

# **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 to examine the increasing density of international institutions. A growing literature identifies clusters of overlapping institutions in many important policy areas, yet some scholars argue that complexity undermines the effectiveness of global governance, 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 patterns of interaction among institutions: authority relations and institutional differentiation. These dimensions jointly determine the opportunities and constraints that states and other actors confront as they navigate institutional rules. As a result, they condition the effect of regime complexity on important outcomes such as policy adjustment and the strategies adopted by dissatisfied actors. The paper proposes testable hypotheses regarding the effects of authority and differentiation, and we assess their correspondence with the regime complexes examined by the seven empirical papers in this special issue. We further identify a set of dynamic processes that shape the evolution of regime complexes over time. Our framework strengthens the foundation for comparative analysis of regime complexes and charts a new agenda for the research program.

## 1. INTRODUCTION

The landscape of global governance is increasingly crowded. In nearly every major policy domain, multilateral cooperation occurs within clusters of nested and overlapping international institutions. A growing body of research examines these “international regime complexes,” establishing institutional density as a defining feature of 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> Despite this rich variation in regime-complex performance, few studies have explicitly questioned why some regime complexes produce more favorable outcomes than others.<sup>3</sup>

This paper proposes a theoretical framework for explaining variation across regime complexes. To do so, we focus on the patterns of interaction that emerge among constituent institutions. While all regime complexes feature institutions with mandates that overlap to some degree, they exhibit striking differences in the structure of inter-institutional relations. These relations establish the set of opportunities and constraints for actors in the regime complex – determining, for example, whether states can exploit conflicting rules or opportunistically substitute one institutional forum for another.

The relevance of institutional relations 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 organized. We instead dissect the concept along two dimensions – *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 condition the effect of regime complexity on substantive outcomes. The degree of hierarchy and differentiation influences international cooperation by establishing the basic “architecture” of the regime complex – i.e., the strategic environment in which states and other actors navigate the set of institutions. In the short term, these patterns of institutional interaction serve as relatively fixed constraints on state behavior. A government weighing a change in trade policy, for example, must maneuver within a trade regime that is hierarchically oriented around the World Trade Organization. In the long term, patterns of authority and differentiation in a regime complex are more malleable. They are shaped by the historical process of regime evolution and the strategic behavior of states, among other factors. Figure 1 demonstrates these causal relationships visually.

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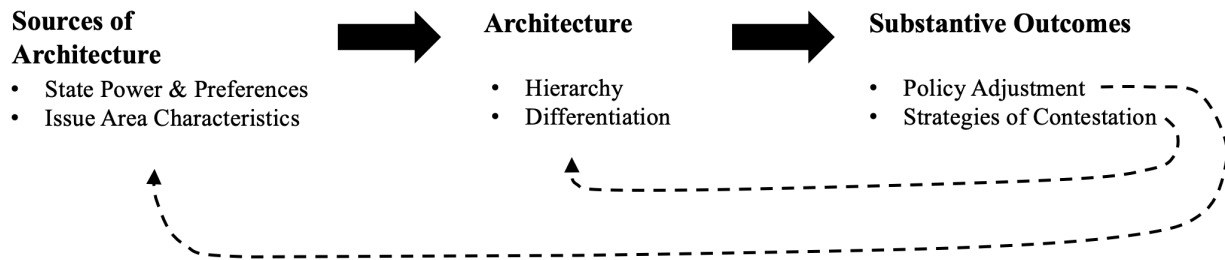
<sup>4</sup> For example, Henning (2017) describes joint decision-making procedures between the IMF and regional financial arrangements in the form of an “IMF link.”

<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 Hollway (2017) argue that the trade regime can be usefully analyzed as such a system.



**Figure 1: Sources and Effects of Regime Complex Architecture**

The first arrow in Figure 1 describes the *emergence* of hierarchy and differentiation in regime complexes. While this “stage-one” process is not the primary focus of this paper, we highlight a number of propositions in the existing literature regarding the processes that determine regime complex architecture. Since international institutions are generally created and controlled by states, their preferences and capabilities fundamentally shape the degree of hierarchy and differentiation in a regime complex. Innate characteristics of the issue area may also influence the regime complex architecture that emerges.

The core of our framework is directed at the second arrow, depicting the *effects* of the two dimensions. We propose a set of “stage-two” hypotheses that link hierarchy and differentiation to two primary outcomes of interest: policy adjustment on the part of states and other actors and their strategic responses to sustained dissatisfaction with the regime. We specify expected outcomes for each combination of the two dimensions. Policy adjustment tends to increase as regime complexes become more hierarchical and differentiated, while strategies of contestation vary in ways that affect the resilience of the complex.

