

# **Hierarchy and Differentiation in International Regime Complexes: A Theoretical Framework for Comparative Research**

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### Abstract

The concept of international regime complexity offers a useful lens through which to examine the increasing density of international institutions. A growing literature identifies clusters of overlapping institutions in many important policy areas, yet scholars have reached conflicting judgments about how this environment shapes substantive outcomes. Some argue that complexity undermines the effectiveness of global governance, owing to rule conflict and forum shopping, while others perceive distinct advantages over unified institutions. To bring coherence to these findings, we present a framework that characterizes regime complexes based on two distinct patterns of interaction among institutions: hierarchy and differentiation. We analyze regime complexity in two stages: first by examining the sources of institutional hierarchy and differentiation and second by explaining their effects on international cooperation. The paper illustrates these effects via an examination of regime complexes in five issue areas, finding general correspondence. By offering this framework, we aim to strengthen the foundation for comparative analysis of regime complexes and improve cumulation across studies in the research program.

## INTRODUCTION

A growing body of research in International Relations examines clusters of nested and overlapping international institutions, which we call “international regime complexes.” The popularity of this research program attests to the prevalence of regime complexes in contemporary global governance. Issue areas as diverse as trade, counterterrorism, election monitoring, and crisis finance have experienced a crowding of governance institutions over time. This increasing institutional density changes the strategic environment in which state, substate and nonstate actors interact, creating both challenges and opportunities for cooperation.

A central question for this research program is whether regime complexes improve or degrade substantive outcomes compared to a single multilateral institution. Many scholars argue that the fragmentation of governance across multiple institutions poses a threat to the effectiveness of international cooperation. These analysts fear that ambiguity over international standards, inconsistency of rules and obligations, and opportunities for forum shopping weaken the discipline of global governance on member states.<sup>1</sup> Others contend that regime complexes facilitate *more* effective cooperation: they increase flexibility, boost legitimacy, and engender greater expertise compared to unified regimes.<sup>2</sup>

What explains these competing findings? Despite the increasing attention devoted to overlapping institutions, few studies have explicitly questioned why some regime complexes produce more favorable outcomes than others.<sup>3</sup> This is true despite the rich variation in regime complex performance that scholars have documented across different issue areas. We believe a theoretical framework that unpacks and explains this variation offers the best opportunity for advancing the regime complexity research agenda.

To explain variation in regime complexes, we focus on the patterns of interaction that emerge among constituent institutions. The relevance of institutional interaction has become clear as research on regime complexity has evolved. Early scholarship emphasized the lack of any coherent order among institutions in a regime complex. In this view, institutions are linked due to overlap in their jurisdictions, but otherwise operate independently with few mechanisms for coordination. In their original elaboration of the concept of regime complexity, for example, Raustiala and Victor (2004) stress both the disaggregated decision making of institutions and the lack of a formal hierarchy to resolve conflicts among them. Alter and Meunier (2009) describe the “cross-institutional strategies,” such as forum-shopping and strategic inconsistency, that states can exploit in an environment of independent and uncoordinated institutions. This initial emphasis on disorganization and incoherence was logical given the important task of theoretically distinguishing regime complexes from unified multilateral institutions.

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<sup>1</sup> See, among others, Aggarwal (1998), Alter and Meunier (2009), Biermann et al. (2009), and Raustiala and Victor (2004).

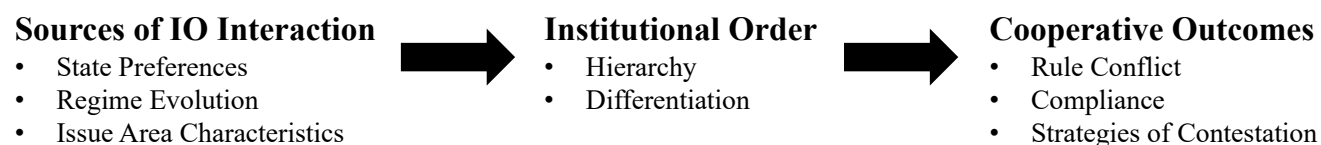
<sup>2</sup> See Keohane and Victor (2011) on the flexibility of regime complexes; Kelley (2009) on their potential to enhance legitimacy; and Lesage and Van de Graaf (2013) on expertise.

<sup>3</sup> For exceptions, see Johnson and Urpelainen (2012) and Orsini, Morin, and Young (2013).

In subsequent work, scholars challenged the view that inter-institutional relations in regime complexes are necessarily characterized by disorder. Overlapping institutions have developed a wide range of ties to coordinate rules, from simple communication to joint decision-making.<sup>4</sup> Studies focusing on “inter-organizational networking,” “institutional deference,” and “orchestration” document these ties in several regime complexes.<sup>5</sup> In addition to formal coordinating mechanisms, the mere presence of a prominent, central institution may allow rules to cohere in advantageous ways.<sup>6</sup> In some cases, a sophisticated division of labor can emerge among governing bodies, reducing inconsistency and opportunities to forum shop.<sup>7</sup> As in other complex adaptive systems, overlapping institutions may develop a degree of order without any centralized means of coordination.<sup>8</sup>

Our framework builds on these recent studies examining patterns of interaction among institutions in a regime complex. We argue that the initial characterization of fragmented regime complexes, featuring decentralized decision making, lack of hierarchy, and policy incoherence, is only one of several ways in which a regime complex might be ordered. We instead dissect the concept along two dimensions – *hierarchical relations of authority* and *institutional differentiation* – along which sets of overlapping institutions vary. A fragmented regime complex is an ideal type that sits at one end of both dimensions, where institutions are non-hierarchically arranged and undifferentiated. An integrated complex sits at the other end of the spectrum, where governance processes are hierarchical and differentiated. Empirically, regime complexes will take intermediate values on one or both dimensions.

We argue that these two dimensions serve as intervening variables, conditioning the effect of regime complexity on substantive outcomes. In the long term, patterns of authority and differentiation are shaped by the historical process of regime evolution and the strategic behavior of member states. In the short term, they influence international cooperation by establishing the strategic environment in which states and other actors navigate the regime complex. Figure 1 demonstrates these causal relationships visually.



**Figure 1: Emergence and Effects of Institutional Order**

<sup>4</sup> For example, Henning (2017) describes joint decision-making procedures between the IMF and regional financial arrangements in the form of an “IMF link.”

<sup>5</sup> See Biermann (2009) on inter-organizational networking, Pratt (2018) on institutional deference, and Abbott, Genschel, Snidal and Zangl (2015) on orchestration.

<sup>6</sup> Orsini, Morin, and Young (2013).

<sup>7</sup> Gehring and Faude (2014), Pratt (2018).

<sup>8</sup> Morin, Pauwelyn, and Holloway (2017) argue that the trade regime can be usefully analyzed as such a system.

The paper proposes several hypotheses regarding the emergence of hierarchy and differentiation in regime complexes, drawing on the work of others. In a second stage of analysis, we link these dimensions to outcomes of interest, including the coherence of institutional rules and the behavior of states, specifying expectations for each combination of the dimensions.

Our goal in providing this framework is to improve our understanding of how regime complexes shape international politics. Previous studies have laid a foundation from which the research program on complexity may now proceed to specification and testing theoretical expectations. We believe that these goals are best served by integrating concepts in the extant literature to build well-specified, conditional theories of cooperation in dense institutional environments. Our approach gambles that analyzing patterns of institutional authority and differentiation provides analytical leverage that outweighs the loss of theoretical parsimony.<sup>9</sup> We can better explain the rich diversity in regime complex performance by disaggregating these dimensions of institutional interaction.

Consistent with our focus on explaining variation across clusters of institutions, we advocate for a broader conceptualization of regime complexity than others have proposed. Alter and Raustiala (2018), for example, argue that the concept should be restricted to sets of rules and institutions that are non-hierarchical. We prefer a definition that accommodates regime complexes of different types. Our conceptualization, presented in the following section, highlights the theoretical importance of inter-institutional interaction but imposes no *ex ante* requirement that institutions exhibit a specific set of authority relations.

