

# Do Administrative Traditions Matter for Climate Change Adaptation Policy? A Comparative Analysis of 32 High-Income Countries

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## Abstract

*Although governments are developing and implementing policies to adapt to the impacts of climate change, it remains unclear which factors shape how states are developing these policies. This paper aims to assess whether or not administrative traditions matter for the formation of national climate change adaptation policy in 32 high-income countries. We operationalize administrative traditions based on five structural criteria: vertical dispersion of authority, horizontal coordination, interest mediation between state-society, role of public administrator, and how ideas enter bureaucracy. We construct a unique adaptation policy dataset that includes 32 high-income countries to test seven hypotheses. Our results indicate that countries' adaptation policies align to some extent with their administrative structure, particularly dispersion of authority and horizontal coordination. However, we find limited evidence that other public bureaucracy factors are related to national adaptation policy. We conclude that administrative traditions matter, but that their influence should not be overestimated.*

**KEY WORDS:** administrative traditions, climate change adaptation, governance, policy innovation, public bureaucracy

## 行政传统对气候变化适应政策而言重要吗？一项关于32个高收入国家的比较分析

尽管政府正在制定并实行相关政策来适应气候变化影响，但目前尚不清楚的是，哪些因素会对国家如何发展政策一事产生影响。本文致力评估32个高收入国家中行政传统是否会影响国家气候变化适应政策的形成。作者基于5项结构性准则，对行政传统进行了操作化。这些准则分别是：权威的垂直分散、横向协调、国家和社会间的利益调解、公共行政人员的作用、以及不同观念如何进入官僚。作者建构了一个包含32个高收入国家的独特适应政策数据集，用于测试7项假设。测试结果显示，各国的适应政策在一定程度上和各自的行政结构保持一致，尤其是权威分散和横向协调。然而，作者发现，其他公共官僚机构因素和国家适应政策之间没有太多的相关性。本文结论认为，行政传统固然重要，但它们的影响也不应被夸大。

**关键词：**行政传统，公共官僚机构，气候变化适应，治理，政策创新

## ¿Importan las tradiciones administrativas para la políticas de adaptación al cambio climático? Un análisis comparativo de 32 países de alto ingreso

*A pesar de que los gobiernos estén desarrollando e implementando políticas para adaptarse a los impactos del cambio climático, no es todavía claro qué factores le dan forma a cómo los estados están desarrollando estas políticas. Este documento busca evaluar si las tradiciones administrativas importan al momento de formular las políticas nacionales de adaptación al cambio climático en 32 países de alto ingreso. Operacionalizamos las tradiciones administrativas basándonos en cinco criterios estructurales: la dispersión vertical de la autoridad, la coordinación horizontal, la mediación de intereses entre el estado y la sociedad, el papel que juega la administración pública y cómo las ideas entran en la burocracia. Construimos un set de datos único para las políticas de adaptación que incluye 32 países de alto ingreso para comprobar siete hipótesis. Nuestros resultados indican que las políticas de adaptación de los países están alineadas hasta cierto punto con su estructura administrativa, particularmente con la dispersión de la autoridad y con la coordinación horizontal. Sin embargo, encontramos evidencia limitada de que otros factores de la burocracia pública estén relacionados con la política de adaptación. Concluimos que las tradiciones administrativas importan, pero que su influencia no debería ser sobreestimada.*

**PALABRAS CLAVE:** tradiciones administrativas, burocracia pública, adaptación al cambio climático, gobernanza, innovación política

### Introduction

States are increasingly pressured to respond to the crosscutting problems that require collective action, including climate change, global terrorism, food (in)security, and economic crises (WEF, 2018). These societal problems pose considerable governing challenges, particularly as states are generally considered ill-equipped to deal with new and crosscutting issues. Of the many reasons why states struggle to tackle collective action problems, one of the prominent reasons is the way in which bureaucratic machineries work: in their basic form, they are contrived of highly specialized institutions and policies that favor particular ways of thinking and acting (Peters, 2015). Public bureaucracies have distinctive features that influence how policy goals are defined and which policy choice options exist, and set the implementation preferences of policy actors (Howlett, 1991, 2004 ; Knill, 2001). These “administrative traditions” are the historically grown and relatively stable features of public bureaucracies that entail the particularities of how policy making and implementation are organized and acted upon by bureaucrats (Loughlin, Hendriks, & Lidström, 2010; Painter & Peters, 2010). Administrative traditions are entrenched in legal, administrative, and cultural institutions that have been (re) shaped through reconfirmation of the civil servants’ activities (Dyson, 2010). While these traditions may gradually change over time in different contexts and for various reasons—for example, in established democracies of Spain, Germany, and Belgium (Loughlin et al., 2010) and in many post-colonial and transition states (Painter & Peters, 2010)—they provide relatively stable features upon which bureaucracy is built (Peters, 2010).

The relative influence of administrative traditions and related concepts has been criticized in recent scholarship for lacking relevance in the rapidly changing network society of the twenty-first century. Key processes, it is argued, such as New Public Management, Europeanization and globalization, and neo-liberalization, are leading to convergence and increased similarity rather than differences in bureaucracies (Bennett, 1991; Drezner, 2001; Heichel, Pape, & Sommerer, 2005). Although this might be conditionally true, many studies show how structural and cultural differences still exist and matter for policy making, particularly when it comes to setting

preferences in the formation and implementation process around new policy issues (Meyer-Sahling & Yesilkagit, 2011). In situations of institutional voids and institution-building efforts, it is particularly important to assess the influence of administrative traditions. This is especially pertinent when considering the possibility of poor alignment of new policies with existing institutions and administrative traditions, which could lead to high degrees of resistance to change in existing practices making it difficult to realize political ambitions (Bürzel, 1999; Falkner, 2005).

In this paper, we aim to empirically test whether administrative traditions are aligned with how states are adopting adaptation policies to respond to the impacts of climate change, focusing particularly on the structural dimensions of administrative traditions. Climate change adaptation is a novel policy issue that public bureaucracies and their administrative traditions are confronted with (Biesbroek, Peters, & Tosun, 2018). We make a clear distinction here between climate change *mitigation*, which refers to all (policy) efforts to reduce the emission of greenhouse gasses, and climate change *adaptation*—the focus of this paper—which refers to all (policy) efforts to reduce the negative impacts of climate change and/or take advantage of emerging opportunities. The role of bureaucracies in adaptation is critical to addressing the collective risk of climate change. This is a central argument underpinning the 2015 Paris Agreement on Climate Change, in which adaptation was politically placed on equal footing with mitigation, committing governments to start or intensify their adaptation efforts across sectors, levels, and societal groups (Lesnikowski et al., 2017; Magnan & Ribera, 2016). For over a decade, governments have been adapting to the projected impacts of climate change and many examples of adaptation policies, institutions, and instruments have been reported globally, including establishing interministerial climate change advisory committees, interdepartmental work programs, emergence of climate change ministries, developing new laws and regulations to ensure integration of climate change adaptation, investments in new research and policy experiments, and many others (Bauer, Feichtinger, & Steurer, 2012; Biesbroek et al., 2010; EEA, 2014; Ford, Berrang-Ford, & Paterson, 2011; Lesnikowski, Ford, Biesbroek, Berrang-Ford, & Heymann, 2016; Massey, Biesbroek, Huitema, & Jordan, 2014). However, since data on adaptation policy remain scarce, we construct a unique dataset of 32 high-income countries to quantitatively assess how administrative traditions align with the adoption and implementation patterns of climate change adaptation policy. Such understanding will be vital to inform how states can progress in climate change adaptation policy.