Finally, these substantive outcomes create feedback processes that drive further evolution of the regime complex. These are depicted by the dashed lines in Figure 1. When strategies of contestation include competitive regime creation, for example, patterns of authority become less hierarchical. Institutional rules and demands for policy adjustment can also shape the preferences of member states as they navigate and construct institutions. We elaborate on these dynamic processes in section 5.

Our goal in providing this framework is to better explain the rich diversity in regime complex performance and thereby 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.

To test the framework, we invited a team of scholars to examine authority relations and differentiation in several empirical regime complexes. Contributors to this volume investigate a wide range of issue areas – including education (Kijima and Lipsy 2021), nuclear arms control (Eilstrup-Sangiovanni 2021), private security (Westerwinter 2021), cybersecurity (Hofmann and

Pawlak 2021), digital governance (Bonifai, Newman, and Zhang 2021), crisis finance (Henning 2021), and election monitoring (Pratt 2021). While their findings are largely consistent with our expectations, they also elaborate and extend the framework in productive ways. Collectively, they contribute new conceptual, theoretical, and methodological tools for scholars of international cooperation.

The rest of the paper is organized as follows. In Section 2, we formally define a “regime complex” – proposing a broader conceptualization than those in the existing literature – and specify the assumptions of our analytical approach. Section 3 introduces our classification scheme in which regime complexes are characterized along the dimensions of hierarchy and differentiation. Section 4 presents our theoretical expectations regarding the direct and joint (interactive) effects of hierarchy and differentiation on substantive outcomes. Section 5 describes the feedback mechanisms that drive evolution of regime complexes, and Section 6 concludes.

## 2. REGIME COMPLEXITY: CONCEPTS AND ASSUMPTIONS

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>9</sup>

### 2.1 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 emerge from repeated interaction in a dense institutional environment. Our framework emphasizes two such mechanisms, authority relations and institutional differentiation, though these do not exhaust the possible means by which institutions can be coordinated.<sup>10</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>11</sup> By adopting a

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<sup>9</sup> For a recent review, see Alter and Raustiala (2018).

<sup>10</sup> This paragraph adopts the definition provided in Henning (2017).

<sup>11</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

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 this 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>12</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 governmental, private and NGO representatives. Each of these institutions seeks to govern international cooperation, and each may be part of a regime complex.

A complex by our definition includes clusters of both differentiated and undifferentiated institutions. As in the case of authority relations, complexes need not be composed primarily of similar, overlapping institutions; the degree of differentiation can also vary from one complex to the next. Both authority and differentiation, in other words, can be treated as continuous variables in studies of regime complexes. Treating complexes as an ideal type at one end of these continua previously served to secure a beachhead for regime complexity in the IO research program, but would from this point forward constrain the research program unnecessarily.<sup>13</sup>

It is worth specifying some of the things that fall outside this definition of a regime complex. By requiring that regime complexes are populated by “a set of international institutions,” we do not consider stakeholders such as member states, their ministries, and private firms to constitute a regime complex. This distinguishes a regime complex from a full political system for an issue area.<sup>14</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,

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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>12</sup> Informal rules and processes are emphasized by Stone (2011), Kleine (2013), Christiansen and Neuhold (2012), and Westerwinter, Abbott and Biersteker (2021).

<sup>13</sup> Similarly, Martin (2019) advocates shifting away from using ideal-types to continuous variables in analysis of informal governance.

<sup>14</sup> Scholars using complex systems theory sometimes define a complex as comprehending governing institutions as well as their stakeholders. 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.

we delimit them by a *governance* function in the issue area concerned. Stakeholders that provide input and feedback to institutions are often important to understanding the politics of regime complexes, but are not a defining feature.

Like others, we identify the boundaries of a regime complex by the scope of the issue area to which it is addressed. We define an issue area as a set of problems for international cooperation that are connected by significant substantive spillover. These boundaries are not always fixed, as issue areas may shift due to exogenous events or purposive state action. Its edges can be sharp or fuzzy, but in either case the issue area is defined by a density of connection among substantive problems. In this conception, global governance is cleaved into a series of regime complexes within which spillovers are denser than they are across separate issue areas. The institutions of balance-of-payments finance and development finance inhabit different complexes, for example. There is some spillover between the work of the World Bank and IMF, but the density of connection among the multilateral development banks is considerably greater than between them and the Fund.

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.

## 2.2 Assumptions

The theory that we present below builds on these definitions plus three broad assumptions, which for clarity we wish to state explicitly at the outset.

*Principal Actors.* Diverse sets of actors contribute to the operation of regime complexes. States are often the most important of them; they are responsible for constructing overlapping intergovernmental institutions that sometimes constitute a complex. In some cases, states delegate significant agency to international bureaucrats, who might subsequently become autonomous actors in their own right. In other cases, state indifference or disunity 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 other actors that are subject to institutional rules are rational. They will make choices to maximize their own welfare, given information that is available 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. As the time horizon of the forecast becomes more distant, the accuracy of their forecasts declines.

