggest similar dynamics on both sides of the Atlantic regarding the demand for, use of, and effectiveness of side-payments despite the differences between Canada and the EU. Institutionally, the EU, for instance, differs from Canada in the

requirement of unanimity in most of its climate-policy-related decisions and in the cooperation between EU institutions and member states during the negotiation of international agreements. In contrast, intergovernmental decisions in Canada are based on voluntary cooperation and Canadian provinces are not involved in international negotiations by default. While the empirical observations made in the scope of this article indicate that these institutional features do not dismiss the validity of the argument developed here, future research should consider how such differences in the Canadian and EU federal models influence the effects of, or—more likely—the size of side-payments.

This article has aimed to contribute to the literature on side-payments specifically but also to the more general bodies of literature on comparative federalism and international compliance. Combining international relations with federal studies, an approach not new to the study of Canada (Simeon 1972), has proved productive. The dynamic and configurational approach of this article has helped to refine the existing power argument (Börzel et al. 2010; Moravcsik and Vachudova 2003; Moravcsik 1991) by identifying the conditions under which powerful sub-federal governments can be persuaded, understanding the impact of powerful governments' behavior, and adding a causal mechanism surrounding political capital. I have also aimed to contribute to the debate on the "comparative turn" in Canadian political science (Turgeon et al. 2014; White et al. 2008) and, more recently, in the field of EU studies. In line with authors who have argued that studying the EU benefits from borrowing approaches and tools from comparative politics (Hix 1994) and comparative federalism (Fossum and Jachtenfuchs 2018; Börzel 2005; Sbragia 1993), and from comparisons with the Canadian federation in particular (Fossum 2018), this article provides a concrete example of the value of embedding the EU in comparative studies and abandoning the myth that has dominated EU studies for too long, namely that the EU is a sui generis organization unlike any other.

7. Conclusion

7.1 Summary

This dissertation has started with the threefold motivation to understand opportunities that can arise from multi-level structures for the implementation of international environmental agreements, challenges federal systems face when it comes to implementation and how these challenges can be overcome.

In terms of opportunities, my first paper studies the effects of multi-level structures on the implementation of the Ramsar Convention and has demonstrated that multi-level structures do not necessarily have a negative impact on the implementation of environmental agreements. I find that states in which sub-national jurisdictions exhibit a high degree of autonomy from the central level, are accountable to their constituents or have policy-making authority, or which have a bicameral system are more apt to generate effective implementation measures – at least in the area of environmental conservation.

The second paper has added to this positive perspective on federalism by looking at the challenges that can result by means of sub-federal resistance to implementation. The paper has identified the conditions that help explain why sub-federal entities do in some cases oppose the implementation process of an international agreement. The QCA of sub-federal governments' conduct in the implementation of the Paris Agreement in Australia, Canada and the EU has found that a large part of sub-federal support and resistance to implementation can be explained by the combination of willingness and capacity, and unwillingness and incapacity to implementation respectively. Sub-federal governments that are unwilling but capable of contributing to the implementation process can avoid being held responsible for implementation. They can shift the burden of implementation to the central government if they were not involved in the negotiation or implementation process. Sub-federal governments that lack either willingness or capacity may still contribute to implementation if they were involved in the negotiation and implementation processes, or if they are involved in the implementation process and do not hold a power position within the respective federal system.

My third paper complements these findings by attempting to understand how federal institutions can overcome such sub-federal resistance and bring sub-federal governments on board with implementation. The case studies on the implementation of the Paris Agreement in Canada and the EU have shown that resistance at the sub-federal level cannot necessarily be overcome entirely, but federal systems can effectively use side-payments to buy sub-federal support for major implementation steps. If governments of powerful sub-federal entities do not want to support the implementation of an international agreement, side-payments will not alter their stance. However, cooperative sub-federal governments that encounter domestic implementation obstacles can be brought on board by means of side-payments, irrespective of their power. Governments of weak sub-federal entities that lack willingness to implement can only be persuaded if no alliance of powerful entities opposing implementation has been formed.

7.2 Contributions

This dissertation's contribution is threefold. First, in empirical terms, it is to my knowledge the first research applying the recently developed Environmental Convention Index (Escobar-Pemberthy and Ivanova 2020), which for the for first time provides comprehensive data on the implementation of major international environmental agreements. More importantly, I have also collected and processed new data. I have created an index of sub-federal resistance to implementation. I have analyzed 915 news articles and 77 official documents to map the role played by 55 sub-federal governments in Australia, Canada, and the European Union in implementing the Paris Agreement. The scale of the index, ranging from absolute support to complete resistance, corroborates the significance of the sub-federal level in terms of implementation and emphasizes that sub-federal support for implementation cannot be taken as a given. Due to the lack of existing data, I also manually coded 69 party manifestos to measure the extent to which parties governing at the sub-federal level are committed to climate action. Using these original data sources has helped us to better understand the functioning of multi-level systems and the implementation processes of international agreements.

Second, I have followed literature that has suggested that blurring the line between international relations and comparative politics, especially comparative federalism, is a

fruitful endeavour. Compliance and implementation research, more specifically their management school, which has dealt with the capacity of parties to fulfil their international commitments, benefits from opening the black box of federalism. Instead of considering them as one specific institutional feature or a mere system of veto-players, one should take a more differentiated view on multi-level structures. Bringing multi-level structures in enhances our understanding of why parties to international agreements accomplish their commitments better or worse than others and helps us develop tools to overcome challenges federal systems encounter in the implementation process. However, comparative federalism benefits from international relations approaches as well. Following a long-standing argument in Canadian political science (Simeon 1972), tools we know from the study of international relations and negotiations can inspire the analyses of internal dynamics of federal systems, especially when dealing with intergovernmental relations and interactions. Moreover, I have attempted to contribute to the emerging field of comparative sub-national policies and government (Giraudy and Niedzwiecki 2022; Giraudy, Moncada, and Snyder 2019; Houle, Lachapelle, and Rabe 2014; Schreurs 2008). While comparative politics has been dominated by state-based approaches and comparisons of states, this research field has not only identified the empirical relevance of dealing with sub-national entities but has also recognized the contribution comparative studies of sub-national entities can have in terms of theory-building and enhancing our understanding of the functioning of states and political systems.

Lastly, this thesis has sought to make a contribution in disciplinary terms. Both Canadian political science (Turgeon et al. 2014; White et al. 2008) and more recently also the field of EU studies have undergone a 'comparative turn' (Müller Gómez, Hoppe, and Beaulieu-Guay 2022). Canadian political science has for a long time emphasized the uniqueness of Canada, which has led to an idiosyncratic, insular, and introspective approach to studying Canada (Vipond 2008). Since the 1980s, scholars of Canadian politics have started borrowing from comparative political science theories and tools, a process known as the 'comparative turn' of Canadian political science (White et al. 2008; Montpetit 2008). Similarly, since the 1990s, EU scholars have argued that studying the EU benefits from borrowing approaches and tools from comparative politics (Hix 1994) and comparative federalism (Fossum and Jachtenfuchs 2018; Börzel 2005; Sbragia 1993), and from comparisons with the Canadian federation in

particular (Fossum 2018). While there is some indication that this turn, at least in the area of EU studies, has also been accompanied by an increase in actual comparative studies of the EU (Müller Gómez, Hoppe, and Beaulieu-Guay 2022), a respective genuine research programme has not emerged:

> When contrasting this important body of research with the enormous volume of studies on the EU, the federal dimension in EU studies is clearly underdeveloped in comparison to other fields and subfields. Systematic comparisons of the EU with federal states […] are present, but they have hardly developed into a vibrant research program in the sense of staking out a systematic program of research that ensures a truly cumulative development of knowledge (Fossum and Jachtenfuchs 2017, 469–70).

This thesis has provided a concrete example of the value of embedding the EU – and Canada – in comparative studies and abandoning the sui generis myth that has dominated both fields for too long. It considers itself an integral part of such a research programme in the making to which it seeks to make a substantial contribution.

7.3 Research agenda

The three articles have already identified research that would serve to test and increase external and internal validity of analyses conducted in the context of this dissertation. In the following I will focus on the main research axes that could build on this thesis and further develop its findings.

First, all articles pointed to the necessity to study additional international agreements or policy fields for the purpose of increasing the external validity of their findings. With respect to article 1, the limitation to the Ramsar Convention was due to the on-going development of the ECI dataset, which has not yet coded the implementation measures in the context of other international environmental agreements for which we should expect the arguments of the 'pessimistic school' to prevail, such as climate change. Studying the implementation of further conventions comparatively would allow the identification the characteristics of environmental agreements that could help us explain under which conditions multi-level structures affect implementation positively or negatively. In article 2, the focus on the Paris Agreement was motivated by the wish to test the explanatory power policy-specific conditions. To build on article 2 and test the argument developed there, I suggest conducting studies including other policy fields or other kinds of international agreements, for instance by means of case studies, another QCA or statistical analyses. Conducting a

Qualitative Comparative Analysis would also provide one possible means to test the theoretical argument proposed in article 3 across federal systems and agreements.

Second, qualitative research could enhance the analyses conducted in article 1 and 2. A thorough qualitative study would contribute our understanding of the correlations identified in the statistical analysis of the implementation of the Ramsar Convention. Also, methods, such as process-tracing, would allow to verify the pertinence of the QCA findings and to grasp the causal mechanisms at play (Schneider and Rohlfing 2013; Schneider and Wagemann 2010; Goertz and Mahoney 2012, 102–3). Especially, the findings regarding the involvement of sub-national entities in decision-making processes require further analyses. Since the QCA has suggested that involving sub-federal entities in the negotiation and implementation processes positively affects their commitment to implementation, we should also have expected a clearer positive finding regarding the average effects of joint decision-making institutions on the implementation of the Ramsar Convention. A study of the causal mechanisms at play would also allow to test the validity of the mechanism proposed here, which was mainly based on the audience costs literature.

Third, the articles have also pointed to research that would go beyond the analyses and arguments presented here. For instances, examples such as the withdrawals of the Canadian government under Harper or of the US government under Trump from the Kyoto Protocol and the Paris Agreement indicate that federal governments' exits do also affect sub-federal governments. Some observations, such as the creation of the U.S. Climate Alliance under the leadership of the states of California, New York, and Washington in the aftermath of the US withdrawal from the Paris Agreement, or the climate leadership Québec has shown after Canada's withdrawal from the Kyoto Protocol indicate that federal exit can reinforce sub-federal action (Houle, Lachapelle, and Rabe 2014). These observations within federal systems also invite us to draw on existing approaches from other sub-disciplines. International relations studies have studied the creation and the effects of so-called 'climate clubs' at the international level for a while (Sprinz et al. 2018; Sælen 2016). To what extent can their arguments also be applied to 'climate clubs' at the sub-federal level, such as the U.S. Climate Alliance or Western Climate Initiative?

Overall, by borrowing both from comparative politics, especially comparative federalism, and international relations, this work has provided an important conceptual, theoretical, and empirical basis on which future projects can build. This dissertation hopes to have triggered a future research agenda aiming to improve our understanding of the positive and negative effects of multi-level structures on implementation, sub-national conduct in the context of implementation and the strategies multi-level structures can apply to bring sub-national actors on board with implementation.

8. References

Åhman, Max, Lars J. Nilsson, and Bengt Johansson. 2017. 'Global Climate Policy and Deep Decarbonization of Energy-Intensive Industries'. Climate Policy 17 (5): 634–49. https://doi.org/10.1080/14693062.2016.1167009.

Anand, Anita I., and Andrew J. Green. 2011. 'Side-Payments, Opt-Ins and Power: Creating a National Securities Regulator in Canada'. Canadian Business Law Journal 51 (1): 1–26.

Arel-Bundock, Vincent. 2022. 'The Double Bind of Qualitative Comparative Analysis'. Sociological Methods & Research 51 (3): 963–82. https://doi.org/10.1177/0049124119882460.

Auer, Andreas. 2005. 'The Constitutional Scheme of Federalism'. Journal of European Public Policy 12 (3): 419–31. https://doi.org/10.1080/13501760500091166.

Australian Bureau of Statistics. 2021a. 'Australian National Accounts: State Accounts: Expenditure, Income and Industry Components of Gross State Product, New South Wales, Chain Volume Measures and Current Prices'. 19 November 2021. https://www.abs.gov.au/statistics/economy/national-accounts/australian-national-accounts-state-accounts/2020-21#data-downloads.

———. 2021b. 'Australian National Accounts: State Accounts: Expenditure, Income and Industry Components of Gross State Product, Queensland, Chain Volume Measures and Current Prices'. 19 November 2021. https://www.abs.gov.au/statistics/economy/national-accounts/australian-national-accounts-state-accounts/2020-21#data-downloads.

———. 2021c. 'Australian National Accounts: State Accounts: Expenditure, Income and Industry Components of Gross State Product, South Australia, Chain Volume Measures and Current Prices'. 19 November 2021. https://www.abs.gov.au/statistics/economy/national-accounts/australian-national-accounts-state-accounts/2020-21#data-downloads.

———. 2021d. 'Australian National Accounts: State Accounts: Expenditure, Income and Industry Components of Gross State Product, Tasmania, Chain Volume Measures and Current Prices'. 19 November 2021. https://www.abs.gov.au/statistics/economy/national-accounts/australian-national-accounts-state-accounts/2020-21#data-downloads.

———. 2021e. 'Australian National Accounts: State Accounts: Expenditure, Income and Industry Components of Gross State Product, Victoria, Chain Volume Measures and Current Prices'. 19 November 2021. https://www.abs.gov.au/statistics/economy/national-accounts/australian-national-accounts-state-accounts/2020-21#data-downloads.

———. 2021f. 'Australian National Accounts: State Accounts: Expenditure, Income and Industry Components of Gross State Product, Western Australia, Chain Volume Measures and Current Prices'. 19 November 2021. https://www.abs.gov.au/statistics/economy/national-accounts/australian-national-accounts-state-accounts/2020-21#data-downloads.

———. 2021g. ‘Australian National Accounts: State Accounts: Gross State Product, Chain Volume Measures and Current Prices’. 19 November 2021. https://www.abs.gov.au/statistics/economy/national-accounts/australian-national-accounts-state-accounts/2020-21#data-downloads.

———. 2022. ‘National, State and Territory Population’. 28 June 2022. https://www.abs.gov.au/statistics/people/population/national-state-and-territory-population/dec-2021.

Australian Government. 2015a. ‘Setting Australia’s Post-2020 Target for Reducing Greenhouse Gas Emissions. Issue Paper’.

———. 2015b. ‘Setting Australia’s Post-2020 Target for Reducing Greenhouse Gas Emissions. Final Report of the UNFCCC Taskforce’.

———. 2015c. ‘Australia’s Intended Nationally Determined Contribution to a New Climate Change Agreement’.

———. 2022. ‘Australia’s Nationally Determined Contribution. Communication 2022’.

Authier, Philip. 2015. ‘The New, Greener Couillard; Premier’s Strong Stance in Paris Could Create Problems for Him Back Home’. Montreal Gazette, 10 December 2015.

Bakvis, Herman, and Grace Skogstad. 2020. ‘Canadian Federalism: Performance, Effectiveness, and Legitimacy’. In Canadian Federalism. Performance, Effectiveness, and Legitimacy, edited by Herman Bakvis and Grace Skogstad, 4th edition, 3–30. Toronto: University of Toronto Press.

Barrett, Scott. 2001. ‘International Cooperation for Sale’. European Economic Review 45 (10): 1835–50. https://doi.org/10.1016/S0014-2921(01)00082-4.

———. 2005. Environment and Statecraft: The Strategy of Environmental Treaty-Making. Oxford: Oxford University Press. https://doi.org/10.1093/0199286094.003.0013.

Beach, Derek, and Rasmus Brun Pedersen. 2013. Process-Tracing Methods. Foundations and Guidelines. Ann Arbor: University of Michigan Press.

Behnke, Nathalie, and Sean Mueller. 2017. ‘The Purpose of Intergovernmental Councils: A Framework for Analysis and Comparison’. Regional & Federal Studies 27 (5): 507–27. https://doi.org/10.1080/13597566.2017.1367668.

Benz, Arthur. 2000. ‘Two Types of Multi-level Governance: Intergovernmental Relations in German and EU Regional Policy’. Regional & Federal Studies 10 (3): 21–44. https://doi.org/10.1080/13597560008421130.

———. 2009. Politik in Mehrebenensystemen. Wiesbaden: VS Verlag für Sozialwissenschaften.

Benz, Arthur, Jessica Detemple, and Dominic Heinz. 2016. Varianten Und Dynamiken Der Politikverflechtung Im Deutschen Bundesstaat. Baden-Baden: Nomos.

Berthiaume, Lee. 2021. ‘Ottawa Must Consult Provinces on Emissions Cap for Oil, Gas Industry: Alberta Premier’. CBC News, 15 November 2021. https://www.cbc.ca/news/canada/edmonton/ottawa-must-consult-provinces-on-emissions-cap-for-oil-gas-industry-alberta-premier-1.6250111.

Blackwood, Fiona. 2018. ‘Tas Liberals Promise to Break from National Electricity Market to Reduce Power Prices’. ABC News, 4 February 2018. https://www.abc.net.au/news/2018-02-04/the-tasmanian-liberals-have-promised-to-reduce-power-prices-by-/9394516.