## **REGIME COMPLEXITY: CONCEPT AND SCHOLARSHIP**

The study of international regime complexity has emerged as a discrete subfield within the International Organization research program. While the general IO program addresses the origins and development of international institutions, their relationship to states and other actors within the system, and their contribution to international cooperation, the subfield of regime complexity is distinctive in its focus on the proliferation and interaction of multiple institutions in the same issue area, how states and other actors navigate among them, and whether they deliver international cooperation and normatively superior substantive outcomes.<sup>10</sup>

### **Conceptual Definition**

In this paper, we define a regime complex as *a set of international institutions that operate in a common issue area and the (formal and informal) mechanisms that coordinate them*. The institutions can be legally constituted organizations at the bilateral, plurilateral, regional, or global levels, as well as less formal arrangements. Mechanisms of coordination include both deliberate inter-institutional collaboration and recurring patterns of behavior that

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<sup>9</sup> In disaggregating fragmentation, we follow a number of other studies (cited below) but use a scheme with greater potential for cumulation across studies (discussed below).

<sup>10</sup> For a recent review, see Alter and Raustiala (2018).

emerge from repeated interaction in a dense institutional environment. Our framework emphasizes two such mechanisms, hierarchical authority relations and institutional differentiation, though these do not exhaust the possible means by which institutions can coordinate.<sup>11</sup>

This definition is both broader and narrower than some other formulations in the field. It is broader in that a regime complex is not non-hierarchical by definition.<sup>12</sup> By adopting a definition that accommodates both hierarchical and egalitarian authority relations among institutions, we can better compare complexes and their ability to generate substantive cooperation. Such an inclusive definition is better suited to a cross-regional and cross-issue-area comparative research program. Moreover, scholars who want to study non-hierarchical complexes can easily do so within our comparative framework. Our definition is also broader than some others in that a regime complex may include formal and informal agreements, club groups, and regularized processes. Informal mechanisms, in fact, can be critical to sustaining coherence of non-hierarchical complexes.<sup>13</sup>

We adopt a broad concept of what constitutes an international institution. The concept is not restricted to highly structured intergovernmental organizations (IGOs). It includes fora such as the Group of Twenty (G20) or Group of Seven (G7) that are not based on formal treaties; organizations constituted by substate regulators (transgovernmental regulatory networks); civil society and nongovernmental organizations; private associations and private transnational regulatory organizations (PTROs); and multi-stakeholder institutions, which are constituted by official, private and NGO representatives.

To more clearly define the boundaries of a complex, it is worth specifying some of the things that fall outside this definition. By requiring that regime complexes are populated by “a set of international institutions,” we exclude individual institutions from the definition. The World Trade Organization and the Inter-American Development Bank are part of the regime complexes for global trade and development finance, respectively, but not complexes in and of themselves.<sup>14</sup> Nor do member states, their ministries, and financial resources constitute a regime complex. Similarly, although private firms and markets might contribute to shaping the

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<sup>11</sup> This paragraph adopts the definition provided in Henning (2017).

<sup>12</sup> Compare also to Keohane and Victor (2011) and Nye (2014). For discussion, see Ruggie (2014) and van de Graaf and de Ville (2013). Alter and Raustiala (2018) argue that a legal hierarchy among international institutions is unsustainable because authority claims are inherently contestable in the international environment. We acknowledge the point, but interpret contestability as one of several factors bearing on the degree of hierarchy that can be sustained over time in a regime complex. It does not require that relations of authority between institutions are completely flat or equal. Green’s (2019) position is similar to ours.

<sup>13</sup> Informal rules and processes are emphasized by Stone (2011), Kleine (2013), Christiansen and Neuhold (2012), and Westerwinter, Abbott and Biersteker (2019).

<sup>14</sup> However, some of the umbrella organizations with which scholars of global governance are familiar, such as the World Bank Group and the United Nations System, can be understood as clusters of separate institutions.

preferences of states, “capturing” them in many cases, and vice versa (in cases of orchestration), they are conceptually distinct from the institutions of the regime complex.

Programs, agendas and movements that are not institutional clusters are not complexes. The Sustainable Development Goals (SDGs) are a set of objectives to which institutions and regime complexes for poverty reduction, economic development, environmental protection and responsive governance contribute, but not a regime complex. Several elements of global governance therefore lie outside the scope of this definition of regime complexity.

Nor is a complex a full political system for a global issue area, under our definition. Scholars using complex systems theory sometimes define a complex as comprehending governing institutions as well as their stakeholders.<sup>15</sup> We wish to examine the creation, evolution and consequences of the governing arrangements, however, which can only be done by separating them from their stakeholders definitionally. While regime complexes might be diverse and expansive, therefore, we delimit them by a *governance* function in the issue area concerned. Stakeholders that provide input and feedback to institutions do not fall within the definition of the complex unless they also regulate the issue area. Locating them outside the boundaries of the definition, along with other influences, does not diminish stakeholders’ importance to understanding the politics of regime complexes.

Finally, an institution that provides governance functions in different issue areas can thus sit in two or more regime complexes simultaneously. We regard such dual membership to be unproblematic for the purpose of comparing the origins and consequences of complexes. For example, the development finance complex could feature hierarchical authority relations while the climate-change complex does not, notwithstanding the fact that the International Bank for Reconstruction and Development participates in both regime complexes.

## Recent Scholarship

Original scholarship on regime complexity tended to lament fragmentation as a threat to the effectiveness of international cooperation (as previewed in the Introduction). This theme was developed in studies devoted to areas that were particularly prone to fragmentation, such as international trade, human rights, and global environmental regulation.<sup>16</sup> A second wave of studies, on the other hand, counseled against despair over the fragmentation of regime complexes. In their work on the complex for climate change, for example, Keohane and Victor

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<sup>15</sup> See, for example, Orsini et al. (2019) and Morin et al. (2016). Alter and Raustiala (2018, 5) also define a regime complex as a political system. Farrell and Newman (2016) and Kahler (2016) tend to take a systems orientation as well. Although we do not employ complex systems theory, we nonetheless employ some of concepts of self-organization, emergence and adaptation that are central to it.

<sup>16</sup> See, among others, Aggarwal (1998), Alter and Meunier (2009), Biermann et al. (2009), and Raustiala and Victor (2004).

(2011) argued that this decentralized cluster of organizations and agreements had distinct advantages over a unified institutional arrangement, namely adaptability and flexibility.<sup>17</sup>

The third wave of scholarship came to grips with the further proliferation of international institutions, many of which arose in the wake of the global financial crisis of 2008-09, the Great Recession that followed, and the rise of the large emerging-market countries. Several of the contributions to this wave focused more intently on competition among the elements of a complex.

Johnson and Urpelainen (2012) provided a testable causal theory of integration and separation of regimes. States choose between integrating and separating regimes in a given issue area based on the nature of the spillover between the different sections of the issue area. When the spillover is positive—that is, when cooperation in one section advances outcomes in a separate section of the issue area—states will choose to keep the regimes separated, as separation does not erode the benefits they seek. When spillover is negative—that is, when cooperation in one area, such as ozone depletion, undercuts outcomes in another, such as global warming—states will choose to integrate regimes, because they must do so to realize gains.

Jupille, Mattli, and Snidal (2013) study institutional choice in the presence of bounded rationality, positing four options for states: continuing to use the focal institution, selecting an alternative institution, when that might be available, adapting existing institutions, and creating new ones. Located between rational design and historical institutionalism, their approach explains the evolution of institutions and their transformation over time in global commerce.<sup>18</sup> States' exploration of alternative institutions (selection) and creation of new ones (creation) have implications for regime complexity, but their study defers explanation of institutional interaction and conflict. We could observe, after all, states' pursuit of all four of their strategies simultaneously.