*Regime Complexes as Cause and Effect.* 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. Thus, as with the rationality assumption, the causal force of regime complexes can depend on the time horizon of analysis. In the short term, complexes constrain behavior by setting the strategic environment in which actors operate. In the long term, regime complexes evolve in response to changes in the relative power and preferences of the actors that created them.

### 3. CLASSIFYING REGIME COMPLEX ARCHITECTURE

To construct a framework to explain variation in the architecture of regime complexes, we identify two dimensions that characterize the most important patterns of interaction among institutions: relations of authority and differentiation.<sup>15</sup> Each represents a specific way in which sets of institutions may be organized.

We prioritize these particular dimensions for three 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 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. Third, the framework offers a useful tool for analyzing dynamic change in regime complexes. The variables we highlight, hierarchy and differentiation, provide a two-dimensional "map" for tracing regime complex evolution and understanding its effects.

#### 3.1 Relations of Authority

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 interinstitutional cooperation. Relations of authority range along a continuum from a complete lack of hierarchy, where each institution claims an equal right to rule making, to a formal hierarchy where some

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<sup>15</sup> Our approach 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.

institutions are bound by the superior authority of others. Within hierarchical authority relations, for example, one institution could be “nested” within and legally subordinate to another.<sup>16</sup> In between these poles lies a diverse set of arrangements in which institutions distribute authority by delegating, orchestrating, and deferring to each other. Inter-institutional patterns of authority have important implications for the degree of rule conflict and opportunities for forum shopping in a regime complex.

Importantly, because it is a pattern of authority among the institutions, the degree of hierarchy in a regime complex is conceptually distinct from asymmetrical influence or power among member states. States’ power relations often determine the governance structure of individual institutions and the architecture of the complex as a whole. But, in our conceptualization, the power asymmetries that matter are captured, through formal charters, deference and other means, in patterns of authority among the institutions.

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. Pratt (2018) highlights several 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>17</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 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

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<sup>16</sup> See Aggarwal (1998) on the concept of nesting,

<sup>17</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.

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. 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.

### **3.2 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 functionally and geographically. A functional division of labor is common 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, Food and Agricultural Organization (FAO) and World Health Organization (WHO) with respect to governing trade in agricultural genetically-modified organisms 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.

Geographic differentiation of institutions can be established by membership, scope of activity or expertise. Differentiation is not a simple function of the name or nominal mandate of a regional organization, however. Membership in the Asian Infrastructure Investment Bank (AIIB) includes many states in Europe, Latin America and Africa, for example, and the Organization for Security and Co-operation in Europe (OSCE) monitors elections in Africa. Differentiation must thus be mapped with some care, but nonetheless affects the strategic environment in which states and other actors select policy.

Among other things, differentiation determines the freedom of choice actors have as they navigate a regime complex.<sup>18</sup> Scholarship that emphasizes forum shopping and regulatory arbitrage in regime complexes typically assume low levels of institutional differentiation.<sup>19</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.

### 3.3 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)	Nonhierarchical (contested) authority	Undifferentiated (substitutable) institutions
Ideal Type (High)	Hierarchical authority	Differentiated (specialized) institutions

**Table 1: Dimensions of Regime Complex Architecture**

Importantly, the values taken by regime complexes on the two dimensions do not necessarily move in lock step with one another. For example, the institutions of a complex can be non-hierarchical and differentiated. This would occur if institutions with similar levels of authority strategically adapt to find specific 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>20</sup> But this logic does not apply with similar force to positive-sum relations in the

<sup>18</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>19</sup> See, for example, Busch (2007), Alter and Meunier (2009), Hafner-Burton (2009), Abbott (2012) and Hofmann (2018).

<sup>20</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

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.

Our conceptualization of architecture characterizes the aggregate patterns of authority and differentiation among all of the component institutions of a regime complex. When applied at this level, these dimensions describe the terrain of global governance in the relevant issue area: whether a collection of institutions, as a whole, possesses a high degree of differentiation or hierarchy. However, the framework can also be used to analyze variation in institutional relationships *within* regime complexes. For example, a subset of institutions in a regime complex may feature hierarchical authority relations with each other, but contest authority with other institutions in the same issue area. Our framework sheds light on the operation and performance of these “subcomplexes” (Henning 2021).

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 architecture and with respect to cooperation outcomes -- and testing them in a positive framework.