Bolleyer, N., and Lori Thorlakson. 2012. ‘Beyond Decentralization. The Comparative Study of Interdependence in Federal Systems’. Publius: The Journal of Federalism 42 (4): 566–91. https://doi.org/10.1093/publius/pjr053.

Bolleyer, Nicole. 2009. Intergovernmental Cooperation: Rational Choices in Federal Systems and Beyond. Comparative Politics. Oxford: Oxford University Press.

Borghetto, Enrico, Fabio Franchino, and Daniela Giannetti. 2006. ‘Complying with the Transposition Deadlines of EU Directives. Evidence from Italy’. Rivista Italiana Di Politiche Pubbliche, no. 01/2006: 7–38.

Börzel, Tanja A. 2000. ‘Why There Is No “Southern Problem”. On Environmental Leaders and Laggards in the European Union’. Journal of European Public Policy 7 (1): 141–62. https://doi.org/10.1080/135017600343313.

Börzel, Tanja A. 2005. ‘What Can Federalism Teach Us about the European Union? The German Experience’. Regional & Federal Studies 15 (2): 245–57. https://doi.org/10.1080/13597560500115626.

———. 2021. Why Noncompliance: The Politics of Law in the European Union. Ithaca: Cornell University Press. https://doi.org/10.1515/9781501753411.

Börzel, Tanja A., Tobias Hofmann, Diana Panke, and Carina Sprungk. 2010. ‘Obstinate and Inefficient: Why Member States Do Not Comply With European Law’. Comparative Political Studies 43 (11): 1363–90. https://doi.org/10.1177/0010414010376910.

Bourdieu, Pierre. 1991. Language and Symbolic Power. Cambridge, Mass: Harvard University Press.

Brandi, Clara, Jean-Frédéric Morin, and Frederik Stender. 2022. ‘Do Greener Trade Agreements Call for Side-Payments?’ The Journal of Environment & Development 31 (2): 111–38. https://doi.org/10.1177/10704965221076070.

Braumoeller, Bear F., and Gary Goertz. 2003. ‘The Statistical Methodology of Necesssasry Conditions’. In Necessary Conditions. Theory, Methodology, and Applications, edited by Gary Goertz and Harvey Starr, 197–223. Lanham: Rowman & Littlefield Publishers.

Breitmeier, Helmut, Arild Underdal, and Oran R. Young. 2011. ‘The Effectiveness of International Environmental Regimes: Comparing and Contrasting Findings from

Quantitative Research'. International Studies Review 13 (4): 579–605. https://doi.org/10.1111/j.1468-2486.2011.01045.x.

Broschek, Jörg. 2023. 'Introduction: Federalism and International Trade Policy. The Rise of Constituent Units' Engagement in North America and Europe'. Regional & Federal Studies 33 (1): 1–22. https://doi.org/10.1080/13597566.2022.2100768.

Brown Weiss, Edith. 1998. 'Understanding Compliance with International Environmental Agreements: The Baker's Dozen Myths'. University of Richmond Law Review 32 (5): 1555.

Brown Weiss, Edith, and Harold K. Jacobson, eds. 1998. Engaging countries: strengthening compliance with international environmental accords. Cambridge, Mass.: MIT Press.

Burgess, Georgie. 2017. 'Turnbull Outlines Vision for Tasmania to Become "Battery of Australia"'. ABC News, 20 April 2017. https://www.abc.net.au/news/2017-04-20/tasmania-hydo-power-output-to-double-under-plan-to-reuse-water/8457572.

Bursens, Peter. 2002. 'Why Denmark and Belgium Have Different Implementation Records: On Transposition Laggards and Leaders in the EU'. Scandinavian Political Studies 25 (2): 173–95. https://doi.org/10.1111/1467-9477.00068.

Cappelletti, Fabio, Manuel Fischer, and Pascal Sciarini. 2014. '"Let's Talk Cash": Cantons' Interests and the Reform of Swiss Federalism'. Regional & Federal Studies 24 (1): 1–20. https://doi.org/10.1080/13597566.2013.808627.

Carrubba, Clifford J. 1997. 'Net Financial Transfers in the European Union: Who Gets What and Why?' The Journal of Politics 59 (2): 469–96. https://doi.org/10.1017/S0022381600053536.

Chayes, Abram, and Antonia Handler Chayes. 1993. 'On Compliance'. International Organization 47 (2): 175–205. https://doi.org/10.1017/S0020818300027910.

———. 1998. The New Sovereignty: Compliance with International Regulatory Agreements. Cambridge, Mass: Harvard University Press. https://doi.org/10.2307/j.ctv1pncs3m.

Chayes, Abram, Antonia Handler Chayes, and Ronald D. Mitchell. 1998. 'Managing Compliance: A Comparative Perspective'. In Engaging Countries: Strengthening Compliance with International Environmental Accords, edited by Edith Brown Weiss and Harold K. Jacobson, 39–62. Cambridge, Mass.: MIT Press.

Christoff, Peter. 2021. 'Australia Is Undermining the Paris Agreement, No Matter What Morrison Says – We Need New Laws to Stop This'. The Conversation. 20 October 2021. http://theconversation.com/australia-is-undermining-the-paris-agreement-no-matter-what-morrison-says-we-need-new-laws-to-stop-this-170198.

Climate Works Australia. 2021. 'State and Territory Climate Action: Leading Policies and Programs in Australia.' Melbourne.

Crepaz, Markus M L. 1995. ‘Explaining National Variations of Air Pollution Levels: Political Institutions and Their Impact on Environmental Policy-Making’. Environmental Politics 4 (3): 391–414. https://doi.org/10.1080/09644019508414213.

Davies, Anne. 2019. ‘NSW Election: Nationals’ Hold on Environment Policy Drags down Coalition’. The Guardian, 6 March 2019. https://www.theguardian.com/australia-news/2019/mar/07/koalas-and-climate-to-the-fore-as-environment-looms-large-in-nsw-election.

Davis, Christina L. 2008. ‘Linkage Diplomacy: Economic and Security Bargaining in the Anglo-Japanese Alliance, 1902-23’. International Security 33 (3): 143–79.

Demski, Christina, Stuart Capstick, Nick Pidgeon, Robert Gennaro Sposato, and Alexa Spence. 2017. ‘Experience of Extreme Weather Affects Climate Change Mitigation and Adaptation Responses’. Climatic Change 140 (2): 149–64. https://doi.org/10.1007/s10584-016-1837-4.

Downs, George W., David M. Rocke, and Peter N. Barsoom. 1996. ‘Is the Good News about Compliance Good News about Cooperation?’ International Organization 50 (3): 379–406. https://doi.org/10.1017/S0020818300033427.

Durkee, Alison. 2021. ‘Texas Governor Vows To Sue Biden Over Climate Change Orders’. Forbes, 28 January 2021. https://www.forbes.com/sites/alisondurkee/2021/01/28/texas-governor-abbott-vows-to-sue-biden-over-climate-change-orders/.

Duşa, Adrian. 2022. ‘Critical Tension: Sufficiency and Parsimony in QCA’. Sociological Methods & Research 51 (2): 541–65. https://doi.org/10.1177/0049124119882456.

Eaton, Kent, and Arjan H. Schakel. 2022. ‘Interconnected Multilevel Governance: Regional Governments in Europe and Beyond’. Regional & Federal Studies 32 (3): 255–75. https://doi.org/10.1080/13597566.2022.2059471.

Eckstein, Harry. 1975. ‘Case Studies and Theory in Political Science’. In Handbook of Political Science Vol. 7, by Fred I. Greenstein and Nelson W. Polsby, 79–138. Reading: Addison-Wesley.

Ehlert, Niels, Annika Hennl, and André Kaiser. 2007. ‘Föderalismus, Dezentralisierung und Performanz. Eine makroquantitative Analyse der Leistungsfähigkeit territorialer Politikorganisation in entwickelten Demokratien’. Politische Vierteljahresschrift 48 (2): 243–68. https://doi.org/10.1007/s11615-007-0046-1.

Elazar, Daniel J. 1987. Exploring Federalism. Tuscaloosa: University of Alamaba Press.

———. 1995. ‘Federalism’. In The Encyclopedia of Democracy, edited by Seymour Martin Lipset, 472–82. London: Routledge.

Erk, Jan. 2004. ‘Austria: A Federation without Federalism’. Publius 34 (1): 1–20. https://doi.org/10.1093/oxfordjournals.pubjof.a005016.

Escobar-Pemberthy, Natalia, and Maria Ivanova. 2020. 'Implementation of Multilateral Environmental Agreements: Rationale and Design of the Environmental Conventions Index'. Sustainability 12 (17): 7098. https://doi.org/10.3390/su12177098.

European Council. 2014. 'Conclusions (EUCO 169/14)'.

Eurostat. 2008. 'NACE Rev. 2. Statistical Classification of Economic Activities in the European Community'. Luxembourg. https://ec.europa.eu/eurostat/documents/3859598/5902521/KS-RA-07-015-EN.PDF.

———. 2022a. 'GDP and Main Components (Output, Expenditure and Income)'. 2022. https://ec.europa.eu/eurostat/databrowser/view/nama_10_gdp/default/table?lang=en.

———. 2022b. 'National Accounts Aggregates by Industry (up to NACE A*64)'. 2022. https://ec.europa.eu/eurostat/databrowser/view/nama_10_a64/default/table?lang=en.

———. 2022c. 'Population on 1 January'. 2022. https://ec.europa.eu/eurostat/databrowser/view/tps00001/default/table?lang=en.

Evans, Peter, Harold K. Jacobson, and Robert D. Putnam, eds. 1993. Double-Edged Diplomacy: International Bargaining and Domestic Politics. Berkley: University of California Press.

Fabbrini, Sergio. 2017. 'Intergovernmentalism in the European Union. A Comparative Federalism Perspective'. Journal of European Public Policy 24 (4): 580–97. https://doi.org/10.1080/13501763.2016.1273375.

Faulkner, Sandra L., and Stormy P. Trotter. 2017. 'Data Saturation'. In The International Encyclopedia of Communication Research Methods (Online Edition), edited by Jörg Matthes, 1–2. Hoboken, NJ: Wiley Blackwell. https://doi.org/10.1002/9781118901731.iecrm0060.

Fearon, James D. 1994. 'Domestic Political Audiences and the Escalation of International Disputes'. American Political Science Review 88 (3): 577–92. https://doi.org/10.2307/2944796.

Fedorowytsch, Tom. 2018a. 'Liberals Apologise for $300 Energy Savings "confusion" after Ad Ruled Misleading'. ABC News, 14 March 2018. https://www.abc.net.au/news/2018-03-15/liberals-apologise-for-misleading-public-over-energy-policy/9550238.

———. 2018b. 'What Did Steven Marshall Promise to Do If Elected?' ABC News, 19 March 2018. https://www.abc.net.au/news/2018-03-19/heres-what-steven-marshall-has-promised/9562270.

Ferguson, Ian, and Cherukat Chandrasekharan. 2012. 'Paths and Pitfalls of Decentralization for Sustainable Forest Management: Experiences of the Asia Pacific Region'. In The Politics of Decentralization: Forests, Power and People, edited by Carol J. Pierce Colfer and Doris Capistrano, 63–85. Trowbridge: Cromwell Press.

Fife, Robert. 2016. 'Saskatchewan Premier Slams Ottawa's Plan to Ratify Paris Climate Pact; The Landmark Accord Only Comes into Legal Force after 55 Countries Representing 55 per

Cent of Global Greenhouse Gas Emissions Formally Ratify'. The Globe and Mail, 16 September 2016. https://www.theglobeandmail.com/news/national/canada-to-ratify-paris-climate-accord-prior-to-working-out-plan-with-provinces/article31931645/.

First Ministers' Meeting. 2016a. 'Vancouver Declaration on Clean Growth and Climate Change'.

———. 2016b. 'Pan-Canadian Framework on Clean Growth and Climate Change'.

Fossum, John Erik. 2018. 'The European Union and Canada Compared'. In The Handbook of Canadian Public Administration, edited by Christopher Dunn, 501–13. Oxford: Oxford University Press.

Fossum, John Erik, and Markus Jachtenfuchs, eds. 2017. 'Federal Challenges and Challenges to Federalism. Insights from the EU and Federal States'. Journal of European Public Policy 24 (4): 467–85. https://doi.org/10.1080/13501763.2016.1273965.

———, eds. 2018. Federal Challenges and Challenges to Federalism. Journal of European Public Policy Series. London: Routledge, Taylor & Francis Group.

Freudlsperger, Christian. 2018. 'More Voice, Less Exit: Sub-Federal Resistance to International Procurement Liberalization in the European Union, the United States and Canada'. Journal of European Public Policy 25 (11): 1686–1705. https://doi.org/10.1080/13501763.2017.1343370.

Fuentes-Albero, Cristina, and Santiago J. Rubio. 2010. 'Can International Environmental Cooperation Be Bought?' European Journal of Operational Research 202 (1): 255–64. https://doi.org/10.1016/j.ejor.2009.05.006.

Galligan, Brian, and John S. F. Wright. 2002. 'Australian Federalism: A Prospective Assessment'. Publius 32 (2): 147–66. https://doi.org/10.1093/oxfordjournals.pubjof.a004940.

George, Alexander L. 1979. 'Case Studies and Theory Development. The Method of Structured, Focused Comparison'. In Diplomacy. New Approaches in History, Theory and Policy, edited by Paul Lauren, 43–68. New York: Free Press.

George, Alexander L., and Andrew Bennett. 2005. Case Studies and Theory Development in the Social Sciences. Cambridge, Mass.: MIT Press.

Giraudy, Agustina, Eduardo Moncada, and Richard Snyder, eds. 2019. Inside Countries: Subnational Research in Comparative Politics. Cambridge: Cambridge University Press. https://doi.org/10.1017/9781108678384.

Giraudy, Agustina, and Sara Niedzwiecki. 2022. 'Multi-Level Governance and Subnational Research: Similarities, Differences, and Knowledge Accumulation in the Study of Territorial Politics'. Regional & Federal Studies 32 (3): 393–411. https://doi.org/10.1080/13597566.2021.1941900.

Glanville, Brigid. 2019. ‘Climate Change Policies Major Battleground in NSW Election’. ABC News, 3 March 2019. https://www.abc.net.au/news/2019-03-04/climate-change-policies-major-battleground-in-nsw-election/10865732.

Goertz, Gary. 2006. ‘Assessing the Trivialness, Relevance, and Relative Importance of Necessary or Sufficient Conditions in Social Science’. Studies in Comparative International Development 41 (2): 88–109. https://doi.org/10.1007/BF02686312.

Goertz, Gary, and James Mahoney. 2012. A Tale of Two Cultures: Qualitative and Quantitative Research in the Social Sciences. Princeton, N.J.: Princeton University Press.

Gordon, David, and Douglas Macdonald. 2014. ‘Institutional Strength, Intergovernmental Relations, and National Climate Policy Coordination: Australia and Canada Compared’. In Multilevel Environmental Governance. Managing Water and Climate Change in Europe and North America, edited by Inger Weibust and James Meadowcroft, 154–80. Cheltenham: Edward Elgar Publishing.

Government of Canada. 2015. ‘Canada’s INDC to the UNFCCC’.

———. 2022a. ‘Dairy Direct Payment Program’. 16 December 2022. https://agriculture.canada.ca/en/programs/dairy-direct-payment.

———. 2022b. ‘Dairy Processing Investment Fund’. 30 December 2022. https://agriculture.canada.ca/en/programs/dairy-processing-investment-fund.

Government of Latvia & European Commission. 2015. ‘Intended Nationally Determined Contribution of the EU and Its Member States’.

Greckhamer, Thomas, Santi Furnari, Peer C. Fiss, and Ruth V. Aguilera. 2018. ‘Studying Configurations with Qualitative Comparative Analysis: Best Practices in Strategy and Organization Research’. Strategic Organization 16 (4): 482–95. https://doi.org/10.1177/1476127018786487.

Harmsen, Nick, and Isabel Dayman. 2017. ‘SA Opposition Releases $100m Home Battery Plan to “Reduce Energy Costs”’. ABC News, 9 October 2017. https://www.abc.net.au/news/2017-10-10/sa-opposition-releases-$100m-home-battery-plan/9032900.

Haverland, Markus. 2000. ‘National Adaptation to European Integration: The Importance of Institutional Veto Points’. Journal of Public Policy 20 (1): 83–103. https://doi.org/10.1017/S0143814X00000763.

Hays, Jude C., Sean D. Ehrlich, and Clint Peinhardt. 2005. ‘Government Spending and Public Support for Trade in the OECD: An Empirical Test of the Embedded Liberalism Thesis’. International Organization 59 (2): 473–94. https://doi.org/10.1017/S0020818305050150.

Helm, Carsten, and Detlef Sprinz. 2000. ‘Measuring the Effectiveness of International Environmental Regimes’. Journal of Conflict Resolution 44 (5): 630–52. https://doi.org/10.1177/0022002700044005004.

Henisz, Witold. 2002. ‘The Institutional Environment for Infrastructure Investment’. Industrial and Corporate Change 11 (2): 355–89. https://doi.org/10.1093/icc/11.2.355.

Hessou, Helyoth, and Van Son Lai. 2017. ‘Basel III Capital Buffer Requirements and Credit Union Prudential Regulation: Canadian Evidence’. Journal of Financial Stability 30: 92–110. https://doi.org/10.1016/j.jfs.2017.05.002.