Morse and Keohane (2014) describe the situation in which state, nonstate, and institutional actors use some multilateral institutions to challenge others as “contested multilateralism.”<sup>19</sup> Their framework distinguishes between regime shifting—deployment of existing but alternative institutions—and competitive regime creation—establishment of new institutions to challenge existing ones. Crises, secretariat autonomy, and unanimity requirements

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<sup>17</sup> Climate-change activists would do well to instead build certain characteristics such as fairness and substantive validity into the existing complex even though it might remain fragmented. See also Keohane, Colgan, and van de Graaf (2012), and Voeten (2016 and 2017), who argues that a centralized judicial institution would not be a good solution to conflicting interpretations and fragmentation in the regime complex for human rights.

<sup>18</sup> See, also, Jupille, Mattli, and Snidal (2017).

<sup>19</sup> See also the symposium on the concept in *Global Constitutionalism* (2016), including Morse and Keohane's (2016) response to critics, pp. 344–50.



are likely to drive states to consider outside options when dissatisfied with an existing institution. Both responses contribute to complexity and tend to fragment the complex.<sup>20</sup>

Gehring and Faude (2014) on the other hand present a theory by which order is re-established within fractious regime complexes.<sup>21</sup> Institutions and their members have a general interest in the provision of global public goods, which institutional conflict undermines. Modeled as a series of nested games, they show that institutions adapt their scope of operation and authority in order to reduce turf wars. Member states must be complicit in this emergent division of labor and secretariats have substantial agency in modifying the institutional mission.

Abbott, Green, and Keohane (2016) draw on theoretical insights in organizational ecology to analyze patterns of growth and change in global governance institutions. This framework prioritizes environmental variables, including organizational density and resource availability, to explain the behavior of organizations. They argue, *inter alia*, that private transnational organizations are more likely to divide labor by seeking regulatory niches than intergovernmental organizations. Morin (2018) builds on this framework to explain the evolution of technical assistance providers in the intellectual property regime complex.

Henning (2017) examines regime complexity in the euro crisis and addresses the dynamic among the multilateral and regional institutions that were involved in the “troika,” which formulated and implemented the financial rescue programs. His framework privileges states’ strategies to control their institutions as a principal motivation to create new institutions, mix existing institutions together in new ways, and otherwise evolve complexes. The argument predicts that states will sometimes trade off substantive efficiency in pursuit of this strategy.

Meanwhile, Pratt (2019a) provides a “power misalignment theory” of institutional proliferation. When discrepancies arise between states’ power and their formal influence within international institutions, states will create new institutions in a quest to strengthen their leverage over negotiations. The argument is then used to explain the historical and recent proliferation of multilateral development banks. Once multiple institutions are created in the same issue area, he argues (Pratt 2018), the organizations with weaker member states tend to defer to organizations with stronger members.

Lipsy (2017) argues that changes within international institutions—specifically in the voting shares and formal influence of members in institutional governance—depend on their exposure to competition. In issue areas that are characterized by strong network externalities, high barriers to entry, and exclusivity, states will have few “outside options,” in Stone’s (2011) phrase. In issue areas that are characterized by weak externalities, easy entry and non-exclusivity, states can create competing institutions at relatively low cost. Lipsy shows that

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<sup>20</sup> Other intriguing contributions to this literature include Johnson (2016). On organizational emanation and orchestration, see, Abbott, Genschel, Snidal and Zangl (2015) and Johnson (2014). Kahler (2016) emphasizes the increasing heterogeneity of actors and the complexities that it introduces to global governance.

<sup>21</sup> See also Faude (2015).

institutions in the competitive areas update their governing arrangements more readily, whereas those in noncompetitive environments tend to be more rigid.

Recent work that develops the applications of Historical Institutionalism to International Relations, while not focused mainly on institutional interaction, also contains insights into the causes of complexity (Fioretos 2017). Barriers to institutional reform and path dependency establish a strong tendency toward institutional continuity in the face of changing economic and political conditions (Keohane 2017). Nonetheless, as actors become disaffected with institutions over time, owing to mismatches between power and outcomes or between authority and legitimacy (Hanreider and Zürn 2017), there is a tendency toward layering of institutions on top of one another.<sup>22</sup> New institutions are easier to create than old institutions are to reform or abolish, in this conceptualization.<sup>23</sup>

The burgeoning literature on regime complexity has revealed important new insights, but also leaves important questions unresolved – perhaps most notably, how the proliferation of overlapping institutions maps onto substantive outcomes. We believe the most fruitful way forward is to develop a theoretical framework that synthesizes findings in the literature in a way that is portable across issue areas, allowing us to classify the rich variation in regime complexes that scholars have identified.

## CLASSIFYING ORDER IN REGIME COMPLEXES

To construct a framework to explain variation in the design of regime complexes, we identify two dimensions that characterize the most important patterns of interaction among their constituent institutions: relations of authority and differentiation.<sup>24</sup> Each represents a specific way in which sets of institutions may be organized.

We prioritize these particular dimensions for two reasons. First, they vary considerably across different regime complexes. Some complexes, for example, feature institutions that can be easily rank-ordered in terms of authority; others have a more evenly dispersed distribution of authority. There is similar variation in the degree of differentiation across regime complexes. Our framework provides a general classification scheme to *describe* patterns of interaction in different regime complexes. Second, these dimensions are consequential in generating cooperative outcomes. They determine the strategic environment in which states and other actors negotiate and navigate institutional rules. In doing so, they shape how the operation of distinct institutions aggregates into a broader governance system. The framework should therefore help to *explain* outcomes of interest to scholars of international cooperation.

### Relations of Authority

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<sup>22</sup> See also Rixen, Viola, and Zürn (2016).

<sup>23</sup> See also Eilstrup-Sangiovanni (2018).

<sup>24</sup> Our dichotomy overlaps with, but differs from, the classification approach of Zürn and Faude (2013, 122) -- stratificatory, functional, and segmentary fragmentation – particularly with respect to the latter.

The first dimension is *relations of authority* among institutions. This dimension reflects the extent to which institutions implicitly or explicitly recognize the right of other institutions to craft definitive rules, organize common projects, or otherwise set the terms of cooperation. Relations of authority range from a complete lack of hierarchy, where each institution claims an equal right to rule making, to a formal hierarchy where some institutions are bound by the superior authority of others. Inter-institutional patterns of authority have important implications for the degree of rule conflict and opportunities for forum shopping in a regime complex.

We view authority relations as a continuum bookended by two ideal types. At one end is the complete lack of inter-institutional hierarchy emphasized in some existing work. At the other, one institution is “nested” within and legally subordinate to another.<sup>25</sup> In between these poles lies a diverse set of arrangements in which institutions distribute authority by delegating, orchestrating, and deferring to each other.

Hierarchical authority relations may be embedded in institutions at their creation. For example, Aggarwal (1998) describes how states designed the Asia Pacific Economic Cooperation (APEC) forum to be nested within the General Agreement on Tariffs and Trade (GATT). More often, authority relations emerge dynamically as institutions interact on specific issues. For example, during the Uruguay Round GATT member states negotiated a set of health standards to be applied to trade products. They decided that the GATT would delegate control over food safety standards to the Codex Alimentarius Commission, elevating the authority of the latter institution.<sup>26</sup> Pratt (2018) highlights several other cases in which international institutions defer authority to each other, including the UN Security Council’s acceptance of counterterrorism rules set by the Financial Action Task Force. Institutions may also exercise softer mechanisms of influence, such as orchestration (Abbott, Genschel, Zangl and Snidal 2015), that establish asymmetric patterns of authority in a regime complex.

These examples demonstrate how unequal authority relations can emerge in regime complexes, even when there is no *ex ante* legal hierarchy among international institutions. Green (2013) introduces a useful typology of emergent authority relations.<sup>27</sup> Delegated authority occurs when one actor makes rules on behalf of another in a traditional principal-agent relationship. Entrepreneurial authority occurs when one actor creates rules and then persuades others to defer to them. While we see evidence of both types, many emergent authority patterns in regime complexes are consistent with the exercise of entrepreneurial authority.