#### **4. HIERARCHY, DIFFERENTIATION, AND COOPERATION IN INTERNATIONAL REGIME COMPLEXES**

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 architecture that emerges among institutions will affect many substantive outcomes. This approach allows us to build *conditional* theories of regime complexity. It assumes there is no simple linear relationship between the emergence of a regime complex 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 such effects.

##### **4.1 The Origins of Regime Complex Architecture**

While our emphasis in this paper is on the *effects* of regime complex architecture, the *sources* of hierarchy and differentiation merit discussion. Existing work identifies a wide range of variables that shape patterns of authority and specialization among international institutions. We describe the most prominent arguments here.

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differentiation and mutual dependence between states.” Mattern and Zarako (2016) review alternative conceptualizations of hierarchy in international politics.

Functional arguments draw a link between patterns of institutional interaction and efficient governance of the issue area. In these accounts, states, institutional bureaucrats, or other actors build links among institutions in order to improve performance and maximize joint gains. Johnson and Urpelainen (2012), for example, provide a theory in which states choose between integrating and separating regimes based on the nature of spillovers in the issue area. When the spillover is positive—that is, when cooperation on one task advances outcomes in another—states will choose to keep the regimes separated. When spillover is negative, such that cooperation in one area undercuts outcomes in another, states will choose to integrate regimes.

Gehring and Faude (2014) present a functional theory by which order is re-established within fractious regime complexes.<sup>21</sup> They argue that institutions and their members have a general interest in the provision of global public goods, which is undermined by institutional conflict. 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.

Other theories posit more parochial motives for states. In these arguments, hierarchy and differentiation (or lack thereof) in a regime complex stem from the uncoordinated behavior of states as they jockey for advantage. 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>22</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 are likely to drive states to consider outside options when dissatisfied with an existing institution. Both responses tend to reduce hierarchy and differentiation in the regime complex.<sup>23</sup>

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 (2020) 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

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

<sup>22</sup> See also the symposium on the concept in *Global Constitutionalism* (2016), including Morse and Keohane’s (2016) response to critics, pp. 344–50.

<sup>23</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.

over negotiations. Once multiple institutions are created in the same issue area, the organizations with weaker member states tend to defer authority to organizations with stronger members (Pratt 2018).

Others point to exogenous constraints of the issue area as drivers of institutional interaction. 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 institutions in the competitive areas update their governing arrangements more readily, whereas those in noncompetitive environments tend to be more rigid.

Recent work applies insights from historical institutionalism to the sources of regime complex architecture (Fioretos 2017). Barriers to institutional reform and path dependence 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 institutions on top of one another.<sup>24</sup> New institutions are easier to create than old institutions are to reform or abolish, in this conceptualization.<sup>25</sup>

One clear example of path dependence is the presence or absence of 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 distinguished from peripheral institutions. Regime complexes that emerge around these institutions – the World Bank for development finance and the IMF for crisis finance, for example – are likely to be more hierarchical as the incumbents defend their seniority relative to later entrants and appeal to member states in the process. Where a focal institution does not exist, as in the early climate change complex, authority relations may be less hierarchical.

Finally, additional scholarship draws on multiple perspectives to explain patterns of institutional interaction. Abbott, Green, and Keohane (2016) draw on organizational ecology to analyze patterns of growth and change in global governance institutions. This framework pairs environmental features of the issue area, including organizational density and resource availability, with a self-interested view of organizations. They argue, *inter alia*, that private transnational organizations are more likely to divide labor by seeking regulatory niches than intergovernmental organizations. Morin (2020) builds on this framework to explain the evolution of technical assistance providers in the intellectual property regime complex.

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<sup>24</sup> See also Rixen, Viola, and Zürn (2016).

<sup>25</sup> See also Eilstrup-Sangiovanni (2018).

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>26</sup>

The extant literature provides at least two important insights for our theory of regime complex performance. First, patterns of hierarchy and differentiation can emerge in multiple ways. While the architecture of a regime complex may emerge from a “rational” design choice, it could just as well reflect uncoordinated action, characteristics of the issue area, or historical contingencies. Understanding that hierarchy and differentiation are consequences of more than simply state preferences opens analysis to a broader examination of the causal effects of architecture on state behavior. Second, regime complex architecture is susceptible to long-term dynamic change, a point to which we return in section 5.

#### 4.2 Consequences of Regime Complex Architecture

We now turn to our main task of explaining the effects of hierarchy and differentiation on substantive outcomes. We focus on two categories of outcomes which impact the overall quality of international cooperation as reflected in, for example, environmental protection or economic development. These include:

- *Policy Adjustment*: Do states adjust their behavior or national policies to satisfy international agreements or comply with institutional rules? Adjustment will coincide closely with the coherence of rules and standards of the institutions. Coherence supports adjustment by preventing forum shopping and reducing uncertainty over international obligations, while rule conflict tends to undermine it.
- *Strategies of Contestation*: How do actors contest institutional outcomes with which they are dissatisfied? When disaffected from their institutions, actors can simply accept their situation or adopt one or both of two strategies. They can recruit other institutions to produce more favorable outcomes (regime shifting) and create new institutions to support such cooperation (competitive regime creation).<sup>27</sup> The two choices are not mutually exclusive, but we would expect to observe different strategies in different types of complexes.