Hille, Peter, and Christoph Knill. 2006. ‘“It’s the Bureaucracy, Stupid”: The Implementation of the Acquis Communautaire in EU Candidate Countries, 1999-2003’. European Union Politics 7 (4): 531–52. https://doi.org/10.1177/1465116506069442.

Hix, Simon. 1994. ‘The Study of the European Community: The Challenge to Comparative Politics’. West European Politics 17 (1): 1–30. https://doi.org/10.1080/01402389408424999.

Hooghe, Liesbet, Gary N. Marks, and Arjan H. Schakel. 2010. The Rise of Regional Authority: A Comparative Study of 42 Democracies. London: Taylor & Francis Group.

Hooghe, Liesbet, Gary Marks, Arjan H. Schakel, Sandra Chapman-Osterkatz, Sara Niedzwiecki, and Sarah Shair-Rosenfield. 2016. Measuring Regional Authority: A Postfunctionalist Theory of Governance, Volume I. Oxford: Oxford University Press.

Houle, David, Erick Lachapelle, and Barry G. Rabe. 2014. ‘Climate Compared. Sub-Federal Dominance on a Global Issue’. In Comparing Canada. Methods and Perspectives on Canadian Politics, by Luc Turgeon, Martin Papillon, Jennifer Wallner, and Stephen White, 222–46. Vancouver: University of British Columbia Press.

Hueglin, Thomas O., and Alan Fenna. 2015. Comparative Federalism. A Systematic Inquiry. 2nd ed. Toronto: University of Toronto Press.

Humphries, Alexandra. 2018. ‘Energy Companies Warned Liberals against Electricity De-Linking before Tasmanian Poll’. ABC News, 12 July 2018. https://www.abc.net.au/news/2018-07-12/energy-bodies-warned-liberals-against-electricity-de-linking/9986432.

Hurrell, Andrew, and Anand Menon. 1996. ‘Politics like Any Other? Comparative Politics, International Relations and the Study of the EU’. West European Politics 19 (2): 386–402. https://doi.org/10.1080/01402389608425139.

Immergut, Ellen M. 1990. ‘Institutions, Veto Points, and Policy Results: A Comparative Analysis of Health Care’. Journal of Public Policy 10 (4): 391–416. https://doi.org/10.1017/S0143814X00006061.

Jacobson, Harold K., and Edith Brown Weiss. 1995. ‘Strengthening Compliance with International Environmental Accords: Preliminary Observations from a Collaborative Project’. Global Governance: A Review of Multilateralism and International Organizations 1 (2): 119–48. https://doi.org/10.1163/19426720-001-02-90000002.

Jahn, Detlef. 1998. ‘Environmental Performance and Policy Regimes: Explaining Variations in 18 OECD-Countries’. Policy Sciences 31 (2): 107–31. https://doi.org/10.1023/A:1004385005999.

Jänicke, Martin. 2014. ‘Multi-Level Reinforcement in Climate Governance’. In Im Hürdenlauf zur Energiewende, edited by Achim Brunnengräber and Maria Rosaria Di Nucci, 35–47. Wiesbaden: Springer VS. https://doi.org/10.1007/978-3-658-06788-5_2.

Jensen, Christian B. 2007. ‘Implementing Europe: A Question of Oversight’. European Union Politics 8 (4): 451–77. https://doi.org/10.1177/1465116507082810.

Jensen, Christian B., and Jae-Jae Spoon. 2011. ‘Testing the ‘Party Matters’ Thesis: Explaining Progress Towards Kyoto Protocol Targets’. Political Studies 59 (1): 99–115. https://doi.org/10.1111/j.1467-9248.2010.00852.x.

Jentges, Erik. 2017. ‘Leadership Capital: A Bourdieuian Reinterpretation’. In The Leadership Capital Index: A New Perspective on Political Leadership, edited by Mark Bennister, Ben Worthy, and Paul ’t Hart, 1:263–78. Oxford: Oxford University Press. https://doi.org/10.1093/oso/9780198783848.003.0014.

Kabir, Muhammad. 2019. ‘The Role of Side Payments in the Formation of Asymmetric Alliances: Forging the US–Pakistan Alliance’. Journal of Asian Security and International Affairs 6 (2): 162–88. https://doi.org/10.1177/2347797019842430.

Kaeding, Michael. 2006. ‘Determinants of Transposition Delay in the European Union’. Journal of Public Policy 26 (3): 229–53. https://doi.org/10.1017/S0143814X06000547.

———. 2008. ‘Lost in Translation or Full Steam Ahead: The Transposition of EU Transport Directives across Member States’. European Union Politics 9 (1): 115–43. https://doi.org/10.1177/1465116507085959.

Kahwati, Leila C., and Heather L. Kane. 2020. Qualitative Comparative Analysis in Mixed Methods Research and Evaluation. Los Angeles: SAGE.

Kaiser, André. 1997. ‘Types of Democracy: From Classical to New Institutionalism’. Journal of Theoretical Politics 9 (4): 419–44. https://doi.org/10.1177/0951692897009004001.

———. 2002. Mehrheitsdemokratie Und Institutionenreform. Verfassungspolitischer Wandel in Australien, Großbritannien, Kanada Und Neuseeland Im Vergleich. Frankfurt: Campus.

Kaufmann, Bill. 2021. ‘Defending Alberta’s Interests; Kenney Warns Ottawa against Using Caps on Emissions to Hamstring Energy Industry’. The Edmonton Sun, 2 November 2021.

Kelemen, R. Daniel. 2003. ‘The structure and dynamics of EU federalism’. Comparative Political Studies 36(1/2): 184–208. https://doi.org/10.1177/0010414002239376

———. 2004. The Rules of Federalism: Institutions and Regulatory Politics in the EU and Beyond. Cambridge, Mass: Harvard University Press.

Keman, Hans. 2000. ‘Federalism and Policy Performance. A Conceptual and Empirical Inquiry’. In Federalism and Political Performance, edited by Ute Wachendorfer-Schmidt, 196–227. London: Routledge.

Keohane, Robert O., and Joseph S. Nye. 1977. Power and Interdependence: World Politics in Transition. Boston: Little, Brown.

Key, Nigel, and Gregoire Tallard. 2012. ‘Mitigating Methane Emissions from Livestock: A Global Analysis of Sectoral Policies’. Climatic Change 112 (2): 387–414. https://doi.org/10.1007/s10584-011-0206-6.

Khan, Mehreen. 2019. ‘Polish and Czech Leaders Resist EU Net Zero Emission Target of 2050’. Financial Times, 13 December 2019.

Kincaid, John. 2001. ‘Economic Policy-Making: Advantages and Disadvantages of the Federal Model’. International Social Science Journal 53 (167): 85–92. https://doi.org/10.1111/1468-2451.00296.

King, Preston. 1982. Federalism and Federation. Baltimore: Johns Hopkins University Press.

Kleider, Hanna, and Simon Toubeau. 2022. ‘Public Policy in Multi-Level Systems: A New Research Agenda for the Study of Regional-Level Policy’. Regional & Federal Studies 32 (3): 277–305. https://doi.org/10.1080/13597566.2021.2018681.

Knill, Christoph, Marc Debus, and Stephan Heichel. 2010. ‘Do Parties Matter in Internationalised Policy Areas? The Impact of Political Parties on Environmental Policy Outputs in 18 OECD Countries, 1970-2000’. European Journal of Political Research 49 (3): 301–36. https://doi.org/10.1111/j.1475-6765.2009.01903.x.

König, Thomas, and Brooke Luetgert. 2009. ‘Troubles with Transposition? Explaining Trends in Member-State Notification and the Delayed Transposition of EU Directives’. British Journal of Political Science 39 (1): 163–94. https://doi.org/10.1017/S0007123408000380.

Krogslund, Chris, Donghyun Danny Choi, and Mathias Poertner. 2015. ‘Fuzzy Sets on Shaky Ground: Parameter Sensitivity and Confirmation Bias in FsQCA’. Political Analysis 23 (1): 21–41. https://doi.org/10.1093/pan/mpu016.

Lehman, Howard P., and Jennifer L. McCoy. 1992. ‘The Dynamics of the Two-Level Bargaining Game: The 1988 Brazilian Debt Negotiations’. World Politics 44 (4): 600–644. https://doi.org/10.2307/2010489.

Lehmann, Pola, Tobias Burst, Theres Matthieß, Sven Regel, Andrea Volkens, Bernhard Weßels, Lisa Zehnter, and Wissenschaftszentrum Berlin Für Sozialforschung (WZB). 2022. ‘The Manifesto Data Collection. Manifesto Project (MRG/CMP/MARPOR). Version 2022a’. Berlin: Wissenschaftszentrum Berlin für Sozialforschung (WZB). https://doi.org/10.25522/MANIFESTO.MPDS.2022A.

Levy, Jack S. 2008. ‘Case Studies: Types, Designs, and Logics of Inference’. Conflict Management and Peace Science 25 (1): 1–18. https://doi.org/10.1080/07388940701860318.

Levy, Marc A., Oran R. Young, and Michael Zürn. 1995. ‘The Study of International Regimes’. European Journal of International Relations 1 (3): 267–330. https://doi.org/10.1177/1354066195001003001.

Lijphart, Arend. 2012. Patterns of Democracy. Government Forms and Performance in Thirty-Six Countries. Second edition. New Haven: Yale University Press.

Linos, Katerina. 2007. ‘How Can International Organizations Shape National Welfare States?: Evidence From Compliance With European Union Directives’. Comparative Political Studies 40 (5): 547–70. https://doi.org/10.1177/0010414005285756.

Loewen, Claire. 2018. ‘New NAFTA Deal Worries Quebec Dairy Farmers, Politicians’. CBC News, 1 October 2018. https://www.cbc.ca/news/canada/montreal/nafta-usmca-quebec-reax-1.4845519.

Lowry, William R. 1991. The Dimensions of Federalism: State Governments and Pollution Control Policies. Durham, NC: Duke University Press.

Macdonald, Douglas. 2014. ‘Allocating Greenhouse Gas Emission Reductions amongst Sectors and Jurisdictions in Federated Systems: The European Union, Germany and Canada’. In Multilevel Environmental Governance. Managing Water and Climate Change in Europe and North America, edited by Inger Weibust and James Meadowcroft, 181–212. Cheltenham: Edward Elgar Publishing.

———. 2020. Carbon Province, Hydro Province. Toronto: University of Toronto Press.

Mackie, John L. 1965. ‘Causes and Conditions’. American Philosophical Quarterly 2 (4): 245–64.

Madden, Nathan J. 2014. ‘Green Means Stop: Veto Players and Their Impact on Climate-Change Policy Outputs’. Environmental Politics 23 (4): 570–89. https://doi.org/10.1080/09644016.2014.884301.

Maddox, Garry. 2019. ‘Premier Announces No-Interest Loan Scheme to Boost Solar Power’. The Sydney Morning Herald, 10 February 2019. https://www.smh.com.au/politics/nsw/premier-announces-no-interest-loan-scheme-to-boost-solar-power-20190210-p50wu0.html.

Mayer, Frederick W. 1992. ‘Managing Domestic Differences in International Negotiations: The Strategic Use of Internal Side-Payments’. International Organization 46 (4): 793–818. https://doi.org/10.1017/S0020818300033257.

Mayrand, Hélène, and Josiane Rioux Collin. 2017. ‘Le Partage Des Compétences En Environnement Au Canada’. In L’action Publique Environnementale Au Québec : Entre Local et Mondial, edited by Annie Chaloux, 75–90. Montréal: Presses de l’Université de Montréal.

Mbaye, Heather A. D. 2001. ‘Why National States Comply with Supranational Law: Explaining Implementation Infringements in the European Union, 1972-1993’. European Union Politics 2 (3): 259–81. https://doi.org/10.1177/1465116501002003001.

McConnell, Dylan. 2018. ‘Does SA Really Have the Highest Prices and Least Reliable Grid?’ ABC News, 14 March 2018. https://www.abc.net.au/news/2018-03-14/the-conversation-fact-check-does-sa-have-highest-energy-prices/9546506.

McGregor, Janyce. 2017. ‘Canada-EU Trade Deal’s July 1 Target Threatened by New Cheese Dispute’. CBC News, 14 June 2017. https://www.cbc.ca/news/politics/canada-eu-cheese-ceta-1.4159465.

———. 2018a. ‘Canada’s Dairy Sacrifices “make Trade Deals Happen,” but at What Cost?’ CBC News, 2 October 2018. https://www.cbc.ca/news/politics/tuesday-dairy-nafta-usmca-next-1.4845810.

———. 2018b. ‘Dairy Industry Fears “death by 1,000 Cuts” through New Trade Deal’. CBC News, 2 October 2018. https://www.cbc.ca/news/politics/tuesday-dairy-nafta-usmca-next-1.4845810.

Mello, Patrick A. 2021. Qualitative Comparative Analysis: An Introduction to Research Design and Application. Washington, DC: Georgetown University Press.

Michelmann, Hans, ed. 2009. Foreign Relations in Federal Countries. Montréal: McGill-Queen’s University Press.

Mildenberger, Matto, Peter Howe, Erick Lachapelle, Jennifer Marlon, Anthony Leiserowitz, Leah Stokes, and Xinran Wang. 2019. ‘Canadian Climate Opinion Maps 2018’. Yale Program on Climate Change Communication. 21 November 2019. https://climatecommunication.yale.edu/visualizations-data/ccom/.

Montpetit, Éric. 2008. ‘A Quantitative Analysis of the Comparative Turn in Canadian Political Science’. In The Comparative Turn in Canadian Political Science, edited by Linda White, Richard Simeon, Robert Vipond, and Jennifer Wallner, 17–40. Vancouver: University of British Columbia Press.

Montreal Gazette. 2018. ‘Legault Dismisses Alberta Backlash over “dirty Energy” Comment’, 17 December 2018. https://montrealgazette.com/news/quebec/legault-dismisses-alberta-backlash-over-dirty-energy-comment.

Moravcsik, Andrew. 1991. ‘Negotiating the Single European Act: National Interests and Conventional Statecraft in the European Community’. International Organization 45 (1): 19–56. https://doi.org/10.1017/S0020818300001387.

———. 1993. ‘Preferences and Power in the European Community: A Liberal Intergovernmentalist Approach’. Journal of Common Market Studies 31 (4): 473–524. https://doi.org/10.1111/j.1468-5965.1993.tb00477.x.

Moravcsik, Andrew, and Frank Schimmelfennig. 2019. 'Liberal Intergovernmentalism'. In European Integration Theory, by Antje Wiener, Tanja A. Börzel, and Thomas Risse, 3rd ed., 64–84. Oxford: Oxford University Press.

Moravcsik, Andrew, and Milada Anna Vachudova. 2003. 'National Interests, State Power, and EU Enlargement'. Perspectives, no. 19: 21–31. https://doi.org/10.1177/0888325402239682.

Morgan, Sam. 2019. '18 EU Countries Now Support 2050 Carbon Neutrality Goal'. Euractiv, 17 June 2019. https://www.euractiv.com/section/energy-environment/news/18-eu-countries-sign-up-to-2050-carbon-neutrality-goal/.

Morrow, James D. 2000. 'Alliances: Why Write Them Down?' Annual Review of Political Science, no. 3: 63–83. https://doi.org/10.1146/annurev.polisci.3.1.63.

Morse, Janice M., Michael Barrett, Maria Mayan, Karin Olson, and Jude Spiers. 2002. 'Verification Strategies for Establishing Reliability and Validity in Qualitative Research'. International Journal of Qualitative Methods 1 (2): 13–22. https://doi.org/10.1177/160940690200100202.

Müller Gómez, Johannes, Alexander Hoppe, and Louis-Robert Beaulieu-Guay. 2022. 'The Comparative Turn in European Union Studies'. Presented at European Union Studies Association Conference, May 2022.

OECD. 2023. 'Subnational Governments in OECD Countries: Key Data'. 2023. https://stats.oecd.org/Index.aspx?DataSetCode=SNGF#.

Oppermann, Kai, and Klaus Brummer. 2017. 'Veto Player Approaches in Foreign Policy Analysis'. In Oxford Research Encyclopedia of Politics, by Kai Oppermann and Klaus Brummer, 1–22. Oxford University Press. https://doi.org/10.1093/acrefore/9780190228637.013.386.

Painter, Martin. 1998. Collaborative Federalism: Economic Reform in Australia in the 1990s. Reshaping Australian Institutions. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511552236.

Paquin, Stéphane. 2010. 'Federalism and Compliance with International Agreements: Belgium and Canada Compared'. The Hague Journal of Diplomacy 5 (1–2): 173–97. https://doi.org/10.1163/1871191x-05010108.

Phillimore, John, and Alan Fenna. 2017. 'Intergovernmental Councils and Centralization in Australian Federalism'. Regional & Federal Studies 27 (5): 597–621. https://doi.org/10.1080/13597566.2017.1389723.

Phillimore, John, and Jeffrey Harwood. 2015. 'Intergovernmental Relations in Australia: Increasing Engagement within a Centralizing Dynamic'. In Intergovernmental Relations in Federal Systems. Comparative Structures and Dynamics, edited by Johanne Poirier, Cheryl Saunders, and John Kincaid, 42–80. Don Mills: Oxford University Press.