The paper proceeds as follows. The next section reviews the existing scholarly work on adaptation policy and administrative traditions, and formulates seven hypotheses stemming from the literatures. Then, we present the research design, empirical setting, and methods of analysis. The results are presented in the fourth section followed by a discussion of the findings and implications.

### **Administrative Traditions and Climate Change Adaptation Policy**

Some literature on adaptation policy suggests that there might be a link between how states respond to climate change risks and the socio-political and institutional context of a country. Vink et al. (2015) and Biesbroek (2014), for example, both show how the neo-corporatist traditions in the Netherlands and the British pluralist

traditions shape the different ways in which responsibilities between public and private are divided, the types of policy instrument mixes proposed, which sectors are to be involved and in what way, and how adaptation policy is being decided and is implemented. Similarly, Granberg and Glover (2014) argue that the neoliberal political ideology in Australia's bureaucracy has shaped several explicit pathways through which adaptation policy is formulated and implemented, and in doing so poses structural constraints for looking at alternative policy options beyond this paradigm (Fieldman, 2011). These few small-n case-study examples give rise to broader questions about if and how elements of administrative traditions influence the adoption and implementation of climate change adaptation policy across different types of countries.

### ***Understanding Climate Change Adaptation Policy***

Different framings of what constitutes adaptation policy have left policy scholars struggling to define their dependent variable when comparing cases and scenarios. Here we follow Dupuis and Biesbroek (2013) and define adaptation policy as "... the production of outputs in forms of activities and decisions taken by purposeful public and private actors at different administrative levels and in different sectors, which deals intentionally with climate change impacts, and whose outcomes attempt to substantially impact actor groups, sectors, or geographical areas that are vulnerable to climate change" (p. 1480). In other words, we conceptualize something as adaptation policy when it is explicitly framed as such by policy makers, an approach that is consistent with most other comparative adaptation policy studies (Araos et al., 2016; Austin et al., 2016). Given the multifaceted nature of adaptation, we unpack adaptation policy into three interrelated questions: 1) when is adaptation policy taking place (timing), 2) what kind of adaptation policy exists (action), and 3) how is this policy organized (structure).

*Timing*—Several studies have started to identify early adopters in adaptation policy and explore whether or not early adoption has resulted in measurably greater policy progress over time (Berrang-Ford et al., 2014). In Europe, Massey et al. (2014) find in their sample of 29 European countries that adaptation policy innovations are driven predominantly by extreme events and scientific evidence that climate change is happening. Patterns of policy diffusion clearly show early adopters (such as Finland, U.K., and the Netherlands), followers (such as Italy and Portugal), and many nonadopters. Similarly, Berrang-Ford et al. (2014) find in their dataset of 117 countries that GDP per capita and good governance are the best predictors for whether or not a country starts to adapt and when this adaptation will take place.

*Action*—Several studies have made distinctions between "groundwork" actions and "concrete" actions (Biagini, Bierbaum, Stults, Dobardzic, & McNeeley, 2014; Lesnikowski et al., 2016). Much of the reported activity of governments is at the groundwork level: policy efforts to ensure high stakeholder involvement, investments in impacts, and vulnerability assessments and adaptation research as well as developing climate change scenarios. These activities are necessary first steps in order to move to more concrete adaptation policy, including dedicated financial schemes and

regulations, investments in infrastructure, public awareness and outreach campaigns as well as resource investments in organizational and staff development (Biagini et al., 2014; Lesnikowski et al., 2016). Although there are clearly leading countries that have moved well beyond groundwork actions, most are still at the groundwork stages and are experiencing considerable challenges moving toward implementing concrete adaptation actions.

*Structure*—Adaptation is not a policy goal that can be achieved, but rather a continuous process of change that all levels, sectors, and actor groups need to consider in their policy process. Many authors have argued that groundwork and concrete adaptation actions should be “integrated” or “mainstreamed” into existing policies and practices to be effective (Dovers & Hezri, 2010; Runhaar, Wilk, Persson, Uittenbroek, & Wamsler, 2017). How this implementation is organized, however, differs across states; some countries have opted for a strong institutionalization of adaptation from which mainstreaming is coordinated or the development of key principles to guide how adaptation will be addressed nationally (Massey & Huitema, 2015). Other countries, however, have argued that adaptation is a local responsibility and that no additional institutional structure is needed to ensure uptake of adaptation at the most appropriate level (Storbjörk & Ugglå, 2015). Many scholars argue that horizontal and vertical coordination and integration is necessary to ensure that all actors and organizations take into account the adaptation actions of others (Urwin & Jordan, 2008).

Some countries have therefore started to implement hard and soft laws to ensure *timing*, *action*, and *structure* for climate change adaptation (McDonald, 2011), with the UK Climate Change Act from 2008 being the first adopted and most frequently highlighted in research (Jude et al., 2017). Legislative approaches have become more prominent, indicating increasing seriousness in addressing adaptation (Lesnikowski et al., 2016).

### ***The Legacy Effect of Administrative Traditions: Five Structural Dimensions***

The lack of a coherent definition for adaptation is also true for literature on administrative traditions. In most instances, literature uses broad heuristic categories of states that share similar administrative traditions (6, 2004). For example, Painter and Peters (2010) propose nine distinct families of countries that share similarities in their administrative tradition: Anglo American, Napoleonic, Germanic, Scandinavian, Latin American, post-colonial South Asian and African, East Asian, Soviet, and Islamic. Similar classifications have been developed by others, including Loughlin et al.’s (2010) understanding of regional democracy in Europe. While there are merits to using these typologies, particularly for small-n and in-depth qualitative research, most contemporary states have hybrid forms of administrative traditions where combinations of the classical types of administrative traditions can be found (Painter & Peters, 2010). Though many dimensions of administrative traditions have been proposed, we limit the present study to the five main structural dimensions of administrative traditions dominant in the literature (see e.g., Freeman, 1985; Howlett, 2003; Knill, 1998, 2001; Painter & Peters, 2010):