Patterns of authority are important for resolving conflicts among institutions. Hierarchy establishes deference to the peak institution in decisions about which institution should prevail in such conflicts. Among non-hierarchical institutions, there is no presumption as to which would

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<sup>25</sup> See Aggarwal (1998) on the concept of nesting.

<sup>26</sup> The Codex Alimentarius Commission is a joint initiative of the Food and Agriculture Organization and the World Health Organization; [https://www.wto.org/english/thewto\\_e/coher\\_e/wto\\_Codex\\_e.htm](https://www.wto.org/english/thewto_e/coher_e/wto_Codex_e.htm).

<sup>27</sup> Although Green examines the emergence of authority among private (non-state) actors, the analytical framework is relevant for any environment in which multiple sources of authority compete for acceptance. Separately, Lake (2009) distinguishes between formal, legal authority and relational authority, based on a contract between ruler and ruled and acknowledged by the latter.

prevail. *Ex ante* conflict resolution is an essential feature of hierarchy; it establishes the institutional pecking order in the presence of inter-institutional disputes.

Patterns of institutional association that do not involve authority do not constitute hierarchy. Networks of institutions might have structure, but they are not hierarchical simply by virtue of connections among the elements of the network. Sharing information, work-flow integration and cross-representation on governing boards do not establish hierarchy in the absence of the recognized right of one to direct others or set the rules for the complex as a whole. Transgovernmental regulatory networks might be important conduits through which to exchange models and best practices, for example, but they are not hierarchical.

Once established, hierarchical authority relations may persist, strengthen, or unravel. As Morse and Keohane (2014) and Hofmann (2019) highlight, states often use multilateral institutions to contest existing patterns of governance authority. For example, in the 1990s developed countries successfully shifted negotiations over rules for intellectual property protection to the GATT/WTO, challenging the supremacy of the World Intellectual Property Organization. Such instances of “regime shifting” will tend to flatten the hierarchy of a regime complex. We argue that the construction, maintenance, and deconstruction of authority relations are usefully viewed as linked dynamic processes driven by the strategic interests of member states and other actors.

### **Institutional Differentiation**

The second dimension that we examine is *differentiation* of institutions. Differentiation describes the extent to which institutions in a regime complex vary in the functions they perform. Like relations of authority, differentiation can be placed on a continuum. Sets of identical institutions that operate as like units are positioned at one end; these homogeneous institutions perform the same functions and are viewed as substitutes by states. At the other end are sets of institutions that are fully differentiated in the tasks they perform and the rules they adopt.

Regime complexes can be differentiated in various ways. A common manifestation is a functional division of labor among institutions. Scholars have found that overlapping institutions in a range of issue areas differentiate by dividing governance tasks. Gehring and Faude (2014), for example, identify a division of labor among the WTO, FAO and WHO with respect to governing trade in agricultural GMOs and public health-related intellectual property rights. Green and Auld (2016) describe a division of labor among environmental institutions, with private (non-governmental) institutions serving as “idea incubators” for public (intergovernmental) authorities.

Institutions can also be differentiated on other dimensions, such as the rigor of their rules or region-specific expertise. We consider complexes to be horizontally differentiated when actors differ from one another in the value that they receive from a given institution. Bush and Prather (2018), for example, argue that citizens put greater trust in election observation institutions that are tailored to their geographic region. As a result, election monitors from the African Union (AU) provide more value to African countries than monitors from the Organization for Security

and Co-operation in Europe (OSCE). We consider a regime complex to be vertically differentiated when actors share similar evaluations of institutions, but when the institutions nonetheless vary in value. For example, the election observation regime complex is vertically differentiated if both African and European countries perceive European Union monitors to be more credible than those from the Commonwealth of Independent States. In neither case are the institutions within the regime complex simple substitutes.

Among other things, differentiation determines the freedom of choice actors have as they navigate a regime complex.<sup>28</sup> Scholarship that emphasizes forum shopping and regulatory arbitrage in regime complexes typically assume low levels of institutional differentiation.<sup>29</sup> When differentiation is low, states can opportunistically select among overlapping institutions that may have different standards but are substitutable on other dimensions. In contrast, states have less freedom to forum shop if institutions are highly differentiated.

## Summary

Table 1 summarizes the two dimensions of institutional interaction. Assessing regime complexes along these lines provides a more nuanced picture of the strategic environment created by institutional overlap.

	<b>Relations of Authority</b>	<b>Differentiation</b>
Definition	The extent to which institutions recognize the right of other institutions to make definitive rules or decisions	The extent to which institutions vary in the functions they perform
Ideal Type (Low)	Contested authority	Substitutable institutions
Ideal Type (High)	Hierarchical authority	Specialized institutions

**Table 1: Dimensions of Order in International Regime Complexes**

Importantly, the values taken by regime complexes on the two dimensions do not necessarily move in lock step with one another. They might do so, but they can just as easily move in opposite directions. For example, the institutions of a complex can be non-hierarchical and differentiated. This would occur if institutions strategically adapt to find specific

<sup>28</sup> In the “USE, SELECT, CHANGE, CREATE” framework provided by Jupille, Mattli, and Snidal (2013), differentiation shapes the environment in which states select among institutional options.

<sup>29</sup> See, for example, Busch (2007), Alter and Meunier (2009), Hafner-Burton (2009), Abbott (2012) and Hofmann (2018).

governance niches. Similarly, hierarchical complexes could contain undifferentiated institutions. This observation contravenes the concept of hierarchy among states advanced by Waltz (1979), who argued that hierarchy is necessary for differentiation.<sup>30</sup> But this logic does not apply with similar force to positive-sum relations in the economic and social sphere. We maintain that the two dimensions exhibit variegated scores because hierarchy and differentiation may arise from different sources, as discussed in the next section.

We are by no means the first to disaggregate the concept of regime complexity and have benefitted from others' work in doing so. But we believe that our particular breakdown has three distinct advantages. First, we intend our scheme to be generalizable; it applies to all clusters of institutions that qualify as complexes under our definition. Second, it is mutually exclusive; we have endeavored to specify the dimensions distinctly. Third, we harness our scheme to the task of identifying falsifiable expectations in advance – both with respect to institutional order and with respect to cooperation outcomes -- and testing them in a positive framework.

## THEORETICAL EXPECTATIONS

Our goal in identifying this set of salient dimensions is to highlight important variation across regime complexes and understand their effects on outcomes of interest. We hypothesize that the ordering arrangement that emerges among institutions will serve as an intervening variable between regime complexity and many substantive outcomes. Such an approach allows us to build *conditional* theories of regime complexity. It assumes there is no simple linear relationship between the regime complexity and outcomes such as compliance with international rules. Instead, we must identify the ways in which overlapping agreements and organizations are arrayed *vis-à-vis* each other to understand their effects.

Our emphasis on institutional order in regime complexes invites two categories of theory-building. First, what processes govern the emergence of hierarchical authority relations and institutional differentiation? This question takes patterns of institutional interaction as the dependent variable. These patterns may be strategically manipulated by certain actors; alternatively, they may be fixed by characteristics of the issue area in which institutions operate. In either case, understanding how and why regime complexes become situated at certain points on these dimensions is an important question.

Second, how does each dimension shape international cooperation? In what ways can authority relations and institutional differentiation be mapped onto important outcomes related to institutional and state behavior? Below, we provide a set of expectations for each category, some of which are our own hypotheses and some of which derive from work of others. Before proceeding further, we make our key assumptions explicit.

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<sup>30</sup> Waltz (1979, 81, 114-116, 196), drawing upon Durkheim (1893). Waltz argued that differentiation was discouraged by the lack of hierarchy in the international system, as nations would have to each provide for their own security under anarchy. Similarly, Lake (2009, 12) states that “hierarchy creates functional differentiation and mutual dependence between states.” Mattern and Zarako (2016) review alternative conceptualizations of hierarchy in international politics.