Poast, Paul. 2012. ‘Does Issue Linkage Work? Evidence from European Alliance Negotiations, 1860 to 1945’. International Organization 66 (2): 277–310. https://doi.org/10.1017/S0020818312000069.

Poirier, Johanne, Cheryl Saunders, and John Kincaid, eds. 2015. Intergovernmental Relations in Federal Systems. Comparative Structures and Dynamics. Don Mills: Oxford University Press.

Poloni-Staudinger, Lori M. 2008. ‘Are Consensus Democracies More Environmentally Effective?’ Environmental Politics 17 (3): 410–30. https://doi.org/10.1080/09644010802055634.

Putnam, Robert D. 1988. ‘Diplomacy and Domestic Politics: The Logic of Two-Level Games’. International Organization 42 (3): 427–60. https://doi.org/10.1017/S0020818300027697.

Ragin, Charles C. 2008. Redesigning Social Inquiry: Fuzzy Sets and Beyond. Chicago: University of Chicago Press.

Ragin, Charles C., and Sean Davey. 2022. ‘Fuzzy-Set/Qualitative Comparative Analysis 4.0’. Irvine, California: Department of Sociology, University of California.

Raustiala, Kal, and David G. Victor. 1998. ‘Conclusions’. In The Implementation and Effectiveness of International Environmental Commitments. Theory and Practice, edited by David G. Victor, Kal Raustiala, and Skolnikoff, 659–707. Cambridge, Mass: MIT Press.

Ribot, Jesse C. 2002. Democratic Decentralization of Natural Resources. Institutionalizing Popular Participation. Washington, DC: World Resources Institute. https://doi.org/10.1057/9781403981288_6.

Rihoux, Benoît. 2003. ‘Bridging the Gap between the Qualitative and Quantitative Worlds? A Retrospective and Prospective View on Qualitative Comparative Analysis’. Field Methods 15 (4): 351–65. https://doi.org/10.1177/1525822X03257690.

Riker, William H. 1964. Federalism. Origin. Operation. Significance. Boston: Little, Brown and Company.

Ringquist, Evan J. 1993. Environmental Protection at the State Level: Politics and Progress in Controlling Pollution: Politics and Progress in Controlling Pollution. London: Routledge. https://doi.org/10.4324/9781315288017.

Rodden, Jonathan. 2004. ‘Comparative Federalism and Decentralization: On Meaning and Measurement’. Comparative Politics 36 (4): 481. https://doi.org/10.2307/4150172.

Rubinson, Claude, Lasse Gerrits, Roel Rutten, and Thomas Greckhamer. 2019. ‘Avoiding Common Errors in QCA: A Short Guide for New Practitioners’. COMPASSS Research Network, July. https://compasss.org/wp-content/uploads/2019/07/Common_Errors_in_QCA.pdf.

Sælen, Håkon. 2016. ‘Side-Payments: An Effective Instrument for Building Climate Clubs?’ International Environmental Agreements: Politics, Law and Economics 16 (6): 909–32. https://doi.org/10.1007/s10784-015-9311-8.

Sbragia, Alberta M. 1993. ‘The European Community: A Balancing Act’. Publius 23 (3): 23–38. https://doi.org/10.2307/3330840.

Scharpf, Fritz W. 1988. ‘The Joint Decision-Trap: Lessons from German Federalism and European Integration’. Public Administration 66 (3): 239–78. https://doi.org/10.1111/j.1467-9299.1988.tb00694.x.

———. 2006. ‘The Joint-Decision Trap Revisited’. Journal of Common Market Studies 44 (4): 845–64. https://doi.org/10.1111/j.1468-5965.2006.00665.x.

Schertzer, Robert, Andrew McDougall, and Grace Skogstad. 2016. ‘Collaboration and Unilateral Action’. IRPP Study, no. 62.

Schneider, Carsten Q., and Ingo Rohlfing. 2013. ‘Combining QCA and Process Tracing in Set-Theoretic Multi-Method Research’. Sociological Methods & Research 42 (4): 559–97. https://doi.org/10.1177/0049124113481341.

Schneider, Carsten Q., and Claudius Wagemann. 2010. ‘Standards of Good Practice in Qualitative Comparative Analysis (QCA) and Fuzzy-Sets’. Comparative Sociology 9 (3): 397–418. https://doi.org/10.1163/156913210X12493538729793.

———. 2012. Set-Theoretic Methods for the Social Sciences: A Guide to Qualitative Comparative Analysis. Cambridge: Cambridge University Press.

Schreurs, Miranda A. 2003. Environmental Politics in Japan, Germany, and the United States. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511491146.

———. 2008. ‘From the Bottom Up: Local and Subnational Climate Change Politics’. The Journal of Environment & Development 17 (4): 343–55. https://doi.org/10.1177/1070496508326432.

Schreurs, Miranda A., and Yves Tiberghien. 2007. ‘Multi-Level Reinforcement: Explaining European Union Leadership in Climate Change Mitigation’. Global Environmental Politics 7 (4): 19–46. https://doi.org/10.1162/glep.2007.7.4.19.

Schultze, Rainer-Olaf. 1990. ‘Föderalismus als Alternative? Überlegungen zur territorialen Reorganisation von Herrschaft’. Zeitschrift für Parlamentsfragen 21 (3): 475–90. https://doi.org/10.1007/978-3-663-01349-5_7.

Scruggs, Lyle A. 1999. ‘Institutions and Environmental Performance in Seventeen Western Democracies’. British Journal of Political Science 29 (1): 1–31. https://doi.org/10.1017/S0007123499000010.

Shair-Rosenfield, Sarah, Arjan H. Schakel, Sara Niedzwiecki, Gary Marks, Liesbet Hooghe, and Sandra Chapman-Osterkatz. 2021. ‘Language Difference and Regional Authority’. Regional & Federal Studies 31 (1): 73–97. https://doi.org/10.1080/13597566.2020.1831476.

Shipan, Charles R., and Craig Volden. 2006. ‘Bottom-Up Federalism: The Diffusion of Antismoking Policies from U.S. Cities to States’. American Journal of Political Science 50 (4): 825–43. https://doi.org/10.1111/j.1540-5907.2006.00218.x.

Siebert, Bension. 2018. ‘State Govt to Review “Effectiveness” of Carbon Neutral Adelaide’. InDaily, 28 March 2018. https://indaily.com.au/news/2018/03/28/new-govt-to-review-effectiveness-of-carbon-neutral-adelaide/.

Simeon, Richard. 1972. Federal-Provincial Diplomacy: The Making of Recent Policy in Canada. Toronto: University of Toronto Press.

Simmons, Beth A. 1998. ‘Compliance with International Agreements’. Annual Review of Political Science 1 (1): 75–93. https://doi.org/10.1146/annurev.polisci.1.1.75.

Smith, Alastair. 1998. ‘International Crises and Domestic Politics’. American Political Science Review 92 (3): 623–38. https://doi.org/10.2307/2585485.

Sprinz, Detlef F., Håkon Sælen, Arild Underdal, and Jon Hovi. 2018. ‘The Effectiveness of Climate Clubs under Donald Trump’. Climate Policy 18 (7): 828–38. https://doi.org/10.1080/14693062.2017.1410090.

Statistics Canada. 2021a. ‘Gross Domestic Product, Expenditure-Based, Provincial and Territorial, Annual (Table 36-10-0222-01)’. 2021. https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3610022201.

———. 2021b. ‘Population Estimates on July 1st, by Age and Sex (Table 17-10-0005-01)’. 2021. https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1710000501.

———. 2022. ‘Gross Domestic Product (GDP) at Basic Prices, by Industry, Provinces and Territories, Percentage Share (Table 36-10-0400-01)’. 2022. https://www150.statcan.gc.ca/t1/tbl1/en/cv!recreate-nonTraduit.action?pid=3610040001&selectedNodeIds=2D2%2C2D3%2C2D4%2C2D5%2C2D6%2C2D7%2C2D8%2C2D9%2C2D10%2C2D12%2C2D13%2C2D14%2C2D15%2C2D16%2C2D17%2C2D18%2C2D19%2C2D20%2C2D21%2C2D22%2C2D23%2C2D24%2C2D25%2C2D26%2C2D27&checkedLevels=0D1%2C1D1&refPeriods=20210101%2C20210101&dimensionLayouts=layout2%2Clayout3%2Clayout2&vectorDisplay=false&request_locale=en.

Strebel, F. 2011. ‘Inter-Governmental Institutions as Promoters of Energy Policy Diffusion in a Federal Setting’. Energy Policy 39 (1): 467–76. https://doi.org/10.1016/j.enpol.2010.10.028.

Strom, Kaare. 1990. ‘A Behavioral Theory of Competitive Political Parties’. American Journal of Political Science 34 (2): 565–98. https://doi.org/10.2307/2111461.

Supreme Court of Canada. 2021. References: Greenhouse Gas Pollution Pricing Act.

Svitek, Patrick. 2021. ‘Gov. Greg Abbott Says He’ll Fight Joe Biden’s Energy and Climate Agenda’. The Texas Tribune, 28 January 2021. https://www.texastribune.org/2021/01/28/abbott-biden-energy/.

Tanner, Sean. 2014. ‘QCA Is of Questionable Value for Policy Research’. Policy and Society 33 (3): 287–98. https://doi.org/10.1016/j.polsoc.2014.08.003.

Tasker, John Paul. 2018. ‘After Federal Court Quashes Trans Mountain, Rachel Notley Pulls out of National Climate Plan’. CBC News, 30 August 2018. https://www.cbc.ca/news/politics/trans-mountain-federal-court-appeals-1.4804495.

Taylor, Paul. 1980. ‘Interdependence and Autonomy in the European Communities: The Case of the European Monetary System’. Journal of Common Market Studies 18 (4): 370–87. https://doi.org/10.1111/j.1468-5965.1980.tb00853.x.

Taylor, Stephanie. 2021. ‘Ottawa Pushes Back on Ontario, Prairies Crying No Consultation on 2030 Emissions Goal’. CTVNews, 26 April 2021. https://www.ctvnews.ca/climate-and-environment/ottawa-pushes-back-on-ontario-prairies-crying-no-consultation-on-2030-emissions-goal-1.5402880.

Thielemann, Eiko R. 2005. ‘Symbolic Politics or Effective Burden-Sharing? Redistribution, Side-Payments and the European Refugee Fund’. Journal of Common Market Studies 43 (4): 807–24. https://doi.org/10.1111/j.1468-5965.2005.00597.x.

Thomson, Robert. 2007. ‘Time to Comply: National Responses to Six EU Labour Market Directives Revisited’. West European Politics 30 (5): 987–1008. https://doi.org/10.1080/01402380701617407.

Thorlakson, Lori. 2003. ‘Comparing Federal Institutions: Power and Representation in Six Federations’. West European Politics 26 (2): 1–22. https://doi.org/10.1080/01402380512331341081.

———. 2013. ‘Measuring Vertical Integration in Parties with Multi-Level Systems Data’. Party Politics 19 (5): 713–34. https://doi.org/10.1177/1354068811411024.

Tingley, Dustin, and Michael Tomz. 2020. ‘International Commitments and Domestic Opinion: The Effect of the Paris Agreement on Public Support for Policies to Address Climate Change’. Environmental Politics 29 (7): 1135–56. https://doi.org/10.1080/09644016.2019.1705056.

Tomz, Michael. 2007. ‘Domestic Audience Costs in International Relations: An Experimental Approach’. International Organization 61 (4): 821–40. https://doi.org/10.1017/S0020818307070282.

Toplensky, Rochelle. 2019. ‘EU 2050 Climate Target Blocked by Eastern Nations’. Financial Times, 20 June 2019. https://www.ft.com/content/881a50de-936e-11e9-aea1-2b1d33ac3271.

Treib, Oliver. 2003. ‘Die Umsetzung von EU-Richtlinien im Zeichen der Parteipolitik: Eine akteurszentrierte Antwort auf die Misfit-These’. Politische Vierteljahresschrift 44 (4): 506–28. https://doi.org/10.1007/s11615-003-0096-y.

———. 2014. ‘Implementing and Complying with EU Governance Outputs’. Living Reviews in European Governance 9 (1). https://doi.org/10.12942/lreg-2014-1.

Tsebelis, George. 2002. Veto Players. How Political Institutions Work. Princeton, N.J: Princeton University Press.

Turgeon, Luc, Martin Papillon, Jennifer Wallner, and Stephen White, eds. 2014. Comparing Canada. Methods and Perspectives on Canadian Politics. Vancouver: University of British Columbia Press.

Twomey, Anne. 2009. ‘Commonwealth of Australia’. In Foreign Relations in Federal Countries, edited by Hans Michelmann, 37–64. Montreal: McGill-Queen’s University Press.

Varcoe, Chris. 2021. ‘New Resources Minister Seeks Common Ground; Wilkinson Says He’s Confident He Can Find Ways to Work with the Alberta Government’. Edmonton Journal, 30 October 2021.

Vatter, Adrian. 2005. ‘Bicameralism and Policy Performance: The Effects of Cameral Structure in Comparative Perspective’. The Journal of Legislative Studies 11 (2): 194–215. https://doi.org/10.1080/13572330500158607.

Victor, David G., Kal Raustiala, and Skolnikoff, eds. 1998. The Implementation and Effectiveness of International Environmental Commitments. Theory and Practice. Cambridge, Mass: MIT Press.

Vipond, Robert. 2008. ‘Introduction: The Comparative Turn in Canadian Political Science’. In The Comparative Turn in Canadian Political Science, edited by Linda White, Richard Simeon, Robert Vipond, and Jennifer Wallner, 3–16. Vancouver: University of British Columbia Press.

Vogel, David. 1997. ‘Trading up and Governing across: Transnational Governance and Environmental Protection’. Journal of European Public Policy 4 (4): 556–71. https://doi.org/10.1080/135017697344064.

Vogel, David, and Timoty Kessler. 1998. ‘How Compliance Happens and Doesn’t Happen Domestically’. In Engaging Countries: Strengthening Compliance with International Environmental Accords, edited by Edith Brown Weiss and Harold K. Jacobson, 19–38. Cambridge, Mass.: MIT Press.

Wälti, Sonja. 2004. ‘How Multilevel Structures Affect Environmental Policy in Industrialized Countries’. European Journal of Political Research 43 (4): 599–634. https://doi.org/10.1111/j.1475-6765.2004.00167.x.

Watts, Ronald L. 1996. Comparing Federal Systems in the 1990s. Kingston: Queen’s University Institute of Intergovernmental Relations.

———. 2013. ‘Typologies of Federalism’. In Routledge Handbook of Regionalism and Federalism, edited by John Loughlin, John Kincaid, and Wilfried Swenden, 19–33. London: Taylor & Francis Group.

Weber, Bob. 2021. ‘Alberta Government, Opposition Say the Province Should Be Consulted on Emissions Caps’. CTV News, 1 November 2021. https://edmonton.ctvnews.ca/alberta-government-opposition-say-the-province-should-be-consulted-on-emissions-caps-1.5647502.

Welsh, Moira. 2019. ‘SEA CHANGE; Prince Edward Island Has Always Had an Erosion Problem. But as Water Levels Rise and Storms Get Stronger, Islanders Are Seeing Their Beloved Province Shrink at an Alarming Rate’. The Toronto Star, 16 June 2019.

White, Linda, Richard Simeon, Robert Vipond, and Jennifer Wallner, eds. 2008. The Comparative Turn in Canadian Political Science. Vancouver: University of British Columbia Press.

Winfield, Mark, and Douglas Macdonald. 2012. ‘Federalism and Canadian Climate Change Policy’. In Canadian Federalism. Performance, Effectiveness, and Legitimacy, edited by Herman Bakvis and Grace Skogstad, 241–60. Oxford: Oxford University Press.

World Bank. 2022a. ‘GDP per Capita (Constant 2015 US$) - European Union, Canada, Australia’. 2022. https://data.worldbank.org/indicator/NY.GDP.PCAP.KD?end=2015&locations=EU-CA-AU&start=2015.

———. 2022b. ‘Land Area (Sq. Km)’. 2022. https://data.worldbank.org/indicator/AG.LND.TOTL.K2?end=2020&start=2008.

Young, Oran R. 1979. Compliance & Public Authority. A Theory with International Applications. Baltimore: Johns Hopkins University Press.

Zangl, Bernhard. 1995. ‘Der Ansatz der Zwei-Ebenen-Spiele. Eine Brücke zwischen dem Neoinstitutionalismus und seinen KritikerInnen?’ Zeitschrift für Internationale Beziehungen 2 (2): 393–416.