- 1 Vertical dispersion of authority
- 2 Horizontal coordination
- 3 Interest mediation between state–society
- 4 Role of public administrator: managerial or legalistic
- 5 How knowledge enters bureaucracy: Openness of public bureaucracy

### ***Vertical Dispersion of Authority***

The first dimension refers to the vertical dispersion of authority, in other words how power and responsibilities to implement adaptation policy are constitutionally defined and how they are retained and distributed between different levels of government (Pollitt & Bouckaert, 2011). Dispersion of authority thus refers to the basic structures of the state by looking into unitary versus federalist states and centralized versus decentralized political systems, with many shades of gray in between (Dyson, 2010). There is compelling theoretical—and empirical—evidence that the various ways of dispersing authority offer both advantages and disadvantages for governing complex issues. Federalist countries arguably have several advantages over unitary states as they are deemed to be more flexible and offer tailored policies, more efficient provision of public services, and they allow for more diverse forms of policy innovation and more extensive participation of societal actors in democracy. Rabe (2011), for example, argues that in the United States the subnational level has increasingly become the political level where policy innovations emerge, which supports local-level adaptation policy, and resulting in a bottom-up process of building national adaptation policy (Fisher, 2013). However, federalist systems generally lack national coordination mechanisms, which create the risks of increased redundancy, incoherence, and fragmentation across levels of government, and create unclear allocation of tasks and responsibilities. In decentralized systems, policy is thus expected to go in different directions according to the specifics of the subnational state (Glicksman, 2010). In centralized unitary systems, central government will decide what powers are given to local governments. In theory, these systems are more successful in internalizing negative externalities than the subnational level which faces more constraints in implementing policy due to the increased number of veto players and complex policy arenas. Unitary states are more likely to address key societal issues at the national level and coordinate within and across levels. In addition, the central government is expected to retain ultimate sovereignty on the issue even if authority is (temporarily) delegated to lower tiers of government, a trend which is visible in many (Western) democracies (Pollitt & Bouckaert, 2011). We therefore hypothesize that:

***Hypothesis 1:** Unitary centralized states are more likely to have dispersed authority on adaptation across scales in the form of coordinative mechanisms at the national level.*

### ***Horizontal Coordination***

The second dimension refers to the inherent tension between specialization of bureaucracy and the need for coordination between different (sub)departments to set overarching goals, resources, and instruments, and to ensure distribution of issue attention to tackle crosscutting issues. Clearly specialized bureaucracies exist for



good reasons, but they have limited inter-ministerial linkages and capacities which makes collaboration across department less likely (Peters, 2015). The extensive body of literature on coordination and policy integration has evidenced the different traditions within countries to coordinate policy issues in response to NPM departmentalism (Peters, 2015), most notably Joined-Up Government, Holistic Government, and Whole-of-Government approaches, which are particularly prevalent in Anglo-Saxon countries (Candel & Biesbroek, 2016; Tosun & Lang, 2017). How a country creates an institutional setting of decision routines and opportunity structures influences the ability of civil servants from different departments to collaborate more closely on (other) crosscutting issues such as food, smoking, and national security in more integrated ways (6, 2004). This can be, however, very specific for particular issues, as is illustrated by Newman and Head (2015) in the case of gun violence. The type of political system provides insights into the traditions of horizontal coordination in public bureaucracy; countries with consensus executive governments are characterized by political and decision-making structures where collaboration and coordination are key for political success (Lijphart, 2012). This is in contrast to more majoritarian executive systems where the minority can be decisive and one department can dominate. We therefore hypothesize that:

***Hypothesis 2:** States with collaborative administrative traditions are likely to have dedicated interdepartmental coordination structures and instruments to address climate change adaptation holistically across sectors.*

### **Interest Mediation between State and Society**

The third dimension of interest in this study is the relation between the state and other societal actors, an important but a difficult dimension to measure. The patterns of interest mediation in most of the policy literature are classified into the two ideal-types of corporatist and pluralist patterns. In countries with high degrees of corporatism (e.g., Germanic) or corporate pluralism (e.g., Scandinavian), greater emphasis is placed on the organized interaction patterns within a limited number of organized societal interests, for example through labor unions, farmer organizations, or organized interests of specific industries (Peters, 2010). Close cooperation between state and society will be beneficial for collecting information, legitimizing government action, and strengthening “societal” engagement to ensure timely actions. The need for social partners in decision-making as well as lobbying of these interest groups for governmental actions is crucial when addressing new (environmental) policy issues (Jahn, 1998; Siaroff, 1999). Politically elected decision-makers, and also administrators, tune their policy proposals to organized interests through routinized interaction. In general, this specific system of interest intermediation is focused on cooperation rather than competition between societal interest groups, and therefore consensus through negotiation is essential (Schmitter, 1974). The strength of the different corporatism styles is their capacity to create consensus among strong conflicting societal interests and overcome controversy as well as creating stability and ability to cope with complex uncertain knowledge in plural societies (Visser & Hemerijck, 1997). Because of vested interests of (non)state actors in policy making, public bureaucracy may be more inclined to develop adaptation policy to

serve the public good and maintain trust. Boezeman, Vink, and Leroy (2015) show how corporatist approaches pacify political opposition by incorporating powerful societal organizations in an early stage of the policy-making process. We therefore hypothesize that:

*Hypothesis 3: Corporatist countries are expected to start adaptation at later stage than pluralist countries.*

Although vested interests in corporatist styles can constrain policy development, corporatist mechanisms could also be used to prevent heated political debate or controversy when policy proposals are to be accorded in parliament (Visser & Hemerijck, 1997). However, the tradition of cooperation rather than competition among societal actors, iron triangles of closed interaction patterns, and the relative strong role of the state in corporatist styles is thought to make them slower in learning and innovation compared to more pluralist styles which centre on competition and societal plurality (Boezeman, Vink, Leroy, & Halffman, 2014; Vink et al., 2015). Given the conservative and relatively closed nature of corporatist states to include new policy actors and create new institutions that compete for power, we hypothesize that:

*Hypothesis 4: Corporatist states are more likely to mainstream adaptation into existing institutions rather than establish independent policy fields.*