## Assumptions

We build these expectations upon the definition of a complex provided above (page 3) plus three broad assumptions:

*Relevant Actors.* Diverse sets of actors contribute to the operation of regime complexes. States are often the most important of them; they are typically responsible for constructing the overlapping international institutions that constitute a complex. In some cases, states delegate significant agency to international bureaucrats, who might subsequently become autonomous actors. In other cases, state indifference or inaction creates an opening for transnational and private actors – including firms, NGOs, and activists – to significantly impact the operation of regime complexes. We consider transnational, multi-stakeholder and non-state actors, but recognize that they tend to operate in the shadow of state power.

*Rationality.* We assume that states and others subject to institutional rules are rational actors. They will make choices to maximize their own welfare, given information constraints and the regulatory environment created by a regime complex. If actors have an opportunity to improve their well-being – for example, by engaging in forum shopping or by structuring inter-institutional relationships to increase their influence – we expect them to do so. But we also recognize that principals and institutions sometimes must act on incomplete information and cannot foresee the consequences of their decisions with precision.

*Regime Complexes as Cause and Effect.* Regime complexes are simultaneously a product of state preferences and a constraint on state behavior. The power and preferences of state and non-state actors shape the design of individual institutions and their relation to each other. But regime complexes are not epiphenomenal; once created, they can meaningfully shape patterns of state behavior. This conceptualization mirrors Krasner's (1982, 189) understanding of individual international regimes as “intervening variables” that stand between “basic causal variables (most prominently, power and interests) and outcomes and behavior” further down the causal chain. The degree of causal power attributed to regime complexes may depend on the time horizon under examination. In the short term, they constrain behavior by setting the strategic environment in which actors operate. In the long term, regime complexes might evolve in response to changes in the relative power and preferences of the actors that created them.

*Exogeneity of Preferences.* Our approach treats the preferences of institutions' principals, states in the case of intergovernmental organizations, to be predominantly exogenous. Such preferences are determined largely by factors outside the scope of international institutions and institutional interaction.<sup>31</sup> Principals weigh in at different stages of the analysis: in the design of institutions originally, relationships among the institutions, and adjudication of interinstitutional conflicts. But there can also be instances where the operation of complexes feeds back onto principal preferences, endogenizing them to some degree, particularly in the lower sections of the causal chain.

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<sup>31</sup> Moravcsik (1997, 2008) contends that preferences are analytically prior to analysis of international institutions and, by extension, regime complexes.

## Explaining Dimensions of Order

With respect to the first category of theory building, we offer the following expectations with respect to the establishment of hierarchical authority relations and differentiation.

### *Hierarchy*

What determines whether a complex will be ordered hierarchically or with relative equality among the institutions? As new institutions are created, we expect the degree of hierarchy within a complex to hinge, in the first instance, on whether there exists an incumbent *focal institution* in the issue area. Focal institutions are the prominent “first movers” in a regime complex. Generally, they are the original recipients of grants of authority, have inclusive membership and predate other institutions in the issue area – characteristics by which they can be identified *ex ante*, without reference to their consequences, and distinguish them from peripheral institutions. These institutions – the WTO for trade, World Bank for development finance, and IMF for crisis finance, for example – could be expected to defend their seniority relative to later entrants and to appeal to member states in the process. Where a focal institution does not exist, as in the early climate change complex, we expect greater equality among the institutions.

Focal institutions can more easily accumulate authority due to their incumbency advantage. But maintaining this position will depend at least in part on the support of its principals. In general, we expect that principals will shape patterns of authority to maximize control over cooperative outcomes. In some cases, they will subordinate some institutions to others in order to contain agency drift (Henning 2018). When institutions vary in the decision-making power provided to member states, we expect that institutions with weaker members will defer to institutions with more powerful members (Pratt 2018).

The distribution of state preferences will also shape authority relations in a regime complex. An institution that regulates issues on which states share similar preferences will be granted greater authority than institutions governing highly contested issues. When there is a consensus among states about the basic goals of an institution, we expect it to receive more deference and be a more frequent host for institutional nesting. The distribution of state preferences will also determine whether a focal institution does or does not exist in the first place, shaping the evolution of authority in the regime complex.

### *Differentiation*

What determines the degree of differentiation among the institutions in a regime complex? One variant of the *functional* approach, prioritizing efficiency, expects states to foster a division of labor among institutions according to comparative advantage, based, for example, on administrative capacity, substantive expertise, or superior legitimacy. Architects of the institutions would trade off specialization against the benefits of scope, settling on institutional



coverage by institutions that captures externalities among sub-issues up to the point where marginal benefits fall below gains from differentiation.

However, because a division of labor requires institutions to adapt to each other in complementary ways, the degree of functional differentiation is constrained by the distribution of state power and preferences. Gehring and Faude (2014), for example, argue that a balanced distribution of power among principal member states, and thus relative equality among the institutions themselves, should produce a sectoral division of labor among the institutions. By contrast, an asymmetrical distribution should produce a “relatively sophisticated” arrangement that provides continuous co-governance on the part of the institutions.

Recent work drawing on organizational ecology suggests that functional division of labor may also be constrained by institutional flexibility. Abbott, Green, and Keohane (2016) argue that competition has different effects on different institutional forms. It drives intergovernmental organizations to expand their activities to fill their domains, leading to overlap,<sup>32</sup> but drives nongovernmental organizations and private transnational regulatory organizations to differentiate in order to tap progressively narrower resource niches. The latter are thus superior to IGOs in “niche-finding.”

Finally, the pattern of preferences among states and their citizens can generate differentiation among institutions. In regime complexes where audiences perceive institutions to provide similar value, the complex will be less differentiated. When the activity performed by institutions leads states to value some more than others, the regime complex becomes more differentiated. Scholars examining the election-observation regime complex, for example, argue that states draw strong distinctions among constituent institutions.<sup>33</sup>

### Consequences of Institutional Order

At this point, order becomes the explanatory variable and we consider the effects of each dimension on institutional and substantive outcomes. We focus on four categories of outcomes which impact the overall quality of international cooperation as reflected in, for example, environmental protection or economic development. These include:

- *Institutional Collaboration*: Do institutions collaborate to address shared interests by pooling information, expertise, and decision-making procedures?
- *Rule Conflict*: Have institutions in a regime complex adopted a coherent set of rules and standards, or do they conflict with one another?
- *Compliance*: Do states adjust their behavior or national policies to comply with institutional rules?
- *Strategies of Contestation*: How do actors contest institutional outcomes with which they are dissatisfied?

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<sup>32</sup> Haftel and Hofmann (2017) provide examples from regional economic organizations.

<sup>33</sup> Bush and Prather (2018) and Pratt (2019b).

In this section, we describe the direct and interactive effects of hierarchy and differentiation on these outcomes. We present the four ideal-type combinations of hierarchy and differentiation using a 2x2 matrix.

### *Authority*

We expect regime complexes with hierarchical authority relations to produce less rule conflict and higher rates of compliance than non-hierarchical complexes. Asymmetric patterns of authority encourage harmonization of rules, as peripheral institutions explicitly or implicitly recognize the authority of a more central governance body. More authoritative institutions have a greater ability to impose rule coherence on the regime complex, including via strategies of orchestration.<sup>34</sup> The reduction in rule conflict should increase compliance in two ways. First, it will constrain opportunistic forum shopping by states seeking to escape compliance with intrusive rules. Second, it prevents competing rules from creating uncertainty over which obligations bind state behavior, thereby sustaining the reputational cost of violations. Hierarchy generates more institutional collaboration as highly authoritative institutions act as conveners, coordinating the operation of others.

While hierarchical regime complexes have several advantages, they may also be less resilient to changes in the international environment compared to egalitarian structures.<sup>35</sup> If shifts in state power or preferences make bargaining intractable in a central institution, stagnation may pervade the regime complex. In the long run, states' inability to forum shop means that dissatisfied parties are more likely to engage in competitive regime creation, challenging the existing hierarchy.