Hierarchical authority relations and institutional differentiation shape these outcomes by constraining the ability of actors to maneuver around and within institutions in the regime complex. In this section, we first describe the independent effects of each dimension on policy adjustment and strategies of contestation. We then consider interactive effects, presenting the four ideal-type combinations of hierarchy and differentiation. While we advocate in general treating these dimensions as continuous rather than dichotomous, we illustrate with cases that are near the limits in order to clearly distinguish expected outcomes.

<sup>26</sup> See, also, Jupille, Mattli, and Snidal (2017).

<sup>27</sup> Morse and Keohane (2014).



### *Independent Effects*

The principal effect of hierarchy is to discourage the adoption of conflicting rules and standards across the regime complex. As authority relations in a regime complex become more hierarchical, we expect the complex to produce less rule conflict and higher policy adjustment. Hierarchical 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>28</sup> The reduction in rule conflict should increase policy adjustment 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 rule violations.

While hierarchical regime complexes extract more policy adjustment from states, they may also be less adaptable to changes in the international environment compared to egalitarian structures.<sup>29</sup> If shifts in state power or preferences make bargaining intractable in a central institution, stagnation may pervade the regime complex. The lack of rule conflict means that states that prefer alternative governance arrangements cannot simply shift venues to another institution. 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 operates by reducing functional overlap and thereby limiting actors' outside options for any given institution. When the institutions of the complex are undifferentiated, that is, functionally substitutable, we expect greater potential for 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>30</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>31</sup> Dissatisfied coalitions can enact change with relative ease by simply shifting venues from one institution to another.

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, and differentiation

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<sup>28</sup> Abbott, Genschel, Snidal and Zangl (2015).

<sup>29</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.

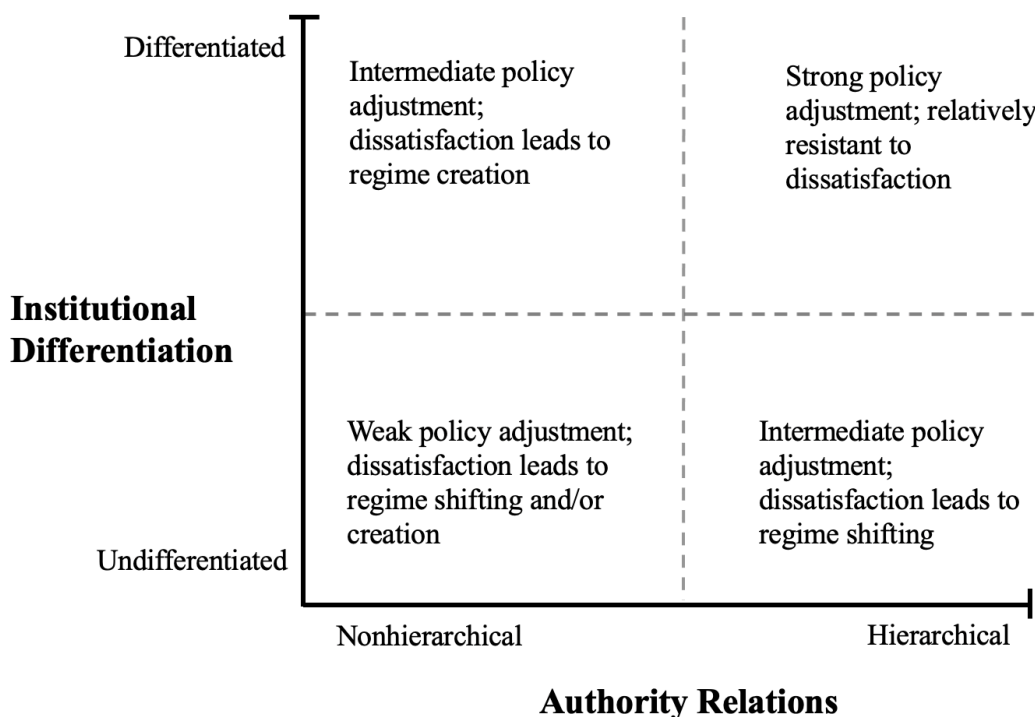
<sup>30</sup> See, for example, Hofmann (2018).

<sup>31</sup> Lipsy (2015) and Hofmann (2013 and 2018).

reduces opportunities for regulatory arbitrage. 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.