### **Role of the Public Administrator: Managerial or Legalistic**

Our fourth dimension reflects the institutions and culture within a bureaucratic system that define the role of civil servants. Borrowing from Painter and Peters (2010), there are two meta-types of systems, more legalistic and more managerial systems (Christensen, Goerdel, & Nicholson-Crotty, 2011). Between these two extremes are for example Scandinavian countries that have a mixture of legalistic and managerial styles (Kickert, 2005). *Managerial* systems refer to administrations where civil servants are expected to serve the public good as efficient and effective as possible and focus on implementing policy programs. The civil servant is seen as the societal manager. The administrative practice can thus be very inductive, procedural, and mediating, with the Anglo-Saxon countries as prime examples of this style. Most of the policy instruments at the disposal of the manager are procedural in nature, altering the behavior of actors involved in policy implementation of goods and services delivered to the public as well as affecting the actions of citizens. Influence of New Public Management has driven civil servants into the direction of managers that facilitate efficient and effective implementation, but questions have been raised about less attention for accountability and discretionary issues that are central to public management (Hood & Margetts, 2007; Howlett, 2009). In *legalistic* systems, civil servants are mostly considered to be rule-following, and civil servants have a more substantive character of regulatory activity to intervene in society (e.g., Germany). Mostly selected because of their legal training, civil servants in these systems are seen as guards of institutionalized democratic values in the administrative process. The rule of law is obviously the preferred instrument to ensure substantive policy implementation. Although legalistic systems can play an important role in facilitating and directing public management processes, the prevalent idea remains that law-based



public administrations are less open to include policy innovations that do not (yet) meet the institutionalized rules (Peters, 2010). Both systems have their pros and cons, particularly when it comes to the accountability mechanisms at the disposal to societal actors to appeal against the decisions of public administration; accountability is inward looking and part of the wider juridical systems in more legalistic systems, whereas the more open politics-driven forms of accountability systems follow from the more managerial systems (Kassel, 2008; Kettl, 2009). Bureaucracies that emphasize legalistic approaches are expected to produce more severe barriers. We therefore hypothesize that:

*Hypothesis 5: Legalistic systems are less likely to adapt early.*

And, we hypothesize that:

*Hypothesis 6: Managerial administrative systems are more likely to rely on procedural instruments to manage societal adaptation.*

### **How Knowledge Enters Bureaucracy: Openness of Public Bureaucracy**

Our final dimension refers to how new ideas enter public bureaucracy. This is a relevant dimension given that ideas, knowledge, and evidence about how to adapt to climate change impacts need to enter and become part of bureaucracy. Controversial issues that are epistemologically distant from policy makers require scientific evidence and (creative) ideas to make informed rational and legitimate decisions (Howlett & Newman, 2010), although acknowledging such evidence is often contested. Halligan (1995) argues that such policy advice can emerge from within government, for example through the expert and professional public servants working within government, through the special political units in place, or through a specialized policy unit. Depending on the bureaucratic system, governments can exert influence by recruiting civil servants who are specialists in their respective fields or topics vis-à-vis bureaucracies where civil servants are mostly generalists and serve the public good (Demmke & Moilanen, 2010). The pluralistic knowledge societies in Western democracies have, however, other ways for policy advice to enter bureaucracy; different types of research agencies, scientific bodies and universities, think-tanks, and consulting firms play a considerable role in advising government (Craft & Howlett, 2012), creating an “invisible public service” (Boston, 1994). Although such a relationship is much more difficult for governments to steer, several instruments such as contracts, appointments, subsidies, and grants are used by governments to retain influence on policy advice. Clear differences are seen in the types of policy advisory systems, for example between Germany and the U.K. (Fleischer, 2009). However, Craft and Howlett (2013) argue that policy advisory systems are as much about administrative structure as policy content, and specific contexts and jurisdictions result in specific advisory systems, thus according to the authors, the internal/external model by Halligan (1995) is not sufficient to understand the complexities of contemporary systems. Policy advisory systems are thus an integral part of the boundary work between science and policy to address complex societal problems (Eichbaum & Shaw, 2008; Hoppe & Wesselink, 2014). We therefore hypothesize that:

*Hypothesis 7: More open bureaucratic systems have a greater number of entry points for new ideas and so are likely to adopt policy innovations at an earlier stage.*

## **Research Design, Data Collection, and Methods for Analysis**

To date, no comprehensive dataset exists to test our hypotheses directly. We therefore combined information from different existing data sources to construct a novel dataset using available proxy variables to assess how administrative traditions align with national adaptation policy.

### ***Datasets for Dependent Variables: Adaptation Policy***

The key challenge for comparative work on climate change adaptation policy is finding consistent, comparable, comprehensive, and coherent data, particularly because much of the conceptual and methodological work on this topic is still in early stages (Dupuis & Biesbroek, 2013). Three authoritative datasets are currently available on adaptation policy at the national level, and these were used here to construct our dataset. The original datasets are constructed of: self-reported adaptation activities through the UNFCCC National Communications 5 (~2010) and 6 (2012–2014) (Lesnikowski, Ford, Berrang-Ford, Barrera, & Heymann, 2013), self-assessment of EU Member States in response to the request of the European Environment Agency in 2013 (EEA, 2014), and an expert survey among scientists and policy experts from 29 European countries in 2013 (Massey et al., 2014). The respective code-book and materials are available through the original sources. Table 1 provides an overview of the dependent variables used in this study.

### ***Data on Independent Variables: Administrative Traditions***

As there are no readily available datasets on administrative traditions, we made use of different data sources: the Comparative Political Data Set III (1960–2012) by Armingeon, Weisstanner, and Engler (2014); the OECD Government at Glance 2013 report (OECD, 2013) and the OECD Government at Glance 2015 report (OECD, 2015); and the Quality of Government expert survey (1990–2012) by Teorell, Dahlström, and Dahlberg (2011). Of the many possible ways to conceptualize corporatism (Siaroff, 1999) for hypotheses 3 and 4, we selected the Corporatism Index developed by Jahn (2014) as it best fitted our definition of state–society relationship described in the theory section. While these datasets often include a longitudinal dimension, this analysis provides a snapshot of the period 2010–2014, so the most recent data were selected for each variable, except the corporatism for which the calculated mean was used. Table 1 provides an overview of the independent variables used in this study.

### ***Selection of Countries in Sample***

This study included Annex I Member States of the United Nations Convention on Climate Change (UNFCCC).<sup>1</sup> Of the 43 UNFCCC Annex I Members States listed in 2016, small nations and microstates (Liechtenstein, Monaco, Cyprus, Malta) as well