### *Differentiation*

When the institutions of the complex are undifferentiated, that is, functionally substitutable, we expect to see greater rule conflict, more states engaging in forum shopping, and fewer states adjusting their behavior to move into compliance. Institutions performing the same functions will be more likely to experience jurisdictional conflict, raising the likelihood that competing rules will emerge and persist. States may exploit these differences via forum shopping.<sup>36</sup> Since institutions are substitutable, states are free to engage in regulatory arbitrage, selecting into institutions with weaker compliance standards that demand less policy adjustment. The lack of differentiation encourages competition among institutions in the regime complex, potentially making them more responsive to changes in state interests and power.<sup>37</sup> Dissatisfied coalitions can enact change by shifting their efforts from one institution to another.

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<sup>34</sup> Abbott, Genschel, Snidal and Zangl (2015).

<sup>35</sup> Kahler (2016, 2018) expects complex governance, characterized by transnational networks, private regulatory organizations and informal rule making, to be more resilient than complexes composed of only intergovernmental organizations.

<sup>36</sup> See, for example, Hofmann (2018).

<sup>37</sup> Lipsy (2015) and Hofmann (2013 and 2018).

A high degree of functional differentiation reduces the potential for both rule conflict and forum shopping because separate institutions focus on distinct sub-issues. An emergent division of labor may capture efficiencies associated with comparative advantage. High differentiation may reduce the likelihood of institutional collaboration, since institutions develop expertise specific to their specialized governance function. The tradeoff, from the perspective of states, is the potential for greater agency drift by institutional actors. Differentiation reduces the “policy area discipline” (Lipsy 2017) that is imposed on institutions by competition. As functionally differentiated institutions develop unique capacities, expertise, and legitimacy, they may therefore become less responsive to their principals. In these regime complexes, dissatisfied states are more likely to engage in competitive regime creation since regime shifting is less viable.

Horizontal and vertical differentiation also reduce opportunities for regulatory arbitrage. When regional election monitors are more trusted than geographically distant ones (Bush and Prather 2018), they constrain governments’ freedom to substitute one monitor for another. When institutions with more intrusive rules can provide stronger signals of electoral quality, governments have incentives to select into more rigorous monitors. Pratt (2019b) demonstrates how these vertically differentiated regime complexes engender greater policy adjustment on the part of states than undifferentiated complexes.

### *Joint Effects and Expectations*

Figure 2 presents our expectations for the *joint* effects of authority and differentiation.<sup>38</sup> In the figure, the horizontal dimension represents relations of authority, drawing a dichotomous distinction between hierarchical and non-hierarchical arrangements. The vertical dimension reflects differentiation, distinguishing between specialized and undifferentiated institutions. (We are aware that in practice these dimensions are continuous rather than dichotomous, but present cases near the limits in order to clearly distinguish expected outcomes.) The figure summarizes the expected interactive effects of these dimensions on international cooperation.

(1) Hierarchical-differentiated. Regime complexes that are characterized by strong hierarchy among differentiated institutions (the Northwest quadrant) offer little room for forum shopping or otherwise playing institutions off against one another. Rules are likely to be clear and coherent, and we expect policy compliance and adjustment to be comparatively strong. The regime will feature intermediate levels of institutional collaboration – the peak institution will encourage harmony of purpose, while high levels of differentiation mean that institutional programs and activities may be specialized rather than collaborative. Dissatisfaction leads to stagnation because strategies of contestation are limited: institutional specialization makes it difficult for dissatisfied states to engage in regime shifting, while hierarchy creates obstacles to competitive regime creation.

(2) Hierarchical-undifferentiated. Where the complex is hierarchical but undifferentiated (Southwest quadrant), we might observe more rule conflict (and associated forum shopping) than in the case of hierarchical-differentiated complexes, but we also expect the institution at the

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<sup>38</sup> We acknowledge Bob Keohane and Axel Marx for suggestions on developing this matrix.

pinnacle of the hierarchy to constrain it. Because institutions are more substitutable than in the differentiated cases, principals will be tempted to explore regime shifting, particularly as their preferences and relative influence evolve over time. Compliance and policy adjustment on the part of principals are likely to be intermediate, greater than in the case of non-hierarchical-undifferentiated complexes but less than hierarchical-differentiated ones. Institutions will collaborate frequently, given their undifferentiated mandates and direction from the peak institution.

(3) Non-hierarchical-differentiated. Where complexes are non-hierarchical and differentiated (Northeast quadrant), it is the absence of functionally useful alternative institutions that discourages forum shopping. Differentiation reduces rule conflict, though no peak institution is available to harmonize rules when conflicts do arise. We expect intermediate levels of adjustment and compliance on the part of principals. We also expect weaker discipline and greater agency drift that is associated with differentiation, and thus to observe more competitive regime creation as principals' preferences evolve over time (as differentiation places regime shifting out of reach). Levels of institutional collaboration are low given the lack of hierarchy and specialization.

(4) Non-hierarchical-undifferentiated. By contrast, where the regime complex is non-hierarchical and undifferentiated (Southeast quadrant), we predict relatively high institutional competition and forum shopping. As a consequence, we anticipate more rule conflict and lower compliance and policy adjustment relative to other orders. Both regime shifting and creation could be expected over time. Since there is no authoritative body to encourage coordination, institutional collaboration will tend to be ad hoc and limited in scope; but it can occur where state preferences are aligned and the costs of uncoordinated action are high.

		Authority Relations	
		Hierarchical	Non-hierarchical
Institutional Differentiation	Differentiated	Low rule conflict and forum shopping; intermediate collaboration; strong compliance; dissatisfaction leads to stagnation.	Intermediate rule conflict and forum shopping; low collaboration; intermediate compliance; dissatisfaction leads to regime creation
	Undifferentiated	Intermediate rule conflict and forum shopping; high collaboration; intermediate compliance; dissatisfaction leads to regime shifting	High rule conflict and forum shopping; occasional collaboration; weak compliance; dissatisfaction leads to regime shifting or creation

**Figure 2: Expected Outcomes of Hierarchy and Differentiation**

## APPLYING THE FRAMEWORK

We propose to advance our understanding through comparative analysis of regime complexes, selecting cases that maximize explanatory leverage. Analysis of each complex would treat institutional order both as a dependent variable and an independent variable. By selecting complexes that populate each of the four orders, we aim to shed light on the design of complexes and the effects of their dimensions on final outcomes.

As the first step toward applying the framework developed above, this section identifies five regime complexes, locating them in the space defined by relations of authority and differentiation in Figure 2. We propose particular measures by which these dimensions can be operationalized and briefly discuss the performance of each complex.

To establish the degree of hierarchy, we interrogate each complex using two questions: Does one institution (or a couple of institutions) have the implicit or explicit authority to direct other institutions in the complex or receive deference from them? Do common principals favor one institution over others? This dimension thus has (hard and soft) legal, institutional, and

third-party aspects.<sup>39</sup> But in all aspects there should be evidence of the subordinate institutions' explicit or implicit acknowledgement of the rightful rule of the more authoritative.

To identify the degree of differentiation among institutions, we look for one of three types of specialization: functional, geographic, and value. Functionally differentiated institutions are specialized substantively or in the type of governance activity they provide.<sup>40</sup> Geographically differentiated institutions have specialized expertise or jurisdiction targeted to a particular geographic area. Institutions differentiated by value provide heterogeneous benefits to member states, whose preferences can thus serve as an indicator.

Below, we apply these touchstones to the regime complexes for international financial regulation, global climate change, development finance, crisis finance in the euro area, and biodiversity.

### International Financial Regulation

International financial regulation takes place in a cluster of more than twenty standard-setting bodies such as the Basel Committee on Banking Supervision, International Organization of Securities Commissions, International Association of Insurance Supervisors, International Accounting Standards Board, Committee on Payments and Market Infrastructure, and Standing Committee on Standards and Implementation. These intergovernmental bodies receive input from numerous private-sector groups, especially the Institute for International Finance.<sup>41</sup> They also interact with most of the global multilateral financial institutions, such as the Bretton Woods institutions and the OECD, as well as several regional organizations, such as the European Union.