### *Joint Effects*

As we argued above, the two dimensions do not always covary. Empirically, regime complexes feature varying levels of hierarchy and differentiation – with important consequences for the performance of the regime. Figure 2 presents our expectations for the *joint* effects of authority and differentiation.<sup>32</sup> The horizontal dimension depicts relations of authority, with low values representing non-hierarchical arrangements and higher values representing greater hierarchy among institutions. The vertical dimension reflects differentiation, distinguishing between specialized and undifferentiated institutions. The corners of this two-dimensional space represent four distinct types of architecture and summarizes the expected interactive effects on international cooperation.



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

<sup>32</sup> We acknowledge Bob Keohane and Axel Marx for suggestions on developing this figure.

Below, we describe the expected results for each corner and illustrate by applying the framework to several issue areas. Applying the theory naturally raises questions of measurement. To establish hierarchical authority relations, we ask two questions: Does one (or more) institution have the implicit or explicit authority to direct other institutions in the complex? Do common principals favor one institution over others? This dimension thus has (hard and soft) legal, institutional, and third-party aspects.<sup>33</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 functional and geographic specialization. Functionally differentiated institutions are specialized substantively or in the type of governance activity they provide.<sup>34</sup> Geographically differentiated institutions have specialized expertise or jurisdiction that is spatially defined.

**Hierarchical-differentiated.** Regime complexes that are characterized by strong hierarchy among differentiated institutions (the Northeast corner) 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 peak institution will encourage harmony of purpose, while high levels of differentiation mean that institutional programs and activities may be specialized rather than collaborative. Because institutional specialization makes it difficult for dissatisfied states to engage in regime shifting, while hierarchy creates obstacles to competitive regime creation, the bar for changing the architecture is high; dissatisfaction must be larger and more sustained relative to other corners to overcome these obstacles.

The regime for international financial regulation provides a useful illustration of a hierarchical-differentiated complex. Global governance 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, and International Accounting Standards Board.<sup>35</sup> Some 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.” Financial regulatory institutions also exhibit significant differentiation, consistent with a functional division of labor. Separate bodies address securities regulation, accounting standards, and assessment of banking risk. Institutions have developed specialized expertise to regulate

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<sup>33</sup> See, for example, van Asselt 2017.

<sup>34</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>35</sup> These intergovernmental bodies receive input from numerous private-sector groups, especially the Institute for International Finance (Newman and Posner 2018). 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.

particular business sectors, although such specialization might lag behind the more dynamic integration of global financial markets.

Consistent with our expectations for complexes in this space, we observe a low degree of competition among standard-setting bodies in finance, relatively little forum shopping, and pressure for compliance. 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. Despite discontent with their influence in these bodies, emerging-market countries have not promoted alternative forums.<sup>36</sup> Regime shifting and regime creation are rare to nonexistent.

In her contribution to this special issue, Eilstrup-Sangiovanni (2021) argues that the early regime complex for nuclear arms control also featured high levels of hierarchy and differentiation. In the early 1970s, the complex was centered on the “core” of the Nuclear Non-proliferation Treaty (NPT) but also included a diverse set of functionally and geographically differentiated agreements related to nuclear weapons placement, testing, materials, and technology. The nascent regime complex performed in a manner consistent with the theoretical expectations described above, as institutions avoided conflicting practices and served as credible, independent monitors of state behavior.

**Hierarchical-undifferentiated.** Where a regime complex is hierarchical but undifferentiated (Southeast corner), we expect more rule conflict (and associated forum shopping) than in the case of hierarchical-differentiated complexes, but we also expect the institution at the 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.

The regime complex for peacekeeping exemplifies the hierarchical-undifferentiated category. The United Nations sits atop a complex that includes thirteen regional organizations, plus a larger number of subregional organizations, that are involved in peacekeeping.<sup>37</sup> The UN provides peacekeeping operations more frequently and typically with greater manpower than the other organizations, although its reliance on regional contributions has been increasing. Regional peacekeepers increasingly seek UNSC authorization for operations, which signifies the importance of legitimacy that comes with the UN imprimatur.<sup>38</sup> Regional operations have

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<sup>36</sup> Walter (2019).

<sup>37</sup> Brosig (2015), Koops (2015) and Williams (2016).

<sup>38</sup> Article 52 of the UN Charter encourages regional arrangements to undertake peaceful resolution of local disputes, including peacekeeping missions, but Article 53 precludes the use of force without prior Security Council (UNSC) authorization.

generally been in conformity rather than in competition with UN rules.<sup>39</sup> Better financial support enables the UN to sustain field operations more consistently than most other organizations.