**Table 1.** Overview of Dependent and Independent Variables and Sources Used in This Study

<i>Independent variables</i>	
State structure	[ <i>Continuous</i> ] Percent of GDP allocated to national government (2011) combined with categorization as unitary (-1) or federalist (1) structure. Source: OECD (2013); Armingeon et al. (2014)
Pluralism	[ <i>Continuous</i> ] A proxy for Lijphart's first dimension composed of moving 10-year average for the number of effective parties in parliament, the absence of minimal winning and single-party majority cabinets, the proportionality of electoral systems, and cabinet dominance calculated by taking the average cabinet duration measured by the number of changes in government per year. Source: Armingeon et al. (2014)
Legalism	[ <i>Continuous</i> ] Degree of legalism in bureaucratic style measured on a scale of 0–7, with higher scores corresponding to greater legalism. Source: Teorell et al. (2011)
Managerialism	[ <i>Continuous</i> ] Degree of managerialism in bureaucratic style measured on a scale of 0–7, with higher scores corresponding to greater managerialism. Source: Teorell et al. (2011)
Corporatism	[ <i>Continuous</i> ] Trend in corporatist arrangements between state and society. Higher scores correspond to greater degrees of corporatism. Source: Jahn (2014). Calculated mean.
Closedness	[ <i>Continuous</i> ] Extent to which administration is open to public scrutiny. Higher values mean a more closed administration. Source: Teorell et al. (2011)
<i>Dependent variables</i>	
National coordination	[ <i>Dichotomous</i> ] Is there a NAP/NAS in place (1: yes, 0: no). Source: Lesnikowski et al. (2016); Massey et al. (2014)
Horizontal coordination	[ <i>Dichotomous</i> ] Is there a national working group or cross-ministerial committee (1: yes, 0: no). Source: Lesnikowski et al. (2015); Massey et al. (2014)
National legal framework	[ <i>Dichotomous</i> ] Is there national CCA regulation (1: yes, 0: no). Source: Lesnikowski et al. (2016); Massey et al. (2014)
Implementation mode	[ <i>Continuous</i> ] Share of adaptation initiatives reported in the Sixth National Communications that are implemented by mainstreaming. Source: Lesnikowski et al. (2016)
Proceduralism	[ <i>Continuous</i> ] Share of all initiatives reported in the Sixth National Communications that are at the groundwork stage (including: climate change scenarios, impact and vulnerability assessments, adaptation research, stakeholder networking, conceptual tools). Source: Lesnikowski et al. (2016)
Timing	[ <i>Continuous</i> ] Year of initial national adaptation plan or strategy enactment. Source: Lesnikowski et al. (2016); Massey et al. (2014)

as the EU were excluded because they are not comparable in structure. Ukraine, Turkey, Croatia, and Russia were removed due to lack of data on both administrative traditions and climate change adaptation policy. The final dataset included 32 states.<sup>2</sup> We excluded low- and middle-income countries because their administrative traditions are poorly theorized and relatively unstable (Jreizat, 2010), access to trustworthy data to measure public administration and climate change adaptation policy is limited, and the conceptualization of adaptation is likely to vary between Annex I and II countries, thereby complicating comparative analysis (Dupuis & Biesbroek, 2013). It should be noted that 27 out of 32 are members of Europe(an Union) and the OECD. While this might influence individual member states on whether or not they start to adapt, the role of the EU and OECD has so far fulfilled merely an agenda setting role. There are no formal competences by the EU in the formation and adoption of climate change adaptation policy, nor was there a common global or European framework before 2014 that prescribes how countries should adapt (Biesbroek et al.,

2010; CEC, 2013; EEA, 2014). Therefore, it is unlikely that there is a direct influence of the EU or OECD on *how* adaptation policy of member states is taking place.

### **Control Variables and Sensitivity Analysis**

Sensitivity analysis was conducted for GDP and the political orientation of governments as of the most recent election in 2012, as previous studies have shown that these are influential. Berrang-Ford et al. (2014) show that GDP per capita is strongly correlated to adaptation policy progress of countries globally. The GDP control variable is therefore used at the beginning of the time period for which the dependent variable is available. We use the OECD database as the source of GDP data (OECD, 2015). We also control for the political party in power for the past 5 years. Research suggests that countries with left-wing parliaments are more likely to formulate policy and implement adaptation actions compared to right-wing parties, which instead will place emphasis on mitigation and role of private actors to address climate change risks (Dupuis & Knoepfel, 2011). We would expect high variations in left–right orientation of a government to have a direct influence on the absolute amount of policy outputs (Schmidt, 1996). We used the Comparative Political Data Set III to control for political orientation (Armingeon et al., 2014).

### **Method of Analysis**

Based on the variables presented in Table 1—reflecting the best available proxies for our hypotheses—we constructed models to empirically test our hypotheses. Logistic and linear regression analyses were used to evaluate the statistical associations between five aspects of state structure and administrative traditions, and the presence of national adaptation efforts in 32 medium- and high-income countries. We built multivariable regression models for each of the six dependent variables in our dataset. The hypotheses and models are presented in Table 2.

In each model, we included any independent variables hypothesized to be associated with the dependent variable. We used multivariable models to allow consideration of confounding and interaction between variables, where feasible, though our relatively small sample size precluded inclusion of more than one or two variables or consideration of interaction in a single model without compromising model reliability. For continuous dependent variables (implementation mode, proceduralism, and timing), we used least squares regression; we used exact logistic regression for our dichotomous outcomes (national coordination, horizontal coordination, and national legal framework). We chose exact logistic regression due to the relatively small sample size of our dataset. Our modeling procedure was guided by our hypotheses. We first constructed core models combining each dependent and independent variable combination that best proxied our hypotheses. For each model, we conducted sensitivity analyses on each independent variable by including GDP and/or political preference variables to assess the extent to which the significance, strength, and/or direction of the independent variable effects were impacted. Model AIC (for linear; lower values indicate better model fit) and model score (for exact logistic; higher values indicate better model fit) were used to assess model performance. Prior to modeling, we assessed variables based on model assumptions, including linearity