9. Annex

9.1 Annex article #2

Table 9-1 **Government abbreviations**

	Sub-federal government	**Abbreviation**
Australia	New South Wales: Berejiklian	NSW (B)
	Queensland: Palaszczuk	QL (P)
	South Australia: Marshall	SAU (M)
	South Australia: Weatherill	SAU (W)
	Tasmania: Hodgman	TS (H)
	Victoria: Andrews	VC (A)
	Western Australia: McGowan	WA (M)
Canada	Alberta: Kenney	AB (K)
	Alberta: Notley	AB (N)
	British Columbia: Horgan	BC (H)
	Manitoba: Pallister	MB (P)
	New Brunswick: Gallant	NB (G)
	New Brunswick: Higgs	NB (H)
	Newfoundland & Labrador: Ball	NWL (B)
	Nova Scotia: McNeil	NS (M)
	Ontario: Ford	ON (F)
	Ontario: Wynne	ON (W)
	Prince Edward Island: King	PEI (K)
	Prince Edward Island: MacLauchlan	PEI (M)
	Québec: Couillard	QC (C)
	Québec: Legault	QC (L)
	Saskatchewan: Wall	SAK (M)
	Saskatchewan: Moe	SAK (W)
European Union	Belgium: Michel	BE (M)
	Bulgaria: Borisov	BG (B)
	Croatia: Plenković	HR (P)
	Cyprus: Anastasiades I	CY (A1)
	Cyprus: Anastasiades II	CY (A2)
	Czechia: Babiš	CZ (B)
	Czechia: Sobotka	CZ (S)
	Denmark: Frederiksen	DK (F)
	Denmark: Rasmussen	DK (R)
	Estonia: Ratas	EE (R)
	Finland: Marin	FI (M)
	Finland: Sipilä	FI (S)
	France: Macron/Philippe	FR (MP)

	Germany: Merkel	DE (M)
	Greece: Mitsotakis	EL (M)
	Greece: Tsipras	EL (T)
	Hungary: Orbán	HU (O)
	Ireland: Varadkar	IE (V)
	Latvia: Kariņš	LV (Ka)
	Latvia: Kučinskis	LV (Ku)
	Lithuania: Skvernelis	LT (S)
	Luxembourg: Bettel	LU (B)
	Malta: Muscat	MT (M)
	Netherlands: Rutte	NTL (R)
	Poland: Szydło	PL (M)
	Poland: Morawiecki	PL (S)
	Portugal: Costa	PT (C)
	Slovakia: Fico	SLK (F)
	Slovakia: Pellegrini	SLK (P)
	Slovenia: Cerar	SI (C)
	Spain: Rajoy	ES (R)
	Sweden: Löfven	SE (L)

Table 9-2 **Coding of outcome**

Case		Outcome[30]	Indicator coding			Explanation of indicator coding		
		Resistance	**1**	**2**	**3**	**Reaction to federal action**	**Acting in inter-governmental formats**	**Sub-Federal action**
Australia	**New South Wales: Berejiklian**	0.3	0.3	0.3	0.3	• Public criticism of lack of federal action and demand of higher federal target • Cooperation with federal government where possible	• Participation in COAG undertakings to achieve Paris obligations • Support for intergovernmental strategies, such as NEPP	• Pursuit of existing state climate target • Adoption of climate strategy • Expansion of climate action in parallel to partially climate-damaging policies
	Queensland: Palaszczuk	0.2	0.3	0	0.3	• Public criticism of lack of federal action • Commitment to federal Paris obligation	• Participation in COAG undertakings to achieve Paris obligations • Support for intergovernmental strategies, such as NEPP • Open advocacy for intergovernmental approach	• Adoption of climate target and strategy • Climate action in parallel to partially climate-damaging policies • Commitment to Paris objectives
	South Australia: Marshall	0.3	0.3	0.3	0.3	• Public criticism of lack of federal plan • Cooperation with federal government where possible	• Participation in COAG undertakings to achieve Paris obligations • Support for intergovernmental strategies, such as NEPP	• Pursuit of previous climate target • Adoption of climate strategy • Focus on adaptation of existing policies instead of developing new ones
	South Australia: Weatherill	0.2	0.3	0.3	0	• Public criticism of ineffective federal policies	• Participation in COAG undertakings to achieve Paris obligations • Support for	• Adoption of climate target and strategy • Broad range of climate policies

[30] In only two cases, i.e., Prince Edward Island under MacLauchlan and Greece under Tsipras, the calculated average score was 0.5. Here I decided based on their general conduct in comparison to the other cases whether these two governments are slightly more resistant to or supportive of the implementation process.

							intergovernmental strategies, such as NEPP	
	Tasmania: Hodgman	0.43	0.5	0.3	0.5	• Cooperation with federal government on 'battery of the nation' project • No public pressure on or criticism of federal government • Commitment to federal Paris obligation	• Participation in COAG undertakings to achieve Paris obligations • Support for intergovernmental strategies, such as NEPP	• Adoption of ineffective climate target and strategy • Lack of ambitious policies • Commitment to Paris objectives
	Victoria: Andrews	0.3	0.3	0.3	0.3	• Public criticism of lack of federal leadership and federal policies	• Participation in COAG undertakings to achieve Paris obligations • Support for intergovernmental strategies, such as NEPP	• Adoption of effective climate targets and strategy • Partially mixed policy record • Commitment to Paris objectives
	Western Australia: McGowan	0.37	0.3	0.3	0.5	• Public criticism of lack of federal action • Commitment to federal Paris obligation	• Participation in COAG undertakings to achieve Paris obligations • Support for intergovernmental strategies, such as NEPP	• Adoption of climate target and strategy • Climate action in parallel to climate-damaging policies in natural resources sector
Canada	**Alberta: Kenney**	1	1	1	1	• One of the leading governments in public criticism and legal challenges to federal action • Polarising public discourse against federal policies	• Participation in CoF, noting joint commitment to federal Paris obligations • Opt-out from PCF and refusal to comply with PCF • Setting of uncompromising demands	• Lack of climate strategy and target • Rollback of existing policies • Criticism of Paris Agreement
	Alberta: Notley	0.57	0.7	0.7	0.3	• Only conditional support for federal initiatives • Blame of federal government for unmet condition (pipeline project)	• Participation in FFM and CCME, noting joint commitment to federal Paris obligations • Conditional participation in	• No clear climate target, but development of climate strategy • Relevant, but limited climate action

							PCF, then withdrawal from PCF	
	British Columbia: Horgan	0.1	0.3	0	0	• Open support for federal action and target • Commitment to federal Paris obligation • Obstruction of federal side-payment approach to incentivise other provinces	• Participation in CoF, noting joint commitment to federal Paris obligations • Active support for intergovernmental process and PCF	• Adoption of clear climate targets and strategy • Effective climate policies • Commitment to Paris objectives
	Manitoba: Pallister	0.9	0.7	1	1	• Opposition to federal policies, especially carbon pricing, but more conciliatory than other provinces	• Participation in CoF and CCME, noting joint commitment to federal Paris obligations • Initially non-participation in PCF, demand of conditions for joining PCF, finally withdrawal from PCF	• Lack of climate target, adoption of ineffective strategy • Very limited climate action, partial rollback of previous policies
	New Brunswick: Gallant	0.37	0.5	0.3	0.3	• In general, critical support for federal strategy and action	• Participation in FFM and CCME, noting joint commitment to federal Paris obligations • (Passive) support for and participation in PCF	• Adoption of climate target and strategy referring to Paris objectives and federal Paris obligations • Partially mixed policy record
	New Brunswick: Higgs	0.57	0.7	0.5	0.5	• Shift from open opposition to more conciliatory approach regarding federal action • Demand of exemptions from federal decisions for province	• Participation in CoF, noting joint commitment to federal Paris obligations • Passive, partially critical participation in PCF	• Pursuit of previous climate target and policies • Lack of development of new policies
	Newfoundland & Labrador: Ball	0.57	0.7	0.5	0.5	• Critical, but not fundamentally opposed to federal action	• Participation in FFM, CCME and CoF, noting joint commitment to federal Paris obligations • Passive, partially critical participation in PCF	• Adoption of climate target and strategy referring to federal Paris obligation • Pursuit of partially climate-damaging policies

	Nova Scotia: McNeil	0.43	0.7	0.3	0.3	• Support for federal target, but critical position regarding federal policies • Demand of exemptions from federal decisions for province	• Participation in FFM, CCME and CoF, noting joint commitment to federal Paris obligations • General support for and participation in PCF	• Adoption of ambitious climate target • Lack of dedicated climate policies
	Ontario: Ford	0.9	1	1	0.7	• One of the leading governments in public criticism and legal challenges to federal actions • Polarising public discourse against federal policies	• Participation in CoF, noting joint commitment to federal Paris obligations • (de facto) withdrawal from PCF	• Adoption of climate target and strategy referring to federal Paris obligation • Rollback of existing climate policies
	Ontario: Wynne	0	0	0	0	• Open support for federal targets, action and side-payments strategy to mobilise other provinces to take action	• Participation in FFM and CCME, noting joint commitment to federal Paris obligations • Support for and participation in PCF • Advocacy for intergovernmental cooperation	• Adoption of clear climate targets and strategy • Effective climate policies • Support for Paris Agreement
	Prince Edward Island: King	0.3	0.3	0.3	0.3	• General support for federal target and action • Demand of exemptions from federal decisions for province	• Participation in CoF, noting joint commitment to federal Paris obligations • General support for and participation in PCF	• Adoption of ambitious climate targets • Mixed climate policy record
	Prince Edward Island: MacLauchlan	0.49	0.7	0.3	0.5	• Open opposition to federal action, but no active resistance • Commitment to federal Paris obligations	• Participation in FFM and CCME, noting joint commitment to federal Paris obligations • (Partially critical) support for and participation in PCF	• Adoption of climate target and strategy • Mixed climate policy record
	Québec: Couillard	0.2	0.3	0	0.3	• General public support for federal ambition and	• Participation in FFM and CCME, noting joint	• Adoption of climate targets, lack of strategy

						initiatives • Critical position regarding the question of jurisdiction	commitment to federal Paris obligations • Support for and participation in PCF	• Adoption of Paris Agreement • In general, continuation of previous policies
	Québec: Legault	0.37	0.3	0.3	0.5	• General public support for federal ambition and initiatives • Critical position regarding the question of jurisdiction	• Participation in CoF, noting joint commitment to federal Paris obligations • (Passive) support for and participation in PCF • Efforts to persuade opposing provinces to climate action	• Commitment to existing climate target, adoption of strategy • Lack of climate action in relevant sectors • Commitment to Paris objectives
	Saskatchewan: Moe	1	1	1	1	• One of the leading governments in public criticism and legal challenges to federal actions • Attempt to mobilise other provinces against federal government • Polarising public discourse against federal policies	• Participation in CoF, noting joint commitment to federal Paris obligations • Continuous opposition to and opt-out from PCF	• Lack of climate target and effective strategy • Lack of effective policies
	Saskatchewan: Wall	1	1	1	1	• Strong public opposition to federal target and action with highly polarising discourse	• Participation in FFM and CCME, noting joint commitment to federal Paris obligations • Opposition to and opt-out from PCF • Criticism of PCF incentive structure (Leadership Fund)	• Lack of climate target and effective strategy • Lack of effective policies • Criticism of Paris Agreement
European Union	**Belgium: Michel**	0.37	0.3	0.3	0.5	• Part of 'Green Growth Group' • In general, support for initiatives to increase EU climate targets	• Commitment to EU's Paris obligations in EUCO conclusions • Albeit some reluctance, rather pro-climate action role in EU negotiations	• Lack of effective and specific climate strategy • Adoption of several climate policies, but in general, insufficient climate action

	Bulgaria: Borisov	0.63	0.7	0.7	0.5	• Lack of support for proposals to increase EU climate targets • Opposition to extension of existing EU climate policies	• Commitment to EU's Paris obligations in EUCO conclusions • Initial opposition to 2050 climate target and delay of decision on 2030 target • Demand of financial compensations	• Lack of ambitions and policies regarding relevant polluting sectors • Progress regarding increase of share of renewable energies
	Croatia: Plenković	0.63	0.7	0.7	0.5	• In general, scepticism regarding initiatives to increase EU climate targets	• Commitment to EU's Paris obligations in EUCO conclusions • No official support for 2050 climate target before EUCO decision and delay of decision on 2030 target	• Lack of climate ambition • Mixed climate policy record
	Cyprus: Anastasiades (1)	0.57	0.5	0.5	0.7	• General, albeit not active, support for initiatives regarding climate targets • Opposition to proposal on ETS extension	• Commitment to EU's Paris obligations in EUCO conclusions • No predominant role in EU negotiations	• Lack of effective climate strategy • Insufficient dedication to climate action
	Cyprus: Anastasiades (2)	0.57	0.5	0.5	0.7	• General, albeit not active, support for initiatives regarding climate targets • Opposition to proposal on ETS extension	• Commitment to EU's Paris obligations in EUCO conclusions • Support for 2050 climate target • Lack of ambition in specific policy negotiation	• Lack of substantial policies to reduce emissions and increase share of renewables
	Czech Republic: Babiš	0.7	0.7	0.7	0.7	• In general, critical position regarding EU climate action, new targets and proposals to extend existing policies	• Commitment to EU's Paris obligations in EUCO conclusions • Initial opposition to 2050 climate target and delay of decision on 2030 target • Demand of financial	• Lack of effective climate policies • Laggard regarding the regulation of relevant polluting sectors

							compensations	
	Czech Republic: Sobotka	0.63	0.5	0.7	0.7	• No general opposition to proposals on EU climate targets, but advocacy against new rules in certain areas, such as coal	• Commitment to EU's Paris obligations in EUCO conclusions • Regular attempts to weaken legislative proposals in negotiation process	• In general, insufficient climate action and lack of effective policies
	Denmark: Frederiksen	0.2	0	0.3	0.3	• Regular pushing of EU Commission to propose more ambitious climate targets and to extend existing policies	• Commitment to EU's Paris obligations in EUCO conclusions • Key supporter of 2050 climate target • Own commitment conditional upon other member states' actions	• Adoption of a more ambitious 2030 climate target, but lack of ambition for 2050 • Mixed climate policy record
	Denmark: Rasmussen	0.2	0.3	0	0.3	• General support for initiatives to increase climate ambitions • Part of 'Green Growth Group'	• Commitment to EU's Paris obligations in EUCO conclusions • Key supporter of 2050 climate target • In general, pro-climate force in EU negotiations	• Lack of ambitious targets • Adoption of multiple effective climate policies
	Estonia: Ratas	0.37	0.3	0.3	0.5	• Part of 'Green Growth Group' • General support for legislative proposals on climate action	• Commitment to EU's Paris obligations in EUCO conclusions • No predominant role in negotiations, but in principle in favour of EU climate action	• Insufficient climate policies, except for wind farm projects
	Finland: Marin	0.1	0.3	0	0	• Pushing of EU Commission for higher climate targets • General support for proposals to extend EU climate action	• Commitment to EU's Paris obligations in EUCO conclusions • Pro-climate force in EU negotiations	• Adoption of ambitious climate targets • Climate action as one of the government key priorities

	Finland: Sipilä	0.3	0.3	0.3	0.3	• Part of 'Green Growth Group' • General support of climate action proposals • Lobby against stricter rules for power plants	• Commitment to EU's Paris obligations in EUCO conclusions • Key supporter of 2050 climate target • Rather pro-climate action role in EU negotiations, partially subject to conditions	• Adoption of multiple climate action initiatives
	France: Macron & Philippe	0.27	0	0.3	0.5	• Part of 'Green Growth Group' • Regular pushing of EU Commission for higher climate targets and new policies	• Commitment to EU's Paris obligations in EUCO conclusions • Key supporter of 2050 target • In general, pro-climate force in EU negotiations, despite specific reservations	• Increase of climate targets and several climate action initiatives, partly unsuccessful • Mixed climate policy record
	Germany: Merkel	0.57	0.5	0.5	0.7	• Part of 'Green Growth Group' • Generally reluctant towards proposals to increase climate targets • Critical stance on proposals affecting specific sectors	• Commitment to EU's Paris obligations in EUCO conclusions • Mixed record regarding role in climate legislation negotiations • Initial opposition to 2050 climate target	• Lack of comprehensive climate strategy • Insufficient climate action regarding climate targets • Partial rollback of existing climate legislation • Delay of decisions concerning relevant sectors
	Greece: Mitsotakis	0.43	0.5	0.5	0.3	• No active opposition, but partly sceptical stance on proposals to extend existing climate policies	• Commitment to EU's Paris obligations in EUCO conclusions • Delay of decision on 2030 climate target • Unambitious actor in EU negotiations	• Adoption of several, but partly controversial, climate measures
	Greece: Tsipras	0.49	0.5	0.5	0.5	• Mixed record regarding requests to EU Commission and reaction to Commission	• Commitment to EU's Paris obligations in EUCO conclusions	• Adoption of several climate initiatives • Laggard regarding

						proposals	• No active player in EU negotiations • Mixed record depending on concrete policies	regulation of relevant polluting sectors
	Hungary: Orbán	0.7	0.7	0.7	0.7	• In general, opposition to initiatives to increase climate targets and climate policy proposals • Blaming of Brussels for alleged negative effects of climate action	• Commitment to EU's Paris obligations in EUCO conclusions • Initial opposition to 2050 climate target, then conditional support • Regular demand of financial compensations for climate action and for not blocking EU decisions	• Lack of climate ambition • Climate action not a government priority • Several climate initiatives, but in general, lack of effective policies
	Ireland: Varadkar	0.67	0.5	0.5	1	• Mixed record regarding requests to EU Commission and reaction to Commission proposals	• Commitment to EU's Paris obligations in EUCO conclusions • Support for 2050 climate target • Mixed record regarding role in climate legislation negotiations	• Lack of climate action • Lack of adoption of policies to make progress towards EU climate targets
	Latvia: Kariņš	0.37	0.3	0.3	0.5	• Pushing of EU Commission to propose higher climate targets • Sceptical stance on initiatives regarding carbon pricing	• Commitment to EU's Paris obligations in EUCO conclusions • Key supporter of 2050 climate target • Mixed record regarding role in climate legislation negotiations	• Mixed policy record, especially lack of decarbonisation measures
	Latvia: Kučinskis	0.43	0.5	0.5	0.3	• In general, support for climate action initiatives • Sceptical stance on proposals regarding binding emission	• Commitment to EU's Paris obligations in EUCO conclusions • In general, constructive role	• Adoption of several relevant and effective climate measures