Conflicts sometimes arise among the institutions, including notable disputes between the UN and AU over peacekeeping in Libya in 2011 and Mali in 2012-2013. But such disputes are restrained by regional organizations' need for the resources of the United Nations and a widely shared preference for operating under its legal umbrella.<sup>40</sup> As a result, the presence of overlapping institutions tends to improve rather than degrade substantive outcomes, as a general matter. Peacekeepers work in some of the poorest, most conflict-prone territory on the globe, where state capacity is very weak. Assessment of missions' value-added must be made in this context. Quantitative studies of peacekeeping conclude that missions generally reduce civilian casualties, military deaths, geographic scope of conflicts, and in particular the spread of civil wars across international borders.<sup>41</sup> Such missions are usually regarded by parties as constructive, which is indicated by steady demand for interventions – the UN has conducted more than 70 -- and a progressive broadening of their mandates.

Henning (2021) offers another example of a hierarchical and undifferentiated regime complex in his contribution to this collection. Examining the set of international institutions devoted to crisis finance in East Asia, he argues that creditor states designed regional bodies to overlap with IMF functions, but also ensured they deferred to IMF rules and authority. As a consequence, debtor countries within the region have uniformly eschewed borrowing, relied on their own resources (via reserve accumulation), and achieved modest regime shifting by softening the link to the Fund. Westerwinter (2021) similarly situates the contemporary regime complex for global private security governance in this corner. He identifies the International Code of Conduct for Private Security Service Providers' Association as a core, highly authoritative institution that is supported by important principals such as the United States. Other intergovernmental and multi-stakeholder institutions in the complex defer to its rules, facilitating inter-institutional cooperation and mitigating the negative consequences of undifferentiated mandates.

**Nonhierarchical-differentiated.** Where complexes are non-hierarchical and differentiated (Northwest corner), 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 compliance and policy adjustment on the part of principals. We also expect weaker discipline over institutions themselves and the greater agency drift that is associated with differentiation, and thus to observe more competitive regime creation as principals' preferences evolve over time (because differentiation places regime shifting out of reach).

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<sup>39</sup> The AU, in whose region most operations occur, explicitly recognizes the primary responsibility of the UN for peacekeeping. See Article 17 of its Protocol on Peace and Security, cited in Williams (2016).

<sup>40</sup> Williams and Boutellis (2014).

<sup>41</sup> See Fortna (2008), Howard (2019), and Carnegie and Mikulaschek (2000). Howard notes that qualitative assessments of effectiveness tend to be less favorable.

The regime complex for climate change illustrates a nonhierarchical and differentiated architecture. 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.<sup>42</sup> Initiatives taking place outside the rubric of the United Nations include intergovernmental organizations, especially by the World Bank; leading forums such as the Group of Seven (G7) and Group of Twenty (G20); and 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>43</sup> In 2015, eighty institutions 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).<sup>44</sup> 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 that it lacks hierarchical authority relations among the institutions.<sup>46</sup>

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 corner.

Contributors to this volume highlight several other examples of nonhierarchical-differentiated regime complexes. Pratt (2021) argues that the regime complex for election

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<sup>42</sup> Van Asselt (2014).

<sup>43</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>44</sup> Pattberg, Sanderink and Widerberg (2017).

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

<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 by network connections and shared discourse, aspects of collaboration as developed in Henning (2021).

monitoring lacks an authoritative “core” institution and is differentiated by both regional focus and rigor. Differentiation precludes opportunistic forum shopping and strengthens policy adjustment in the regime complex. Bonifai, Newman, and Zhang (2021) also situate the contemporary regime complex for digital governance in this corner: a wide array of transnational bodies, international organizations, and private actors regulate three distinct sub-issues (internet governance, intellectual property rights and data privacy) in relative isolation from one another. Conceptualizing cyberspace more broadly, Hofmann and Pawlak (2021) observe substantial differentiation and a lack of hierarchy in the regime complex in its early years. In both accounts, dissatisfied actors frequently resort to regime creation to achieve their political goals.

**Nonhierarchical-undifferentiated.** Where the regime complex is non-hierarchical and undifferentiated (Southwest corner), we predict relatively high institutional competition and rule conflict. As a consequence, we anticipate more forum shopping and lower policy adjustment relative to other architectures. Both regime shifting and creation can occur over time.

The regime complex for biodiversity is an example of this institutional architecture. 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>47</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>48</sup> The U.N. Convention on Biological Diversity (CBD) lies at the center of this expansive 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 the 2000 Cartagena Protocol on Biosafety.<sup>49</sup> 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 corner, although U.S. non-adherence to the CBD and other factors could also contribute to this dismal outcome.