**Table 2.** Theoretical Hypotheses, Analytic Hypotheses, and Methods used

Model group	Theoretical hypothesis	Analytic hypothesis	Method
A	<p>1. Unitary centralized states are more likely to have dispersed authority on adaptation across scales in the form of coordinative mechanisms at the national level</p> <p>2. States with collaborative administrative traditions are likely to have dedicated interdepartmental coordination structures and instruments to address climate change adaptation holistically across sectors.</p>	<p>States with a NAP (National Adaptation Plan)/NAS (National Adaptation Strategy) in place (reflecting national coordination) will be more unitary (state structure) than states without a NAP/NAS in place.</p> <p>States with a national working group or cross-ministerial committee (horizontal coordination) will be more federalist (state structure) than states without a national working group or cross-ministerial committee.</p> <p>States with a national working group or cross-ministerial committee (horizontal coordination) will be more pluralist (pluralism) compared to states without a national working group or cross-ministerial committee.</p>	<p>Multivariable exact logistic regression</p> <ul style="list-style-type: none"> <li>• Dependent variable: national coordination</li> <li>• Independent variables: state structure</li> <li>• Sensitivity analysis: GDP, political preference</li> </ul>
B	<p>3. States with a greater share of adaptation initiatives in the 6<sup>th</sup> NCs that are implemented by mainstream institutions rather than establish independent policy fields.</p>	<p>More corporatist states (corporatism) will have a greater share of adaptation initiatives in the 6<sup>th</sup> NCs that are implemented by mainstream (implementation mode) compared to less corporatist states.</p>	<p>Ordinary least squares regression</p> <ul style="list-style-type: none"> <li>• Dependent variable: implementation mode</li> <li>• Independent variable: corporatism</li> <li>• Sensitivity analysis: GDP, political preference</li> </ul>
C	<p>4. Corporatist countries are expected to implement adaptation at later stage than pluralist countries.</p>	<p>More corporatist countries (corporatism) will have a later year of initial national adaptation plan (timing) compared to less corporatist countries.</p>	<p>Multivariable exact logistic regression</p> <ul style="list-style-type: none"> <li>• Dependent variable: timing</li> <li>• Independent variables: legalism, closedness, corporatism</li> </ul>
D	<p>5. Legalistic systems are less likely to adapt early.</p> <p>7. More open bureaucratic systems have a greater number of entry points for new ideas and so are likely to adopt policy innovations at an earlier stage.</p>	<p>More legalistic countries (legalism) will have a later year of initial national adaptation plan (timing) compared to less legalistic countries.</p> <p>Countries that are more closed to public scrutiny (closedness) will have a later year of initial national adaptation plan (timing) compared to countries more open to public scrutiny.</p>	<p>Sensitivity analysis: GDP, political preference</p> <p>Note: there was insufficient power (sample size) to include multiple independent variables in a single model.</p>
E	<p>6. Managerial administrative systems are more likely to rely on procedural instruments to manage societal adaptation.</p>	<p>States with a greater degree of managerialism in bureaucratic style (managerialism) will have a greater share of all initiatives reported in the 6<sup>th</sup> NCs that are at the groundwork stage (proceduralism).</p>	<p>Ordinary least squares regression</p> <ul style="list-style-type: none"> <li>• Dependent variable: proceduralism</li> <li>• Independent variable: managerialism</li> <li>• Sensitivity analysis: GDP, political preference</li> </ul>

and normality. GDP was highly overdispersed, and we thus used a dichotomous GDP variable (0=below median GDP, 1=above median GDP) for sensitivity analyses. We assessed all models for significant outliers. All analyses were conducted in Stata (StataCorp v.13).

### ***Limitations of This Study***

There are some limitations in the data and our methods of analysis. First, given that two sources rely on self-reporting, there might be a bias in the types of activities reported and emphasis on positive policy outcomes rather than policy failures. Many authors acknowledge that it is conceptually difficult to distinguish symbolic policies from concrete adaptation outputs in these datasets, which hampers large-scale comparisons (Dupuis & Biesbroek, 2013). However, this is the best available data to date and more refined forms of adaptation tracking are needed to create better metrics for adaptation and allow for detail comparative assessments (Ford, Berrang-Ford, Lesnikowski, Barrera, & Heymann, 2013). Second, the datasets used are combinations of ordinal and categorical variables, which makes it complicated to test very refined propositions. Variables treated as continuous in our analyses were in fact continuous constructs, but measured as multiple-category ordinal variables, thus reducing precision and statistical power in our analyses. Comprehensive data for some of our theory-informed hypotheses were nonexistent, forcing us to use imperfect proxy variables. Third, our sample size is limited due to various reasons discussed above. This has implications for the tests used as well as robustness of our findings. Fourth and finally, we had to work with poor-quality data and limited sample size, which reduced reliability and validity of our findings and made it difficult to say with confidence whether or not these variables matter. We thus interpret our results with caution and focus on the stability, reliability, direction, and relative strength of different effects rather than the precision of estimates. We reflect on the implications for interpreting our findings in the discussion section.

## **Results**

### ***Model Group A: Effect of State Structure on National Adaptation Plans***

Consistent with our hypothesis 1, countries with a more unitary state structure were more likely to have National Adaptation Plan or National Adaptation Strategy (NAS/NAP) in place; this association was significant at  $p < 0.05$ , though there was a wide confidence interval around the size of effect (Table 3). This effect remained similar when controlling for GDP, with a modest reduction in effective size and loss of significance. This implies that some of the association between state structure and NAP may be attributed to GDP, though the confounding effect is modest (e.g., Table 3, Model 1 versus 2). We were not able to model the impact of political preference given the small sample size and nonconvergence of the model.



**Table 3.** Model Group A

	<i>Core Model</i>		<i>Sensitivity Analyses</i>	
Dependent variable:	Model 1	Model 2	Model 3	
National adaptation plan	State structure only	State structure, controlling for GDP	State structure, controlling for political preference	
Independent Variables:				
State structure (more unitary)	<b>10.02 (0.98-179.26)**</b>	8.50 (0.45-269.92)	n/a	
GDP		<b>1.31 (0.07-15.55)*</b>		
Political preference				
Model score	3.58	3.61		

*Note:* Values in table represent odds ratio (95% CI) from exact logistic regression

\*\* Significant at  $p < 0.05$  (values in bold)

\* Significant at  $p < 0.10$  (values in bold)

**Model Group B: Effect of State Structure and Pluralism on National Working Group**

Federalist countries were significantly more likely to have a national working group on adaptation (Table 4, Model 1), which is the opposite of what we expected in hypothesis 2. We found no evidence for the second hypothesis that more pluralist countries are more likely to have a national working group (Table 4, Model 2). Indeed, less pluralistic countries had national working groups more frequently than more pluralistic countries in most of our models (3 of 4), though the direction of effect was inconsistent and not significant in any models. Notably, we found an interaction between pluralism and state structure. The effect of state structure on national working group was substantially stronger among less pluralistic countries (stratified models not shown). This can be observed in Table 4 in the difference in the effect of state structure between models 1 (without pluralism) and 3 (with pluralism), and the significance of state structure when pluralism is added to the model (Model 3): when accounting for pluralism, the effect of state structure on working group increased, though confidence intervals were very wide for state structure across all models. For example, of nine countries without national working groups, only one is federalist (Belgium), and the remainder unitary. Similarly, all federalist, less pluralistic countries in our dataset had national working groups (Spain, Canada, Germany, and the United States). Countries without national working groups were predominantly unitary and close to the median pluralism score, with the exclusion of Belgium. These trends can be seen in Figure 1. Thus, while pluralism itself does not seem to have a substantial effect on national working group, it may be mediating the extent to which state structure matters for creation of a working group. The very large coefficient for state structure in Model 3 reflects the importance of pluralism in affecting the role of state structure on national working group, but should not be interpreted with precision given a very wide confidence interval.