						reduction targets	in negotiations, but demand of exemptions and lack of ambition on specific negotiations	
	Lithuania: Skvernelis	0.4	0.5	0.7	0	• Mixed record regarding requests to EU Commission and reaction to Commission proposals	• Commitment to EU's Paris obligations in EUCO conclusions • Demand of additional funding for climate action • Reluctant role in negotiations on new emission targets	• Adoption of ambitious climate projects • Effective climate action in multiple areas
	Luxembourg: Bettel	0.17	0	0	0.5	• Regular pushing of EU Commission to propose more ambitious climate targets and policies • Part of 'Green Growth Group'	• Commitment to EU's Paris obligations in EUCO conclusions • Pushing of other member states to more climate action • In general, a pro-climate force in negotiations	• Adoption of several climate measures, but mixed record regarding the policies' effectiveness
	Malta: Muscat	0.57	0.5	0.5	0.7	• Mixed record regarding requests to EU Commission and reaction to Commission proposals	• Commitment to EU's Paris obligations in EUCO conclusions • Mostly no active role, but occasional attempts to weaken legislative projects • Support for 2050 climate target, but reluctant role regarding new 2030 target	• Lack of effective climate policies and of dedication to climate action
	Netherlands: Rutte	0	0	0.3	0.3	• Regular pushing of EU Commission to propose more ambitious climate targets and policies • Part of 'Green Growth Group'	• Commitment to EU's Paris obligations in EUCO conclusions • Pushing of other member states to more climate	• Adoption of multiple climate measures • Mixed record regarding ambition and policy effectiveness

							action • Own commitment conditional upon other member states' actions • Key supporter of 2050 climate target	
	Poland: Morawiecki	1	1	1	1	• Open opposition to proposals to increase climate target and to climate policy proposals • Use of polarising discourse against climate initiatives	• Commitment to EU's Paris obligations in EUCO conclusions • Attempt to soften, then opt-out from 2050 climate target • Regular demand of side-payments as condition for not blocking decisions • Leading opposition in climate negotiations	• Lack of climate ambition and strategy to achieve EU climate target • Lack of effective climate policies
	Poland: Szydło	1	1	1	1	• Lack of support for EU targets and commitments • (Threat of) legal challenges to EU climate policies • Lobby against more ambitious climate policy proposals	• Commitment to EU's Paris obligations in EUCO conclusions, but generally critical of EU target • Regular demand of side-payments as condition for not blocking decisions • Leading opposition in climate negotiations	• Ambiguous position on Paris Agreement • Lack of strategy to achieve EU climate target • Dismantling of existing climate policies and adoption of climate-harming decisions
	Portugal: Costa	0.1	0	0	0.3	• Part of 'Green Growth Group' • Regular pushing of EU Commission to propose more ambitious targets and policies	• Commitment to EU's Paris obligations in EUCO conclusions • Advocacy for more EU-wide ambition in EUCO negotiations, including strong support for 2050 climate target • Pushing of other member	• Adoption of multiple climate measures, but laggard in certain areas, e.g., coal phase-out

							states to more climate action	
	Slovakia: Fico	0.57	0.5	0.5	0.7	• No active actor vis-à-vis EU Commission	• Commitment to EU's Paris obligations in EUCO conclusions • Rather reluctant role in EU negotiations	• In general, laggard in climate action • Lack of adoption of necessary climate measures
	Slovakia: Pellegrini	0.63	0.7	0.5	0.7	• Partially critical stance on proposals to tighten climate regulations	• Commitment to EU's Paris obligations in EUCO conclusions • No active opposition, but critical stance in negotiations of 2030 and 2050 climate targets	• Lack of effective climate action, e.g., regarding renewable energy sources
	Slovenia: Cerar	0.43	0.3	0.5	0.5	• General support for climate action proposals • Part of 'Green Growth Group'	• Commitment to EU's Paris obligations in EUCO • Mixed record regarding role in climate legislation negotiations	• Adoption of several climate initiatives, but in general limited action
	Spain: Rajoy	0.63	0.5	0.7	0.7	• No active action vis-à-vis EU Commission	• Commitment to EU's Paris obligations in EUCO • Several attempts of weakening legislation in negotiation process	• Lack of climate action • Partial rollback of existing policies
	Sweden: Löfven	0	0	0	0	• Regular pushing of EU Commission to propose more ambitious targets and policies and to close existing loopholes • Part of 'Green Growth Group'	• Commitment to EU's Paris obligations in EUCO • Advocacy for more EU-wide ambition in EUCO and Council negotiations, including strong support for 2050 climate target • Pushing of other member states to more climate action	• Adoption of comprehensive strategy • Adoption of more ambitious climate targets • Adoption of effective climate policies

Table 9-3 **Key intergovernmental processes and federal initiatives 2015-2021**

Federal system	**Sub-federal government**
Australia	• National Energy Productivity Plan • National Hydrogen Strategy • Trajectory for Low Energy Buildings • Emission Reduction Fund • Safeguard Mechanism • reform of the Renewable Energy Target Scheme • Phase-down of Hydrofluorocarbon • Clean Energy Innovation Fund for Australia
Canada	• Vancouver process • Pan-Canadian Framework on Clean Growth and Climate Change • National Adaptation Strategy • Low Carbon Economy Fund & Low Carbon Economy Leadership Fund • Greenhouse Gas Pollution Pricing Act • A Healthy Environment and A Healthy Economy • Canadian Net-Zero Emissions Accountability Act • 2030 Emissions Reduction Plan • Just Transition Funds • Cap and Cut Oil and Gas Sector Greenhouse Gas Emissions
European Union	• 2030 and 2050 climate targets • NextGenerationEU • European Green Deal • Fit for 55 • Just Transition Mechanism, Modernisation Fund and Social Climate Fund • Legislation on energy efficiency, renewable energy, vehicle emissions, land use and forestry, emission trading and effort-sharing • EU Climate Law

Table 9-4 **Calibration of policy condition**[31]

Case		Calibrated score[32]	Coding of dimensions			
			Climate change	Proposals	Interplay	Green party
Australia	New South Wales: Berejiklian	0.4	X	X	X	0
	Queensland: Palaszczuk	0.70	0.7	0.7	0.7	0
	South Australia: Marshall	0.4	X	X	X	0
	South Australia: Weatherill	0.63	0.7	0.7	0.5	0
	Tasmania: Hodgman	0.6	X	X	X	0
	Victoria: Andrews	0.8	0.7	1	0.7	0
	Western Australia: McGowan	0.63	0.7	0.7	0.5	0
Canada	Alberta: Kenney	0.17	0.5	0	0	0
	Alberta: Notley	0.51	0.7	0.5	0.3	0
	British Columbia: Horgan	1.00	1	0.7	0.7	Plus 0.2
	Manitoba: Pallister	0.49	0.7	0.3	0.5	0
	New Brunswick: Gallant	0.43	0.5	0.5	0.3	0
	New Brunswick: Higgs	0.43	0.7	0.3	0.3	0
	Newfoundland & Labrador: Ball	0.43	0.5	0.5	0.3	0
	Nova Scotia: McNeil	0.51	0.5	0.5	0.5	0
	Ontario: Ford	0.20	0.3	0	0.3	0
	Ontario: Wynne	0.90	0.7	1	1	0
	Prince Edward Island: King	0.43	0.5	0.5	0.3	0
	Prince Edward Island:	0.43	0.5	0.5	0.3	0

[31] In case of highly ambiguous positions, I decided to code the respective dimension as 0.5. This occurred in cases in which the party a) recognized climate change as an essential threat, but did not commit to act, b) formulated vague climate objectives without defining targets or listing specific measures, and c) proposed only soft regulatory measures that do not tackle the relevant issues in terms of climate change mitigation.

[32] In eight cases, i.e., Alberta (Notley), Belgium (Michel), Greece (Mitsotakis and Tsipras), Latvia (Kariņš and Kučinskis), Manitoba (Pallister) and Nova Scotia (McNeil), the final score was 0.5. I thus compared these cases to other cases close to the threshold of 0.5 to decide whether to code them as 0.51 or as 0.49.

	MacLauchlan					
	Québec: Couillard	0.63	0.7	0.7	0.5	0
	Québec: Legault	0.43	0.5	0.5	0.3	0
	Saskatchewan: Moe	0.20	0.3	0.3	0	0
	Saskatchewan: Wall	0.17	0	0.5	0	0
European Union	Belgium: Michel	0.51	0.5	0.5	0.5	0
	Bulgaria: Borisov	0.57	0.7	0.5	0.5	0
	Croatia: Plenković	0.57	0.7	0.5	0.5	0
	Cyprus: Anastasiades I	0.20	0	0.3	0.3	0
	Cyprus: Anastasiades II	0.20	0	0.3	0.3	0
	Czech Republic: Babiš	0.27	0	0.5	0.3	0
	Czech Republic: Sobotka	0.43	0.5	0.5	0.3	0
	Denmark: Frederiksen	1.00	1	1	1	0
	Denmark: Rasmussen	0.20	0	0.3	0.3	0
	Estonia: Ratas	0.57	0.5	0.7	0.5	0
	Finland: Marin	1.00	1	1	1	Plus 0.3
	Finland: Sipilä	0.63	0.5	0.7	0.7	0
	France: Macron & Philippe	0.57	0.5	0.5	0.7	0
	Germany: Merkel	0.57	0.7	0.5	0.5	0
	Greece: Mitsotakis	0.49	0.5	0.7	0.3	0
	Greece: Tsipras	0.51	0.5	0.5	0.5	0
	Hungary: Orbán	0.10	0	0.3	0	0
	Ireland: Varadkar	0.43	0.5	0.5	0.3	0
	Latvia: Kariņš	0.51	0.5	0.5	0.5	0
	Latvia: Kučinskis	0.49	0.5	0.5	0.5	0
	Lithuania: Skvernelis	0.80	1	0.7	0.7	0
	Luxembourg: Bettel	0.93	0.7	0.7	0.5	Plus 0.3

	Malta: Muscat	0.63	0.7	0.7	0.5	0
	Netherlands: Rutte	0.63	0.7	0.5	0.7	0
	Poland: Morawiecki	0.37	0.3	0.5	0.3	0
	Poland: Szydło	0.10	0	0	0.3	0
	Portugal: Costa	1.00	1	1	1	Plus 0.2
	Slovakia: Fico	0.20	0	0.3	0.3	0
	Slovakia: Pellegrini	0.20	0	0.3	0.3	0
	Slovenia: Cerar	0.57	0.5	0.7	0.5	0
	Spain: Rajoy	0.63	0.7	0.7	0.5	0
	Sweden: Löfven	1.00	0.7	1	1	Plus 0.3

Table 9-5-**Remarks on calibration of policy condition for specific cases**

Sub-federal government	**Remarks**
Belgium: Michel	The coalition partner NVA had more seats in parliament than Michel's MR party. But since most government ministers were from MR and the important climate action portfolios, i.e., energy, environment, and energy transition, were held by MR members, it is reasonable to consider MR the senior party in the coalition.
Croatia: Plenković, Malta: Muscat	Since Croatian and Maltese are not available in DeepL, I used Google Translate for these two cases.
Cyprus: Anastasiades I & II	No platforms are available for the presidential elections of 2013 and 2018. I thus use the 2016 party platform for the legislative elections as a proxy.
Hungary: Orbán	Due to the lack of an official party manifesto, I follow the approach of the Manifesto Project and use the key campaign speeches given by Orbán as a proxy.
Latvia: Kučinskis	The Unity Party had two more seats in parliament than Kučinskis' Greens' and Farmers' Union. But the environment portfolio was not held by the Unity Party. I thus consider it reasonable to regard Kučinskis' party as the senior party in the coalition.
New South Wales: Berejiklian, South Australia: Marshall, Tasmania: Hodgman	The party platforms are not available (also not on request). I thus rely on news articles published during the electoral campaign to tentatively code these cases. (Sources: Blackwood 2018; Burgess 2017; Davies 2019; Fedorowytsch 2018a; 2018b; Glanville 2019; Harmsen and Dayman 2017; Humphries 2018; Maddox 2019; McConnell 2018; Siebert 2018)
Ontario: Wynne	The party platform for 2014 is not publicly available (also not on request). I used the 2018 platform as a proxy.

Table 9-6 **Coded party manifestos**

Case		Party	Elections
Australia	New South Wales: Berejiklian	Liberal Party of Australia	2015, 2019 (see above)
	Queensland: Palaszczuk	Australian Labor Party	2015, 2017, 2021
	South Australia: Marshall	Liberal Party of Australia	2018 (see above)
	South Australia: Weatherill	Australian Labor Party	2014
	Tasmania: Hodgman	Liberal Party of Australia	2014, 2018, 2021 (see above)
	Victoria: Andrews	Australian Labor Party	2014, 2018
	Western Australia: McGowan	Australian Labor Party	2017
Canada	Alberta: Kenney	United Conservative Party	2019
	Alberta: Notley	Alberta New Democratic Party	2015
	British Columbia: Horgan	British Columbia New Democratic Party	2017, 2020
	Manitoba: Pallister	Progressive Conservative Party of Manitoba	2016, 2019
	New Brunswick: Gallant	New Brunswick Liberal Association	2014
	New Brunswick: Higgs	Progressive Conservative Party of New Brunswick	2018
	Newfoundland & Labrador: Ball	Liberal Party of Newfoundland and Labrador	2015, 2019
	Nova Scotia: McNeil	Nova Scotia Liberal Party	2013, 2017
	Ontario: Ford	Progressive Conservative Party of Ontario	2018
	Ontario: Wynne	Ontario Liberal Party	2014 (see above)
	Prince Edward Island: King	Progressive Conservative Party of Prince Edward Island	2019
	Prince Edward Island: MacLauchlan	Prince Edward Island Liberal Party	2015
	Québec: Couillard	Quebec Liberal Party	2014
	Québec: Legault	Coalition Avenir Québec	2018
	Saskatchewan: Moe	Saskatchewan Party	2016, 2020

	Saskatchewan: Wall	Saskatchewan Party	2011,2016
European Union	Belgium: Michel	Reformist Movement	2014
	Bulgaria: Borisov	Citizens for European Development of Bulgaria	2017
	Croatia: Plenković	Croatian Democratic Union	2016
	Cyprus: Anastasiades I	Democratic Rally	2013 (see above)
	Cyprus: Anastasiades II	Democratic Rally	2018 (see above)
	Czech Republic: Babiš	ANO	2017
	Czech Republic: Sobotka	Czech Social Democratic Party	2013
	Denmark: Frederiksen	Social Democratic Party	2019
	Denmark: Rasmussen	Venstre	2015
	Estonia: Ratas	Estonian Centre Party	2015, 2019
	Finland: Marin	Finnish Social Democrats	2019
	Finland: Sipilä	Centre Party	2015
	France: Macron & Philippe	Republic Onwards!	2017
	Germany: Merkel	Christian Democratic Union/Christian Social Union	2013, 2017
	Greece: Mitsotakis	New Democracy	2019
	Greece: Tsipras	Coalition of the Radical Left – Progressive Alliance	2015
	Hungary: Orbán	Fidesz	2014, 2018 (see above)
	Ireland: Varadkar	Fine Gael/Family of the Irish	2016
	Latvia: Kariņš	Unity	2018
	Latvia: Kučinskis	Greens' and Farmers' Union	2014
	Lithuania: Skvernelis	Lithuanian Farmers and Greens Union	2016
	Luxembourg: Bettel	Democratic Party	2013, 2018
	Malta: Muscat	Labour Party	2013, 2017
	Netherlands: Rutte	People's Party for Freedom and	2012, 2017

		Democracy	
	Poland: Morawiecki	Law and Justice/United Right parties	2015, 2019
	Poland: Szydło	Law and Justice/United Right parties	2015
	Portugal: Costa	Socialist Party	2015, 2019
	Slovakia: Fico	Direction – Social Democracy	2016
	Slovakia: Pellegrini	Direction – Social Democracy	2016
	Slovenia: Cerar	Modern Centre Party	2014
	Spain: Rajoy	People's Party	2015, 2016
	Sweden: Löfven	Social Democratic Labour Party	2014, 2018

Table 9-7 **Calibration of condition of structural obstacles**

	Sub-federal government	**Share of sensitive sectors in GDP (2015)**[33]	**Calibrated score**
Australia	Western Australia: McGowan	42.4%	0.93
	Tasmania: Hodgman	21.5%	0.48
	Queensland: Palaszczuk	20.5%	0.45
	South Australia: Marshall	18.9%	0.4
	South Australia: Weatherill	18.9%	0.4
	Victoria: Andrews	13.2%	0.23
	New South Wales: Berejiklian	11.5%	0.19
Canada	Saskatchewan: Moe	33.6%	0.82
	Saskatchewan: Wall	33.6%	0.82
	Newfoundland & Labrador: Ball	25.1%	0.6
	Alberta: Kenney	25.1%	0.6
	Alberta: Notley	25.1%	0.6
	Québec: Couillard	17.0%	0.34
	Québec: Legault	17.0%	0.34
	PEI: King	16.8%	0.33
	PEI: MacLauchlan	16.8%	0.33
	Manitoba: Pallister	16.5%	0.32
	New Brunswick: Gallant	15.2%	0.28
	New Brunswick: Higgs	15.2%	0.28
	Ontario: Ford	14.6%	0.27
	Ontario: Wynne	14.6%	0.27
	British Columbia: Horgan	12.2%	0.21
	Nova Scotia: McNeil	11.2%	0.19
European Union	Ireland: Varadkar	34.1%	0.83
	Czech Republic: Babiš	27.8%	0.68
	Czech Republic: Sobotka	27.8%	0.68
	Slovakia: Fico	27.6%	0.67
	Slovakia: Pellegrini	27.6%	0.67
	Hungary: Orbán	25.5%	0.61
	Poland: Morawiecki	24.2%	0.57

[33] I used 2015 data, the year of the Paris negotiations.
Australian financial and economic statistics do not follow the calendar year, but always cover the period from July to June. I therefore use the annual average from June 2015 to 2016.
I added the following categories from the statistical offices' reports to calculate the share of sensitive sectors in GDP: “A: Agriculture, forestry and fishing”, “B: Mining” and “C: Manufacturing” for Australia; "11: Agriculture, forestry, fishing and hunting", "21" Mining, quarrying, and oil and gas extraction" and "31-33: Manufacturing" for Canada; and “A: Agriculture, forestry and fishing”, “B: Mining and quarrying” and “C: Manufacturing” for the EU. The manufacturing sector include both light and heavy industries.