Financial regulatory institutions exhibit significant differentiation, consistent with a functional division of labor. Separate, specialized bodies address securities regulation, accounting standards, and assessment of banking risk. Institutions have developed specialized expertise to govern particular issues, although such specialization might lag behind the dynamic integration of global financial markets.

Some financial regulatory institutions enjoy more authority than others. Many of the standard-setting bodies (SSBs) meet under the aegis of the Bank for International Settlements. The leading role of the Basel Committee was bolstered by endorsements from the G7 after the Asian financial crisis and the global financial crisis. In 2009, the Group of Twenty (G20) built the Financial Stability Board (FSB) upon a prior forum and gave it the mandate to referee overlapping jurisdictions of the SSBs. Walter (2019) describes the FSB as the “peak body.” Given the high level of differentiation and asymmetric distribution of authority, we locate the

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<sup>39</sup> See, for example, van Asselt 2017.

<sup>40</sup> Abbott's (2012) transnational governance triangle classifies governance institutions into four functions: rule-making, monitoring, compliance, and information gathering and processing. See also Pattberg et al. 2017.

<sup>41</sup> Newman and Posner (2018).

regime complex for financial regulation in the hierarchical-differentiated quadrant of the matrix.<sup>42</sup>

Consistent with our expectations for complexes in this quadrant, we observe a low degree of competition among standard-setting bodies in finance and relatively little forum shopping. Whether the United States and the European Union ultimately follow Basel standards is an open question, but they have so far respected the spirit of these regulations, albeit sometimes through alternative practices and supervision. Rule coherence overall is relatively high, assisted by the fact that Basel standards give wide scope for national policy autonomy. Despite discontent with their influence in these bodies, emerging-market countries have not promoted alternative forums.<sup>43</sup> Regime shifting and regime creation are rare to nonexistent.

### Global Climate Change

Van Asselt (2014) describes the process by which climate change governance began with the 1992 adoption of the United Nations Framework Convention on Climate Change (UNFCCC) and thereafter proliferated with the addition of numerous institutions. Initiatives taking place outside the rubric of the United Nations include a number sponsored by other intergovernmental organizations, especially by the World Bank, leading forums such as the Group of Seven (G7) and Group of Twenty (G20), multi-stakeholder partnerships involving governments, civil society organizations, and/or private corporations and private associations. Sub-national and non-state actors have also mobilized on issues associated with climate change.<sup>44</sup> Pattberg, Sanderink and Widerberg (2017) count 80 institutions that in 2015 stood near the center of a sprawling nebula that also consisted of 8500 sub-national organizations, 1500 corporations, 320 NGOs and 50 other international organizations (many of which fall outside our definition of a complex).

While some institutions such as UNFCCC are broad, most of these initiatives are substantively narrow, such as the International Partnership for Hydrogen and Fuel Cells in the Economy, or geographically specific, such as the Global Warming Solution Act of 2006 in the state of California. The institutions that comprise this regime complex are thus highly differentiated, a consequence of the diversity of the cooperation games and the multi-faceted problem of climate change.<sup>45</sup>

The UNFCCC could in principle be made into an umbrella for this disparate complex of initiatives, setting standards for emissions reporting, providing a forum for cross-issue negotiations, and orchestrating technical bodies – establishing an effective hierarchy. However, the main carbon-emitting countries have not sought to elevate the UNFCCC in this way. Meanwhile, an increasing number of initiatives are taking place outside the context of the United Nations. Nearly all of the analysts who examine the regime complex for climate change conclude

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<sup>42</sup> See also Cecchetti (2018).

<sup>43</sup> Walter (2019).

<sup>44</sup> To these, van Asselt (2017) adds the carbon markets that were established in advanced countries since the late 1990s. See, also, Hadden (2015) on contending networks.

<sup>45</sup> Keohane and Victor (2011).

that it lacks hierarchical authority relations among the institutions.<sup>46</sup> We therefore place it in the non-hierarchical-differentiated quadrant of the regime-complex matrix.

Policy conflicts arise among the multiple, diverse institutions in this complex. No central institution resolves them; they are restrained through a combination of specialization and mediation by secretariats through reinterpretation of their mandates, among other channels. Agency drift and competitive regime creation are substantial, although we observe some regime shifting as well. Reduction of carbon emissions is at best patchy, with success in some areas but a failure in many others, and falls short of what is needed to limit warming to 2 degrees Celsius. Overall, outcomes accord with our expectation for this quadrant.

### Development Finance

The regime complex for development finance is centered on the International Bank for Reconstruction and Development (IBRD), or World Bank, created at the Bretton Woods conference in 1944.<sup>47</sup> The IBRD enjoys near-universal membership and disbursed more than \$17 billion to fund a variety of economic development projects in member states in 2018. It coexists with dozens of other development lending institutions that have been constructed since the World Bank's inception. These institutions draw on the capital contributions and favorable credit ratings of developed member states to provide low-interest loans or grants to developing countries. Borrowing states are often required to uphold economic, environmental, and social standards. The multilateral development banks occasionally co-finance development projects, and many participate in multilateral fora designed to coordinate development aid, such as the OECD-Development Assistance Committee and the High-Level Fora on Aid Effectiveness. Individual states also contribute development assistance but are not formally part of the regime complex.

With the exception of the World Bank, most development finance institutions have a regional or sub-regional specialization. The African Development Bank only provides loans to African states, for example, while the Inter-American Development Bank focuses on Latin American and Caribbean states. However, this geographic specialization is incomplete. Even within geographic regions, multiple institutions overlap in jurisdiction. Developing countries in Asia, for example, can seek financing from the World Bank, the Asian Development Bank, and the Asian Infrastructure Investment Bank, among others. Value-based differentiation is low in the regime complex because the primary institutional output – money to fund development projects – is fungible. Borrowing states usually have access to multiple institutions and are willing to substitute one for another.

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<sup>46</sup> Keohane and Victor (2011); Abbott (2012); Bulkeley (2014); Held and Hale et al. (2017, 184-204); Biermann et al. (2011); and Zelli (2011). Pattberg, Sanderink and Widerberg (2017) argue that fragmentation is alleviated (integration fostered) by network connections and shared discourse, which are aspects of collaboration under the framework developed here.



The World Bank is a clear focal institution in the regime complex. It enjoys an elevated status due to its age, expansive membership, technical expertise, and relative abundance of financial resources. Since the creation of the IBRD, four other development finance institutions have been formally nested within the World Bank Group.<sup>48</sup> Other multilateral development banks are not formally required to abide by decisions made by the World Bank, precluding a formal hierarchy of authority. However, the World Bank's centrality, resource advantages, and support of powerful member states provide it with informal authority.<sup>49</sup> We therefore consider the regime complex to be moderately hierarchical, and locate it in the hierarchical-undifferentiated quadrant of Figure 1.

The operation of the regime complex displays many of the characteristics predicted by our framework. Because institutions are largely undifferentiated, borrowing states attempt to forum shop and generate competition among institutions (Pratt 2019b). This competition is limited by the unequal distribution of authority. The World Bank is able to use the practice of co-financing development projects, for example, to reduce competition and ensure that its standards are not undercut by other institutions. Limits on differentiation ensure that states have a range of outside options, which results in regime shifting and heightened institutional responsiveness to their principals (Lipsy 2017). Somewhat contrary to our expectations, however, recurring competitive regime creation has been a persistent feature of the regime complex (Pratt 2019a).

### Euro-Crisis Troika

The troika of the euro crisis exemplifies an undifferentiated, non-hierarchical set of institutions. Involving the broader institutions of the euro area and European Union, the three institutions, the European Commission, the European Central Bank (ECB) and the International Monetary Fund (IMF) designed seven crisis programs for five crisis-stricken countries within the euro area during 2010-2018. These were supplemented by the European Stability Mechanism (ESM) and the Single Supervisory Mechanism over the course of the crisis. The troika represents a case of substantial institutional collaboration in an undifferentiated and non-hierarchical regime complex. At the direction of the member states through the Eurogroup and Euro Summit, these institutions collaborated in the design, implementation and monitoring of lending programs and borrowers' adherence to conditionality. Preventing borrowers from playing the institutions off against one another was the functional purpose of the troika and, despite disagreements among the institutions, the institutional arrangement was effective at securing compliance and policy adjustment.