Our sensitivity analyses of GDP and political preference indicate that neither variable had a substantial influence for these models. There is evidence of weak confounding by GDP on the effect of state structure on creation of a national working group (Model 4). Wealthier countries are more federalist and are more likely to create working groups (results not shown); national wealth (or country size) rather than federalism may thus play a role in influencing the creation of national working

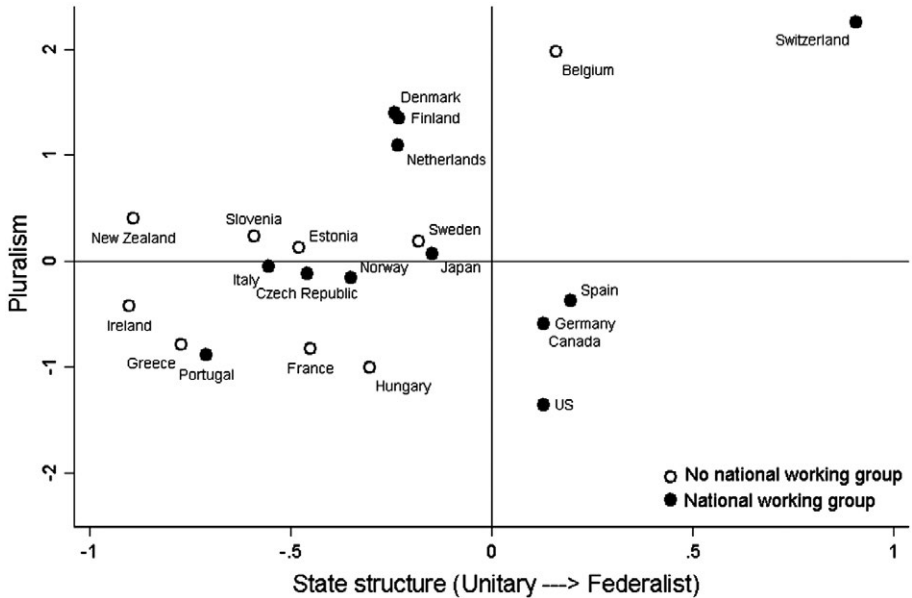
**Table 4.** Model Group B

Dependent variable: National group Independent Variables:	Core Models			Sensitivity Analyses			
	Model 1 State structure only	Model 2 Pluralism only	Model 3 State structure + Pluralism	Model 4 State structure controlling for GDP	Model 5 State structure, controlling for political preference	Model 6 Pluralism, controlling for GDP	Model 7 Pluralism, controlling for political preference
State structure (more unitary)	<b>6.62 (0.74-94.35)*</b>		<b>29.82 (1.15-5862.04)**</b>	4.52 (0.28-111.52)	3.98 (0.59-48.70)		
Pluralism		0.82 (0.40-1.65)	1.38 (0.16-17.73)			0.86 (0.41-1.80)	0.77 (0.36-1.61)
GDP				1.75 (0.08-79.31)		2.39 (0.47-14.14)	1.49 (0.27-9.03)
Political preference					1.01 (0.96-1.09)		
Model score	2.69	0.31	4.38	2.85	2.20	1.83	0.61

*Note:* Values in table represent odds ratio (95% CI) from exact logistic regression

\*\* Significant at  $p < 0.05$  (values in bold)

\* Significant at  $p < 0.10$  (values in bold)



**Figure 1.** Nations With and Without National Working Groups, By State Structure and Pluralism

*Note: the figure is a descriptive/scatterplot visualization of countries by pluralism, state structure, and national working group, and is not based on model results from Table 4*

groups. The sample size was insufficient to model more than two variables at a time with robust results.

### **Model Group C: Effect of Corporatism on Implementation Mode**

We found no evidence—or indeed signals in the data—to indicate that more corporatist states have a greater share of adaptation initiatives that are implemented via mainstreaming (hypothesis 4) (results not shown). This was unaffected by GDP or political preference. Of the six most corporatist states (Germany, Austria, Norway, the Netherlands, Belgium, Sweden), for example, all but two (the Netherlands, Norway) mainstreamed adaptations at proportions below the median for the full dataset. Similarly, half of the six least corporatist countries (the United States, Canada, the U.K., Malta, Estonia, Poland) had mainstreaming levels above the median (Canada, Estonia, Poland).

### **Model Group D: Effect of Legalism, Corporatism, and Closedness on Timing of NAP Initiation**

We found no evidence of significant relationships between corporatism (hypothesis 3), legalism (hypothesis 5), closedness (hypothesis 7), and on the timing of NAP implementation. Our sample size was low for these analyses ( $n=20$ ), and we were thus underpowered to detect significance for these variables; no coefficients in this model group were significant at the 95% confidence level. The strongest (though not significant) signal of potential effect was found for legalism. In contrast to our hypothesis 5, countries with more legalistic systems implemented initial adaptation plans earlier

than less legalistic countries. Among the four nations implementing NAPs earliest (Finland, France, Spain, and the Netherlands), all but one (Spain) are highly legalistic. Similarly, among the nations implementing NAPs the latest (Poland, Romania, Slovenia), all are less legalistic. This pattern appears to be partly confounded by GDP, however, with wealthier countries typically more legalistic and enacting NAPs earlier. Political preference had minimal impact on this trend. There were no signals in the data of a significant or potential effect of closedness or corporatism on the timing of NAP initiation (Table 5).

### ***Model Group E: Effect of Managerialism on Proceduralism***

We found no evidence to support hypothesis 6 that countries with more managerial systems had a greater proportion of initiatives in the NC6's at the groundwork stage (results not shown). Across all models, managerialism was not a significant predictor of our procedural outcome, effect sizes were negligible, and in fact managerialism was consistently a poorer predictor than the null model. Models controlling for GDP and political preference did not affect these results.

### **Do Administrative Traditions Matter for Adaptation Policy?**

Governments throughout the world have started to adapt to the impacts of climate change in a variety of different ways. Some literature has suggested that the ways through which governments are adapting might be influenced by the administrative traditions of these governments, or at least hinted that state structure matters. In this paper, we examined these observations by quantitatively testing the influence of five dimensions of administrative traditions on the formulation and adoption of climate change adaptation policy for 32 high and middle-income countries.

Our findings suggest that countries tend to implement adaptation policies and instruments that align to their state and administrative structures: national coordination, horizontal coordination, and state structure were associated with how governments structure their adaptation policies, organize their state–society relationship, and coordinate within and between levels of government. However, our findings are not overwhelming. Quite the opposite of what we hypothesized, we found that federalist countries are significantly more engaged in cross-departmental coordination compared to unitary states. This could be explained by studies which emphasize the important role for governments on the need for collective action across levels and the need for national governments to create an enabling policy environment for lower tiers of government to start adapting (Amundsen, Berglund, & Westskog, 2010; Henstra, 2017; Steurer & Clar, 2018). It also shows the importance of climate change at national political levels, and awareness of the disadvantages of uncoordinated action for adaptation. Our findings also provide preliminary support for the proposition that countries with legalistic traditions are more likely to use legal instruments to design and implement adaptation policies. Although the call for more legal approaches to adaptation is advocated by many scholars (Craig, 2010), and an increase is observed globally (Lesnikowski et al., 2016), our findings suggest that it can be questioned if such approaches would actually work (or be feasible) in all