	Poland: Szydło	24.2%	0.57
	Lithuania: Skvernelis	24.1%	0.57
	Germany: Merkel	23.7%	0.56
	Slovenia: Cerar	23.5%	0.55
	Bulgaria: Borisov	22.7%	0.52
	Estonia: Ratas	22.5%	0.52
	Finland: Marin	20.9%	0.46
	Finland: Sipilä	20.9%	0.46
	Croatia: Plenković	19.2%	0.41
	Latvia: Kariņš	17.7%	0.36
	Latvia: Kučinskis	17.7%	0.36
	Sweden: Löfven	17.2%	0.34
	Portugal: Costa	17.0%	0.34
	Denmark: Frederiksen	16.6%	0.32
	Denmark: Rasmussen	16.6%	0.32
	Netherlands: Rutte	15.9%	0.3
	Belgium: Michel	15.6%	0.29
	Spain: Rajoy	15.3%	0.29
	France: Macron/Philippe	13.4%	0.24
	Greece: Mitsotakis	12.7%	0.22
	Greece: Tsipras	12.7%	0.22
	Malta: Muscat	10.3%	0.17
	Cyprus: Anastasiades I	7.0%	0.11
	Cyprus: Anastasiades II	7.0%	0.11
	Luxembourg: Bettel	6.8%	0.11

Table 9-8 **Calibration of financial capacity**

Federal system	**Sub-federal government**	**GDP per capita 2015**[34]	**Calibrated score**
European Union	Luxembourg: Bettel	105462.013	1
Australia	Western Australia: McGowan	95900.1557	1
Canada	Alberta: Kenney	65383.9888	0.93
Canada	Alberta: Notley	65383.9888	0.93
European Union	Ireland: Varadkar	62012.4849	0.92
Canada	Saskatchewan: Moe	60295.146	0.91
Canada	Saskatchewan: Wall	60295.146	0.91
Australia	New South Wales: Berejiklian	55399.9619	0.87
European Union	Denmark: Frederiksen	53254.8564	0.85
European Union	Denmark: Rasmussen	53254.8564	0.85
European Union	Sweden: Löfven	51545.4836	0.83
Australia	Victoria: Andrews	50623.4468	0.82
Canada	Newfoundland & Labrador: Ball	50181.8575	0.82
Australia	Queensland: Palaszczuk	50136.531	0.82
Australia	South Australia: Marshall	45632.2005	0.76
Australia	South Australia: Weatherill	45632.2005	0.76
European Union	Netherlands: Rutte	45193.4032	0.76
Australia	Tasmania: Hodgman	42840.6934	0.72
European Union	Finland: Marin	42801.9081	0.72
European Union	Finland: Sipilä	42801.9081	0.72
Canada	Ontario: Ford	42519.0259	0.72
Canada	Ontario: Wynne	42519.0259	0.72
European Union	Germany: Merkel	41103.2564	0.7
European Union	Belgium: Michel	41008.2967	0.7
Canada	British Columbia: Horgan	40649.7165	0.69
Canada	Manitoba: Pallister	39585.2381	0.67
European Union	France: Macron/Philippe	36652.9223	0.62
Canada	Québec: Couillard	36284.9701	0.62
Canada	Québec: Legault	36284.9701	0.62
Canada	New Brunswick: Gallant	33853.0397	0.57
Canada	New Brunswick: Higgs	33853.0397	0.57
Canada	Nova Scotia: McNeil	32988.5714	0.56
Canada	PEI: King	32091.76	0.54

[34] In US$ (2015 constant). I used GDP per capita values from 2015, the year of the Paris negotiations. Statistics Canada does not publish GDP per capita figures per province. Therefore, I multiplied the GDP values by the population values manually. The population values refer to 1 July 2015. Australian financial and economic statistics do not follow the calendar year, but always cover the period from July to June. I therefore used the annual average from June 2015 to 2016. I consider this small inaccuracy irrelevant for this indicator.

Canada	PEI: MacLauchlan	32091.76	0.54
European Union	Spain: Rajoy	25742.3688	0.37
European Union	Malta: Muscat	24921.6037	0.35
European Union	Cyprus: Anastasiades I	23408.3359	0.31
European Union	Cyprus: Anastasiades II	23408.3359	0.31
European Union	Slovenia: Cerar	20890.1664	0.25
European Union	Portugal: Costa	19250.1065	0.22
European Union	Greece: Mitsotakis	18083.8779	0.19
European Union	Greece: Tsipras	18083.8779	0.19
European Union	Czech Republic: Babiš	17829.6983	0.19
European Union	Czech Republic: Sobotka	17829.6983	0.19
European Union	Estonia: Ratas	17402.0376	0.18
European Union	Slovakia: Fico	16342.2163	0.16
European Union	Slovakia: Pellegrini	16342.2163	0.16
European Union	Lithuania: Skvernelis	14263.9646	0.13
European Union	Latvia: Kariņš	13786.4568	0.13
European Union	Latvia: Kučinskis	13786.4568	0.13
European Union	Hungary: Orbán	12720.712	0.11
European Union	Poland: Morawiecki	12578.4955	0.11
European Union	Poland: Szydło	12578.4955	0.11
European Union	Croatia: Plenković	11933.3774	0.1
European Union	Bulgaria: Borisov	7074.68102	0.06

Table 9-9 **Calibration of power condition**

	Sub-federal government	Share of population[35]	Share of GDP	Population (calibrated)	GDP (calibrated)	Power
Australia	New South Wales: Berejiklian	32.0%	31.4%	0.93	0.93	0.93
	Victoria Andrews	25.4%	22.8%	0.83	0.81	0.83
	Queensland: Palaszczuk	20.0%	18.4%	0.68	0.72	0.72
	Western Australia: McGowan	10.6%	16.6%	0.29	0.67	0.67
	South Australia: Marshall	7.1%	5.9%	0.17	0.2	0.2
	South Australia: Weatherill	7.1%	5.9%	0.17	0.2	0.2
	Tasmania: Hodgman	2.2%	1.7%	0.07	0.07	0.07
Canada	Ontario: Ford	38.4%	37.4%	0.95	0.94	0.95
	Ontario: Wynne	38.4%	37.4%	0.95	0.94	0.95
	Quebec: Couillard	22.9%	19.0%	0.8	0.74	0.8
	Quebec: Legault	22.9%	19.0%	0.8	0.74	0.8
	British Columbia: Horgan	13.4%	12.5%	0.62	0.6	0.62
	Alberta: Kenney	11.6%	17.4%	0.58	0.71	0.71
	Alberta: Notley	11.6%	17.4%	0.58	0.71	0.71
	Manitoba: Pallister	3.6%	3.3%	0.16	0.15	0.16
	Saskatchewan: Wall	3.1%	4.3%	0.14	0.2	0.2
	Saskatchewan: Moe	3.1%	4.3%	0.14	0.2	0.2
	Nova Scotia: McNeil	2.6%	2.0%	0.12	0.09	0.12
	New Brunswick: Gallant	2.1%	1.6%	0.1	0.08	0.1
	New Brunswick: Higgs	2.1%	1.6%	0.1	0.08	0.1
	Newfoundland & Labrador: Ball	1.5%	1.7%	0.08	0.09	0.09
	PEI: King	0.4%	0.3%	0.05	0.05	0.05
	PEI: MacLauchlan	0.4%	0.3%	0.05	0.05	0.05
European Union	Germany: Merkel	18.5%	24.2%	0.93	0.95	0.95
	France: Macron/Philippe	15.0%	18.2%	0.86	0.88	0.88
	Spain: Rajoy	10.4%	9.3%	0.69	0.66	0.69
	Poland: Szydło	8.5%	3.6%	0.59	0.31	0.59
	Poland: Morawiecki	8.5%	3.6%	0.59	0.31	0.59
	Netherlands: Rutte	3.8%	5.8%	0.2	0.53	0.53
	Belgium: Michel	2.5%	3.4%	0.13	0.27	0.27
	Greece: Mitsotakis	2.4%	1.6%	0.12	0.11	0.12
	Greece: Tsipras	2.4%	1.6%	0.12	0.11	0.12
	Czech Republic: Babiš	2.4%	1.5%	0.12	0.11	0.12
	Czech Republic: Sobotka	2.4%	1.5%	0.12	0.11	0.12
	Portugal: Costa	2.3%	1.5%	0.12	0.11	0.12
	Sweden: Löfven	2.2%	3.6%	0.11	0.3	0.3

[35] For Australia: December 2015, Canada: July 2015, for EU: January 2016.

	Hungary: Orbán	2.2%	1.0%	0.11	0.08	0.11
	Bulgaria: Borisov	1.6%	0.4%	0.09	0.06	0.09
	Denmark: Frederiksen	1.3%	2.2%	0.08	0.16	0.16
	Denmark: Rasmussen	1.3%	2.2%	0.08	0.16	0.16
	Finland: Marin	1.2%	1.6%	0.08	0.12	0.12
	Finland: Sipilä	1.2%	1.6%	0.08	0.12	0.12
	Slovakia: Fico	1.2%	0.7%	0.08	0.07	0.08
	Slovakia: Pellegrini	1.2%	0.7%	0.08	0.07	0.08
	Ireland: Varadkar	1.1%	2.0%	0.07	0.14	0.14
	Croatia: Plenković	0.9%	0.4%	0.07	0.06	0.07
	Lithuania: Skvernelis	0.6%	0.3%	0.06	0.06	0.06
	Slovenia: Cerar	0.5%	0.3%	0.06	0.06	0.06
	Latvia: Kariņš	0.4%	0.2%	0.06	0.05	0.06
	Latvia: Kučinskis	0.4%	0.2%	0.06	0.05	0.06
	Estonia: Ratas	0.3%	0.2%	0.05	0.05	0.05
	Cyprus: Anastasiades I	0.2%	0.2%	0.05	0.05	0.05
	Cyprus: Anastasiades II	0.2%	0.2%	0.05	0.05	0.05
	Luxembourg: Bettel	0.1%	0.4%	0.05	0.06	0.06
	Malta: Muscat	0.1%	0.1%	0.05	0.05	0.05

Table 9-10 **Original truth table (resistance to implementation)**

POLICY	CAPACITY	POWER	NEGOTI-ATION	IMPLE-MENTAT.	No. of cases	RESIST-ANCE	raw consist.	PRI consist.	SYM consist
0	0	0	0	0	1		0.937997	0.80303	0.80303
0	0	1	0	0	1		0.930958	0.800001	0.8
0	0	0	0	1	3		0.929899	0.707747	0.707746
0	1	0	0	0	2		0.915162	0.678082	0.678082
0	0	1	0	1	2		0.910077	0.721154	0.721154
0	1	1	0	0	2		0.894958	0.742268	0.742268
0	0	0	1	1	9		0.89417	0.619355	0.777328
0	1	1	1	1	1		0.868709	0	0
1	0	1	1	1	2		0.866157	0.357798	0.357798
1	0	0	1	1	3		0.839439	0.167598	0.17341
1	0	1	0	1	2		0.838124	0.421621	0.421621
1	1	0	0	1	3		0.836303	0.34375	0.34375
0	1	0	0	1	5		0.830682	0.352174	0.356828
1	0	0	0	1	6		0.815361	0.347945	0.357747
1	1	1	0	0	1		0.774059	0.386363	0.386364
1	1	1	0	1	3		0.751497	0.209524	0.209524
1	1	1	1	1	3		0.738908	0.00649326	0.00649327
1	1	0	1	1	6		0.652968	0	0
1	0	0	0	0	0				
1	1	0	0	0	0				
1	0	1	0	0	0				
0	0	0	1	0	0				
1	0	0	1	0	0				
0	1	0	1	0	0				

1	1	0	1	0	0				
0	0	1	1	0	0				
1	0	1	1	0	0				
0	1	1	1	0	0				
1	1	1	1	0	0				
0	1	1	0	1	0				
0	1	0	1	1	0				
0	0	1	1	1	0				

Table 9-11 **Original truth table (support to implementation)**

POLICY	**CAPACITY**	**POWER**	**NEGOTI-ATION**	IMPLE- **MENTAT.**	**No. of cases**	**~RESIST-ANCE**	**raw consist.**	**PRI consist.**	**SYM consist**
0	1	1	1	1	1		1	1	1
1	1	1	1	1	3		0.998293	0.993506	0.993506
1	1	0	1	1	6		0.993151	0.980263	1
1	0	0	1	1	3		0.961207	0.798882	0.82659
1	1	1	0	1	3		0.934132	0.790476	0.790476
1	0	1	1	1	2		0.92543	0.642201	0.642202
1	1	0	0	1	3		0.914254	0.65625	0.65625
0	1	0	0	1	5		0.904546	0.634783	0.643172
1	0	0	0	1	6		0.893716	0.624657	0.642253
1	0	1	0	1	2		0.881997	0.578378	0.578378
1	1	1	0	0	1		0.857741	0.613636	0.613636
0	0	0	0	1	3		0.830237	0.292254	0.292254
0	1	0	0	0	2		0.8213	0.321918	0.321918
0	0	0	1	1	9		0.7713	0.17742	0.222672
0	0	1	0	1	2		0.767442	0.278846	0.278846
0	0	0	0	0	1		0.747218	0.19697	0.19697
0	0	1	0	0	1		0.723831	0.2	0.2
0	1	1	0	0	2		0.697479	0.257732	0.257732
1	0	0	0	0	0				
1	1	0	0	0	0				
1	0	1	0	0	0				
0	0	0	1	0	0				
1	0	0	1	0	0				

0	1	0	1	0	0				
1	1	0	1	0	0				
0	0	1	1	0	0				
1	0	1	1	0	0				
0	1	1	1	0	0				
1	1	1	1	0	0				
0	1	1	0	1	0				
0	1	0	1	1	0				
0	0	1	1	1	0				

Table 9-12 **Paths to resistance to implementation (complex solution)**

Solution term	**Raw coverage**	**Unique coverage**	**Consistency**
~POLICY * ~NEGOTIATION * ~IMPLEMENTATION	0.301513	0.0388049	0.899306
~POLICY * ~CAPACITY * ~NEGOTIATION	0.587893	0.0465658	0.918182
~POLICY * ~CAPACITY * ~POWER * IMPLEMENTATION	0.629414	0.202173	0.892189
Solution coverage: 0.828871			
Solution consistency: 0.884839			

Table 9-13 **Paths to resistance to implementation (parsimonious solution)**

Solution term	**Raw coverage**	**Unique coverage**	**Consistency**
~POLICY * ~IMPLEMENTATION	0.301513	0.0388048	0.899306
~POLICY * CAPACITY	0.80714	0.544432	0.893471
Solution coverage: 0.845945			
Solution consistency: 0.8869			

Table 9-14 **Paths to support for implementation (complex solution)**

Solution term	**Raw coverage**	**Unique coverage**	**Consistency**
POLICY * ~POWER * IMPLEMENTATION	0.617516	0.100582	0.893122
POLICY * NEGOTIATION * IMPLEMENTATION	0.459802	0.0188163	0.937892
CAPACITY * ~POWER * ~NEGOTIATION * IMPLEMENTATION	0.316798	0.0359221	0.902534
POLICY * CAPACITY * POWER * ~NEGOTIATION	0.258638	0.0947657	0.894674
CAPACITY * POWER * NEGOTIATION * IMPLEMENTATION	0.210742	0.0106056	0.998379
Solution coverage: 0.839549			
Solution consistency: 0.883369			

Table 9-15 **Paths to support for implementation (parsimonious solution)** [36]

Solution term	**Raw coverage**	**Unique coverage**	**Consistency**
POLICY * ~POWER	0.668491	0.100582	0.885365
CAPACITY * IMPLEMENTATION	0.609306	0.0588438	0.939842
POLICY * CAPACITY	0.622306	0.020869	0.930435
POLICY * NEGOTIATION	0.459802	0.0153951	0.937892
Solution coverage: 0.87855			
Solution consistency: 0.883081			

[36] I defined POLICY*CAPACITY instead of POLICY*~IMPLEMENTATION and POLICY*NEGOTIATION instead of POWER*NEGOTIATION as the prime implicants.