Note that the troika was effective in these regards despite a lack of differentiation among the institutions and the absence of either formal or informal hierarchy. The lending side of the ESM was modelled in large measure on the design of the IMF; collectively, the European institutions were the functional equivalent of the Fund and possessed additional capabilities.

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<sup>48</sup> These include the International Development Agency, the International Finance Corporation, the Multilateral Investment Guarantee Agency, and the International Centre for the Settlement of Investment Disputes.

<sup>49</sup> Heldt and Schmidtke (2019).

While European member states, particularly Germany, insisted that the institutions work together, government leaders refused to subordinate the European institutions to the Fund or vice versa within the arrangement. Including the IMF served the important purpose for Germany of constraining the Commission; but the Fund had to nonetheless vie for influence over programs with the Commission, ESM and ECB. The IMF did not have a veto over European-funded programs when the institutions disagreed.<sup>50</sup> Collaboration, which was effective, was achieved in the absence of both differentiation and hierarchy. The collaborative arrangement was, however, ad hoc and repeatedly contested and occurred when the costs of uncoordinated action were extraordinarily high.

### Biodiversity

The phrase “regime complex” was originally inspired by the emergence of the set of institutions for the protection and use of plant genetic resources (PGR). Raustiala and Victor (2004) described the PGR complex as composed of elemental regimes that were overlapping and non-hierarchical.<sup>51</sup> PGR governance lies in turn within a broader set of institutions for the use and protection of plant and animal species that include regimes for agriculture, trade, culture and development.<sup>52</sup> The U.N. Convention on Biological Diversity lies at the center of this sprawling complex, which also includes the 1971 Convention on International Trade in Endangered Species (CITES), 2002 Treaty on Plant Genetic Resources, Convention on Protection of New Plant Varieties, and 2000 Cartagena Protocol on Biosafety.<sup>53</sup> We assign it to the category of undifferentiated and non-hierarchical complexes, the Southeast quadrant of Figure 2, along with the euro crisis troika and a caveat (below). The various elements of the complex generate rules for protection, ownership and development of biological resources that have low coherence. The rapid loss of species globally indicates that the complex’s disciplines have been very weak, corresponding to our expectations for this quadrant, although U.S. non-adherence to the CBD and other factors could also contribute to this dismal outcome.

Our caveat is that we must recognize that there is some differentiation among the elements of the biodiversity complex. Notwithstanding our efforts to identify complexes with substantial uniformity of the elemental institutions, they seem to be transitory and rare. Most of the non-hierarchical institutional sets that were the focus of early work on regime complexes had substantial capacity for differentiation.<sup>54</sup> Scholars who examine complexes that we might describe as “chaotic” usually find that order of some type emerges from competition over time. Contrary to our *a priori* suspicions, and thus interestingly, we find the complexes that populate the Southeast quadrant to be ephemeral.

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<sup>50</sup> Henning (2017). The ESM Treaty establishes a presumption in favor of IMF involvement but does not block a Europe-only program when the Fund and European institutions cannot agree on the terms.

<sup>51</sup> Aubry 2019 provides an update on PGR governance.

<sup>52</sup> Morin et. al 2016, 7; Alter and Raustiala 2018, 7.

<sup>53</sup> Efforts have been made to induce collaboration among these institutions, but such arrangements are weak and unproven. See, Morin et al. 2016.

<sup>54</sup> Compare the complexes for biodiversity, refugees and African courts in Alter and Raustiala 2018. See, also, Alter and Meunier 2009.

## Evolution of Complexes: A Conjecture

Up to this point, our explanation for the effects of order on outcomes has been largely an exercise in comparative statics. But our classification scheme leads readily to the question as to how and whether complexes might evolve from one category to another over time. We observed above that, while regime shifting and creation occur, as in the well-documented cases of trade in GMO products and patenting of AIDS drugs, periods of intense rule conflict tend to yield to a *modus vivendi* among the institutions. We thus conjecture that the regime complexes in the Southeast quadrant are dynamically *unstable*.

Non-hierarchical and undifferentiated institutions are inherently competitive. If competition is allowed, then institutions are likely to differentiate from one another, as some prevail over others, some are displaced, and others find sheltered niches in which they can survive. If principals suppress competition, they would do so through either hierarchy or differentiation.<sup>55</sup> In all three cases, we project that the complex will migrate over time from the Southeast quadrant to one of the other three quadrants. An infusion of new institutions would be required to maintain a complex in a non-hierarchical-undifferentiated state in the face of competitive pressures.

We nonetheless conjecture that the Southeast quadrant will be a common location for new complexes, particularly if we relax the assumption of rationality and accept that principals anticipate substantive challenges and institutional friction only imperfectly. Principals create new institutions with imperfect information and sometimes myopically, leaving it to others to sort out dysfunction in the design of complexes at a later stage. Under such a scenario, they could easily create new institutions without planning for their engagement with other overlapping ones or providing guidance in advance as to which institution should prevail in a conflict. Indeed, we find this to be a plausibly frequent scenario. When principals cease introducing new institutions into such a complex, however, secretariats' efforts to minimize points of friction will nudge the complex into other categories. Non-hierarchical-undifferentiated complexes might be observable, therefore, but only for periods that are relatively brief in historical time.

We expect that the path along which complexes migrate from the Southeast quadrant to adjacent categories depends on the activism of the principals and the autonomy of institutional secretariats. Imposing hierarchy among institutions would require the active engagement of, or acceptance by, principals, whose preferences would have to be aligned. Differentiation along lines of comparative advantage, on the other hand, could be accomplished by secretariats operating independently, selecting niches that reduce institutional conflict. In the absence of either hierarchy or differentiation, desirable cooperative outcomes will depend on sustaining high levels of collaboration among institutions. This is far from guaranteed since it requires occasional if not frequent intervention by principals to anticipate or mediate institutional conflicts.

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<sup>55</sup> See, for example, Gehring and Faude (2014) and Faude (2015).

## CONCLUSION

The increasing density of international institutions in many issue areas has generated significant interest in the concept of international regime complexity. Continued progress in this research program requires pairing this concept with conditional theories that explain variation in how regime complexes shape international cooperation. In this paper, we emphasize the different patterns of institutional interaction that can emerge among clusters of institutions. These patterns alter the strategic environment in which states and others interact, influencing a range of cooperative outcomes.

We employ two dimensions to characterize how institutions in the same issue area interact: relations of authority and differentiation. These dimensions vary significantly across empirical regime complexes. Our approach uses them to classify the institutional order of regime complexes and employs the classification as an intermediate variable conditioning the effect of regime complexity on substantive outcomes. We believe that this classification scheme has analytical benefits relative to schemes employed previously in complexity research.

The paper engages in two levels of explanation: how order emerges within the complexes and how different orders produce different cooperative and substantive outcomes. We develop expectations at both levels of explanation that are in principle testable. To explain ultimate outcomes in the form of rule coherence and policy adjustment, we specify expectations with respect to all four combinations of hierarchy and differentiation. The paper applies the framework by identifying regime complexes in specific issue areas that express each of these orders and finds (preliminarily) outcomes that generally correspond to our *ex ante* expectations.

Our intention is to offer a theoretical framework that can serve as a productive platform for comparative research on regime complexes and improve cumulation across studies in this research program. Employing these categories and hypotheses, we hope that analyses of various regime complexes aggregate to more than the sum of the individual research projects. The ultimate test of the value of our approach is whether it enables authors to better explain the outcomes of cooperation and conflict in dense institutional settings and facilitates discovery of new causal channels.

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