**Table 5.** Model Group D

Dependent variable: Timing (binary) Independent Variables:	<b>Core Models</b>					<b>Sensitivity Analyses</b>				
	Model 1 Legalism only	Model 2 Closedness only	Model 3 Corporatism only	Model 4 Legalism controlling for GDP	Model 5 Legalism, con- trolling for political preference	Model 6 Closedness, controlling for GDP	Model 7 Closedness, con- trolling for political preference	Model 8 Corporatism, controlling for GDP	Model 9 Corporatism, controlling for political preference	
Legalism	0.36 (0.06-1.81)			0.51 (0.08-2.95)	0.31 (0.01-2.85)					
Closedness		1.22 (0.32-4.94)				1.53 (0.38-6.65)	1.30 (0.28-5.27)			
Corporatism			0.74 (0.31-1.72)					0.85 (0.34-2.09)	0.85 (0.43-2.17)	
GDP				0.57 (0.05-4.85)		0.29 (0.01-2.48)		0.37 (0.03-3.23)		
Political preference					1.02 (0.96-1.09)		1.02 (0.97-1.10)		1.02 (0.97-1.08)	
Model score	1.50	0.09	0.48	2.15	1.34	1.92	0.72	1.69	0.65	

*Notes:* Values in table represent odds ratio (95% CI) from exact logistic regression. Binary variable reflecting year of initial adaptation plan implementation (ref=2005–2008; 1=2010–2014). OLS models using the continuous timing variable had insufficient power to run.

contexts given the particularities of how for example governments with a more managerial style approach crosscutting issues in general, and climate change adaptation in particular. Surprisingly—and in contrast to most ideas in administrative tradition theories—we found evidence that legalistic countries may actually start adapting earlier. This result was consistent even when controlling for GDP and political preference, and suggests that in some contexts legalism may not be a barrier to adaptation per se as most of the literature suggests (Biesbroek et al., 2013). In fact, compliance to inter- and supra-national agreements might actually be a driver for these countries to implement adaptation policies. As for timing of adaptation, previous studies have suggested that multiple drivers for policy development exist, including experience of extreme events, GDP, impact of supranational policies (Berrang-Ford et al., 2014; Massey et al., 2014). There was no evidence in our data that administrative traditions played an important role in the timing of adaptation, other than for legalism.

We found no evidence that societal organization and systems of interest intermediation between state and society (pluralism and corporatism) as well as public management variables (openness of bureaucracy, managerialism) played an important role in climate change adaptation policy. There are several possible explanations of why we found no evidence for these. First, it might simply be that these variables do not matter for climate change adaptation policy, or at least not the adaptation policy variables included in this study. Second, it might be that it is too early to tell whether or not these variables actually matter. Many of the few forerunner countries existing are pioneering and experimenting with climate change adaptation policies. The learning curve is steep for most of them. Most countries are still at the early stages of developing adaptation policies and it might simply be a matter of time before sufficient progress has been made to assess influence of these variables on adaptation policy globally. Third, it might be that our operationalization of these variables does not sufficiently capture the complex and often composite processes in a meaningful way. More nuanced conceptualization as well as useful data on both dependent and independent variables would be needed to address this issue. We are thus careful in placing too much emphasis on the findings in this study as there remain limitations in both the quality and reliability of the data as well as conceptualization of the dependent and independent variables. Our results should thus be considered heuristic and hypothesis-building, intended to guide future work.

With evidence providing support for only two out of seven hypotheses in this study, our results could suggest that administrative traditions are of little significance. Are states emerging as products of an increasingly globalized society, over time transitioning to an amalgamation of different administrative traditions? Our analysis evokes a longstanding debate in the political sciences about whether the characteristics of a problem—and its associated policy style—are more important in explaining cross-country variation policy adoption and implementation than administrative traditions, as suggested by, amongst others, the works of Freeman (1985) and Richardson (2014). This paper does not reconcile that debate, but instead adds a layer of complexity by arguing that managing climate change impacts is by no means confined to merely one or a few policy sectors with its distinct sectoral policy style. In many cases, it is probably too early to tell to whether or not a policy field around climate change adaptation has emerged (but see Massey & Huitema, 2015) and how this is coordinated with other sectors. However, as a next step, it would be worthwhile to explore



further how governments deal with different types of new emerging issues that cross-cut existing policy systems, such as food insecurity and terrorism, and to what extent administrative traditions matter.

The behavioral dimension of administrative traditions as discussed in Biesbroek et al. (2018) could point toward an alternative understanding of why we could find evidence (or even signals in several cases) for only two out of seven hypotheses. It is clear that civil servants working in the climate change field have particular choices and preferences in the ways in which they select and give meaning to particular institutional conditions. This has not been included in our study and to better understand what the influence of administrative traditions is versus agency-based explanations that stress the role of leadership, policy entrepreneurship, or framing in climate change adaptation policy requires more systematic studies, see for example Rahman and Tosun (2018).

Finally, our results echo the calls for data that are more comparable, consistent, comprehensive, and coherent to allow for better comparative studies, not only at national level (Ford et al., 2015), but also at city level (Araos et al., 2016; Castán Broto & Bulkeley, 2013). This quest for data is not limited to academic purposes only, but also relevant for the growing needs for informing policy advice and strengthening public accountability and transparency on climate policy. Unlike climate change mitigation, there are no mandatory and standardized reporting obligations that are of sufficient detail to assess and evaluate whether countries are making progress (or not), and what could possibly explain the observed changes. These questions are particularly timely given the post-Paris agreement, where more emphasis is placed on the tasks and responsibilities of governments to invest in, develop, and implement adaptation policies.

It is of course difficult to conclude to what extent administrative traditions truly matter, particularly given the many other factors that shape adaptation policy. Whilst our findings are certainly not definitive, they do suggest that better understanding of the different variables that we found to be relevant will be of importance to consider when designing new adaptation policy innovations. This means, for example, that exchanging lessons learned across countries and adopting best adaptation practices should be selected, translated, and/or mainstreamed by taking into consideration the administrative structure of the country (Howlett, 2017). Moreover, supranational organizations such as the EU should prevent prescribing certain ways of working on adaptation policy (i.e., legalistic or managerial), as this is unlikely to lead to successful adoption, but merely increases the chances of symbolic action by member states. Overall, our results encourage further reflections about the existence of “administrative fit” for climate change adaptation, particularly in the emerging polycentric regime on adaptation.

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## Notes

- 1 Annex I countries include the industrialized countries that were members of the OECD in 1992 (moment of the Kyoto Protocol), plus countries with economies in transition, and committed themselves to implement the Kyoto protocol.
- 2 Australia, Austria, Belgium, Bulgaria, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Latvia, Lithuania, Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom, United States (n=32).

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