List 9-1 **List of official documents**

Australian Government (2015a): Setting Australia's Post-2020 Target for Reducing Greenhouse Gas Emissions. Issue Paper, March 2015.

Australian Government (2015b): Setting Australia's Post-2020 Target for Reducing Greenhouse Gas Emissions. Final Report of the UNFCCC Taskforce, August 2015.

Australian Government (2015c): Australia's Intended Nationally Determined Contribution to a new Climate Change Agreement, 11 August 2015.

Australian Government (2016): National Interest Analysis, ATNIA 10 & ATNIF 31.

Australian Government (2020): Australia's Nationally Determined Contribution. Communication 2020, December 2020.

Australian Government (2021): Australia's Nationally Determined Contribution. Communication 2020.

Canadian Council of Ministers of the Environment (2015): Environment Ministers Reaffirm Their Commitment to Fight Climate Change, 23 June 2015.

Canadian Council of Ministers of the Environment (2016): Environment Ministers Discuss Climate Change and Clean Air, 3 October 2016.

Canadian Council of Ministers of the Environment (2017): Significant Progress on Climate Action and Air Quality, 3 November 2017.

Canadian Council of Ministers of the Environment (2018): Canadian Environment Ministers Aim for Zero Plastic Waste, 23 November 2018.

Canadian Council of Ministers of the Environment (2019): Environment Ministers Take Action on Plastic Waste in Canada, 27 June 2019.

Canadian Council of Ministers of the Environment (2020): Environment Ministers Discuss Sustainable Economic Recovery; Complete Action Plan on Zero Plastic Waste, 23 July 2020.

Canadian Council of Ministers of the Environment (2021): Environment Ministers Discuss Opportunities to Continue Taking Action on Climate Change and Green Economic Recovery, 13 December 2021.

COAG Energy Council (2015a): Meeting Communiqué, 23 July 2015.

COAG Energy Council (2015b): Statement on National Energy Productivity Plan, 23 July 2015.

COAG Energy Council (2015c): National Energy Productivity Plan 2015-2030. Boosting competitiveness, managing costs and reducing emissions, December 2015.

COAG Energy Council (2015d): National Energy Productivity Plan 2015-2030: Work Plan, December 2015.

COAG Energy Council (2015e): Meeting Communiqué, 4 December 2015.

COAG Energy Council (2016a): Meeting Communiqué, 19 August 2016.

COAG Energy Council (2016b): Meeting Communiqué, 7 October 2016.

COAG Energy Council (2016c): Meeting Communiqué, 15 December 2016.

COAG Energy Council (2016d): National Energy Productivity Plan 2015-2030. Annual Report 2016.

COAG Energy Council (2017a): Meeting Communiqué, 17 February 2017.

COAG Energy Council (2017b): Meeting Communiqué, 10 April 2017.

COAG Energy Council (2017c): Meeting Communiqué, 14 July 2017.

COAG Energy Council (2017d): Meeting Communiqué, 24 November 2017.

COAG Energy Council (2017e): National Energy Productivity Plan 2015-2030. Annual Report 2017.

COAG Energy Council (2018a): Meeting Communiqué, 20 April 2018.

COAG Energy Council (2018b): Meeting Communiqué, 19 August 2018.

COAG Energy Council (2018c): Meeting Communiqué, 26 October 2018.

COAG Energy Council (2018d): Meeting Communiqué, 19 December 2018.

COAG Energy Council (2018e): Trajectory for low energy buildings, December 2018.

COAG Energy Council (2018f): National Energy Productivity Plan 2015-2030. Annual Report 2018.

COAG Energy Council (2019a): Meeting Communiqué, 22 November 2019.

COAG Energy Council (2019b): Statement on National Hydrogen Strategy, 22 November 2019.

COAG Energy Council (2019c): Australia's National Hydrogen Strategy, 22 November 2019.

COAG Energy Council (2020): Meeting Communiqué, 20 March 2020.

COAG Energy Council (2021): Energy Security Board. Renewable Energy Zones. Consultation paper, January 2021

COAG Transport and Infrastructure Council (2016): Communiqué, 4 August 2016.

COAG Transport and Infrastructure Council (2018): Communiqué, 9 November 2018.

COAG Transport and Infrastructure Council (2019a): Communiqué, 2 August 2019.

COAG Transport and Infrastructure Council (2019b): Communiqué, 22 November 2019.

Council of Australian Governments (1996): Principles and Procedures for Commonwealth-State Consultation on Treaties (M1997-01), 4 June 1996.

Council of Australian Governments (2016): Communiqué, 9 December 2016

Council of Australian Governments (2021): Principles and Procedures for Commonwealth-State Consultation on Treaties (M2021-01), 16 February 2021.

Council of the EU (2016a): Council Decision 2016/590 on the signing, on behalf of the European Union, of the Paris Agreement adopted under the United Nations Framework Convention on Climate Change, 11 April 2016.

Council of the EU (2016b): Council Decision 2016/1841 on the conclusion, on behalf of the European Union, of the Paris Agreement adopted under the United Nations Framework Convention on Climate Change, 5 October 2016.

European Council (2014a): Conclusions (EUCO 7/1/14), 21 March 2014.

European Council (2014b): Conclusions (EUCO79 /14), 27 June 2014.

European Council (2014c): Conclusions (EUCO 169/14), 24 October 2014.

European Council (2015): Conclusions (EUCO 28/15), 18 December 2015.

European Council (2016): Conclusions (EUCO 141/16), 18 March 2016.

European Council (2017): Conclusions (EUCO 8/17), 23 June 2017.

European Council (2018): Conclusions (EUCO 17/18), 14 December 2018.

European Council (2019a): Conclusions (EUCO 1/19), 22 March 2019.

European Council (2019b): Conclusions (EUCO 29/19), 12 December 2019.

European Council (2020a): Conclusions (EUCO 15/20), 16 October 2020.

European Council (2020b): Conclusions (EUCO 22/20), 11 December 2020.

European Council (2021a): Conclusions (EUCO 5/21), 25 May 2021.

European Council (2021b): Conclusions (EUCO 17/21), 22 October 2021.

Federal-Provincial-Territorial Meeting of Ministers of the Environment (2016): Federal, provincial and territorial governments working together on first steps towards a pan-Canadian framework to address climate change, 29 January 2016,

First Ministers' Meeting (2016a): Communiqué of Canada's First Ministers, 3 March 2016.

First Ministers' Meeting (2016b): Vancouver Declaration on clean growth and climate change, 3 March 2016.

First Ministers' Meeting (2016c): Pan-Canadian Framework on Clean Growth and Climate Change, 9 December 2016.

First Ministers' Meeting (2017): Pan-Canadian Framework on Clean Growth and Climate Change. First Annual Synthesis Report on the Status of Implementation, December 2017.

First Ministers' Meeting (2018a): First Ministers Meet to Discuss Economic Growth and Jobs for Canadians, 7 December 2018.

First Ministers' Meeting (2018b): Pan-Canadian Framework on Clean Growth and Climate Change. Second Annual Synthesis Report on the Status of Implementation, December 2018.

First Ministers' Meeting (2019): Pan-Canadian Framework on Clean Growth and Climate Change. Third Annual Synthesis Report on the Status of Implementation, December 2019.

First Ministers' Meeting (2020): Pan-Canadian Framework on Clean Growth and Climate Change. Fourth Annual Synthesis Report on the Status of Implementation, December 2020.

Government of Canada (2015): Canada's INDC to the UNFCCC, 15 May 2015

Government of Canada (2016): Federal Actions for a Clean Growth Economy. Delivering on the Pan-Canadian Framework on Clean Growth and Climate Change.

Government of Canada (2017): Canada's 2017 Nationally Determined Contribution Submission to the United Nations Framework Convention on Climate Change.

Government of Canada (2021): Canada's 2021 Nationally Determined Contribution under the Paris Agreement.

Government of Germany and the European Commission (2020): The update of the nationally determined contribution of the European Union and its Member States, 17 December 2020.

Government of Latvia and European Commission (2015): Intended Nationally Determined Contribution of the EU and its Member States, 6 March 2015.

Government of Manitoba (2018): Government of Manitoba letter announcing adoption of the Pan- Canadian Framework on Clean Growth and Climate Change, 20 February 2018.

Parliament of the Commonwealth of Australia (2016): Paris Agreement, Kyoto Protocol – Doha Amendment, Report 163 of the Joint Standing Committee on Treaties, November 2016.

9.2 Annex article #3

Table 9-16 **Calibration of relevance of polluting industries**[37]

Indicator	Source	Calibration
Share of mining, agricultural and manufacturing sectors in GDP (sectshare)	(Sources: Australian Bureau of Statistics 2021a; 2021b; 2021c; 2021d; 2021e; 2021f; Eurostat 2022b; Statistics Canada 2022)	Indicator = calibrate (sectshare, 0.35, 0.215, 0.05)

List 9-2 **List of official documents**

Agreement on the equivalency of federal and Alberta regulations respecting the release of methane from the oil and gas sector in Alberta, 2020, between the Government of Canada and the Government of Alberta, 1 October 2020.

Agreement on the Equivalency of Federal and British Columbia Regulations Respecting the Release of Methane from the Oil and Gas Sector in British Columbia, 2020, between the Government of Canada and the Government of British Columbia, 26 February 2020.

Agreement on the equivalency of federal and Nova Scotia regulations for the control of greenhouse gas (GHG) emissions from electricity producers in Nova Scotia, 2020, between the government of Canada and the government of Nova Scotia, 14 November 2019.

Agreement on the equivalency of federal and Saskatchewan regulations for the control of greenhouse gas emissions from electricity producers in Saskatchewan, 2020, between the Government of Canada and the Government of Saskatchewan, 3 May 2019.

Agreement on the equivalency of federal and Saskatchewan regulations respecting the release of methane from the oil and gas sector in Saskatchewan, 2020, between the Government of Canada and the Government of Saskatchewan, 23 September 2020.

Canadian Council of Ministers of the Environment (2015): Environment Ministers Reaffirm Their Commitment to Fight Climate Change, 23 June 2015.

Canadian Council of Ministers of the Environment (2016): Environment Ministers Discuss Climate Change and Clean Air, 3 October 2016.

Canadian Council of Ministers of the Environment (2017): Significant Progress on Climate Action and Air Quality, 3 November 2017.

[37] The calibration process follows the method used in article #2 (see 5.4.6). However, I adapted the thresholds as paper #3 focusses on differences within Canada and the EU.

Canadian Council of Ministers of the Environment (2018): Canadian Environment Ministers Aim for Zero Plastic Waste, 23 November 2018.

Canadian Council of Ministers of the Environment (2019): Environment Ministers Take Action on Plastic Waste in Canada, 27 June 2019.

Canadian Council of Ministers of the Environment (2020): Environment Ministers Discuss Sustainable Economic Recovery; Complete Action Plan on Zero Plastic Waste, 23 July 2020.

Canadian Council of Ministers of the Environment (2021): Environment Ministers Discuss Opportunities to Continue Taking Action on Climate Change and Green Economic Recovery, 13 December 2021.

Council of the EU (2016a): Council Decision 2016/590 on the signing, on behalf of the European Union, of the Paris Agreement adopted under the United Nations Framework Convention on Climate Change, 11 April 2016.

Council of the EU (2016b): Council Decision 2016/1841 on the conclusion, on behalf of the European Union, of the Paris Agreement adopted under the United Nations Framework Convention on Climate Change, 5 October 2016.

European Commission (2020): Communication from the Commission COM (2020) 21 on Sustainable Europe Investment Plan/European Green Deal Investment Plan, 14 January 2020.

European Council (2014a): Conclusions (EUCO 7/1/14), 21 March 2014.

European Council (2014b): Conclusions (EUCO79 /14), 27 June 2014.

European Council (2014c): Conclusions (EUCO 169/14), 24 October 2014.

European Council (2015): Conclusions (EUCO 28/15), 18 December 2015.

European Council (2016): Conclusions (EUCO 141/16), 18 March 2016.

European Council (2017): Conclusions (EUCO 8/17), 23 June 2017.

European Council (2018): Conclusions (EUCO 17/18), 14 December 2018.

European Council (2019a): Conclusions (EUCO 1/19), 22 March 2019.

European Council (2019b): Conclusions (EUCO 29/19), 12 December 2019.

European Council (2020a): Conclusions (EUCO 15/20), 16 October 2020.

European Council (2020b): Conclusions (EUCO 22/20), 11 December 2020.

European Council (2021a): Conclusions (EUCO 5/21), 25 May 2021.

European Council (2021b): Conclusions (EUCO 17/21), 22 October 2021.

First Ministers' Meeting (2016): Vancouver Declaration on clean growth and climate change, 3 March 2016.

First Ministers' Meeting (2018): First Ministers Meet to Discuss Economic Growth and Jobs for Canadians, 7 December 2018.

Government of Canada (2015): Canada's INDC to the UNFCCC, 15 May 2015.

Government of Canada (2016a): Federal, provincial and territorial governments working together on first steps towards a pan-Canadian framework to address climate change, 29 January 2016.

Government of Canada (2016b): Federal Actions for a Clean Growth Economy. Delivering on the Pan-Canadian Framework on Clean Growth and Climate Change.

Government of Canada (2016c): Pan-Canadian Framework on Clean Growth and Climate Change, 9 December 2016.

Government of Canada (2017a): Canada's 2017 Nationally Determined Contribution Submission to the United Nations Framework Convention on Climate Change.

Government of Canada (2017b): Pan-Canadian Framework on Clean Growth and Climate Change. First Annual Synthesis Report on the Status of Implementation, December 2017.

Government of Canada (2018): Pan-Canadian Framework on Clean Growth and Climate Change. Second Annual Synthesis Report on the Status of Implementation, December 2018.

Government of Canada (2019): Pan-Canadian Framework on Clean Growth and Climate Change. Third Annual Synthesis Report on the Status of Implementation, December 2019.

Government of Canada (2020): Pan-Canadian Framework on Clean Growth and Climate Change. Fourth Annual Synthesis Report on the Status of Implementation, December 2020.

Government of Canada (2021): Canada's 2021 Nationally Determined Contribution under the Paris Agreement.

Government of Germany and the European Commission (2020): The update of the nationally determined contribution of the European Union and its Member States, 17 December 2020.

Government of Latvia and European Commission (2015): Intended Nationally Determined Contribution of the EU and its Member States, 6 March 2015.

Government of Manitoba (2018): Government of Manitoba letter announcing adoption of the Pan- Canadian Framework on Clean Growth and Climate Change, 20 February 2018.

Office of the Prime Minister (2016): Communiqué of Canada's First Ministers, 3 March 2016.

Official Journal of the European Union (2019): Regulation (EU) 2019/943 of the European Parliament and of the Council on the internal market for electricity (Text with EEA relevance), 5 June 2019.

Official Journal of the European Union (2021): Regulation (EU) 2021/1056 of the European Parliament and of the Council establishing the Just Transition Fund, 24 June 2021.

List 9-3 **List of interviews**

Interview 1: Head of unit, Federal Ministry for Economic Affairs and Energy, Germany, 12 March 2020

Interview 2: Senior policy analysist, Government of British Columbia, 4 November 2021

Interview 3: Policy analyst, Government of British Columbia, 5 November 2021

Interview 4: Senior policy analysist, Government of British Columbia, 15 November 2021

Interview 5: Senior policy advisory, Government of Alberta, 18 November 2021

Interview 6: Director of intergovernmental relations, Government of Alberta, 24 November 2021

Interview 7: Former provincial minister for the environment, Canada, 9 December 2021

Interview 8: Advisor, Government of Alberta, 16 December 2021

This project was reviewed and cleared by the Comité d'éthique de la recherche en arts et humanités (CERAH) of the Université de Montréal (Project CERAH-2019-154-D).

List 9-4 **List of interview questions**

The interviews and background talks took between 30 and 60 minutes. They specifically dealt with the implementation of the Paris Agreement in Canada and the EU and intergovernmental dynamics during the negotiation and the implementation of the Paris Agreement. The general structure of the talks was as follows:

- Negotiation and conclusion of agreement:
    - How did federal and sub-federal governments interact in preparation and during the Paris negotiations?

- What mechanisms of cooperation, coordination and consultation were used to define the negotiation position and the international commitment?
- To what extent were sub-federal interests and concerns taken into accounted and respected, to what extent have they complicated the negotiation process?

- Implementation process and dynamics:
  - Who has taken a leadership position in the intergovernmental implementation process, which coalitions have been formed and who has been hampering the implementation process?
  - To what extent have sub-federal governments displayed a sense of ownership for the international commitment?
- Handling resistance:
  - Which formal and informal channels of communication and negotiation have been used to persuade hesitant sub-federal governments?
  - What instruments have federal institutions used to bring sub-federal government on board with implementation?
  - How has implementation at the sub-federal level been supported?
  - How have federal institutions or sub-federal governments attempted to compel other sub-federal governments to implement?