Kijima and Lipsy (2021) attribute a lack of hierarchy and substantial functional overlap to the contemporary complex for education, a product of diminishing network effects and low entry costs. Eilstrup-Sangiovanni (2021) places the present-day nuclear arms control regime in the nonhierarchical-undifferentiated space. Compliance and policy adjustment in both regime complexes are correspondingly weak.

We wish to emphasize that this framework does not offer judgments about the normative merits of different architectures. Whether greater policy adjustment of hierarchical-differentiated complexes is normatively superior to outcomes in nonhierarchical-undifferentiated complexes, for example, depends in substantial measure on a separate assessment of the quality

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<sup>47</sup> Aubry (2019) provides an update on PGR governance.

<sup>48</sup> Morin et. al (2016, 7); Alter and Raustiala (2018, 7).

<sup>49</sup> Morin et al. (2016).

of policies in those issue areas. Legal scholars and political scientists tend to have different perspectives on the normative implications of rule conflict. While there are some exceptions, international lawyers tend to view court shopping that arises from conflicts in legal norms and rules to be corrosive.<sup>50</sup> By contrast, a number of political scientists view rule and norm contestation to be part of a process of experimentation that, while perhaps unruly, can break institutional rigidities and introduce innovation that can render outcomes more just. We tend to see normative value in cooperation *per se*, and in effective rules and policy adjustment over ineffective ones; but those judgments lie beyond the scope of our theoretical framework.

## 5. THE EVOLUTION OF REGIME COMPLEXES

Up to this point, our explanation for the effects of architecture on outcomes has been largely an exercise in comparative statics. But our classification scheme leads readily to the question of whether and how complexes might move along the dimensions of hierarchy and differentiation over time. Complexes can in principle migrate in any direction or, if the migration is great enough, from one corner to any other corner in Figure 2. The framework developed here enables us to make progress theorizing how complexes are likely to evolve under various conditions.

Drawing on theories of institutions, we employ the basic distinction between *exogenous* and *endogenous* change of regime complexes.<sup>51</sup> By exogenous change, we refer to independent shifts in the original, underlying sources of regime complex architecture identified in Figure 1. These variables – transformations in state preferences and power relations, for example – are commonly shaped by forces external to the operation of the regime complex. As they evolve, we expect corresponding changes in hierarchy and differentiation among institutions in the complex, albeit with possible lags or distortions. We refer to change that originates from the operation of complexes over time, by contrast, as endogenous. In our framework, endogenous change emerges due to feedback loops between the substantive outcomes and regime complex architecture, and it is the theoretically more challenging of the two sources of evolution.<sup>52</sup>

Endogenous processes of change are graphically illustrated by the two feedback arrows in Figure 1. The shorter of the two arrows, linking strategies of contestation to regime complex

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<sup>50</sup> See, for example, discussion in Raustiala (2012).

<sup>51</sup> Greif and Laitin (2004), Pierson (2004), Mahoney and Thelen (2010, 1-37), Keohane (2017), and Fioretos (2017).

<sup>52</sup> Our use of the terms “exogenous” and “endogenous” mirrors a recent turn in institutional scholarship. Early generations of international relations scholars sought to demonstrate that international institutions were exogenous, meaning that they had causal effects on state behavior that were independent of the state preferences and power distribution that underlay the institutions’ creation. Present scholarship recognizes that institutions can evolve both exogenously – via a change in their primary underlying determinants – or endogenously – as a consequence of their operations’ feedback effects on members’ preferences and relative influence. Endogenous change holds the possibility that global governance can evolve independently from nation states, whose politics are parochial and thus collectively undersupply global public goods.



architecture, is relatively straight forward. Depending on the existing degree of hierarchy and differentiation, dissatisfied states may be more likely to engage in regime shifting and/or competitive regime creation. These, in turn, have direct effects on the architecture. Regime creation generates new institutions that overlap with existing ones, making complexes less differentiated. Regime shifting tends to erode the dominance of the peak institution, making the complex less hierarchical. If sustained over time, these processes can shift the regime complex downward in both dimensions represented in Figure 2.

The longer feedback arrow, linking institutional policy outcomes to the original sources of regime complex architecture, embraces a broader set of mechanisms. In many cases, outcomes arising from regime complex architecture feed back into the preferences of member states. Shifts in the division of labor or relative authority among institutions in the complex, for example, can alter the relative influence of government bureaucracies in domestic competition over national policy. Changes in the locus of regulation-making within the complex can produce corresponding changes in the pattern of interest group lobbying at the domestic level, as some legislative committees and bureaucracies become more relevant and others less so. Each of these processes shape governments' preferences in international cooperation. In the long run, the distributive implications of policy adjustment exacted by complexes can reshape the relative capabilities of states, and thus sow the seeds of subsequent institutional reforms by which increasingly powerful actors consolidate their gains.

The architecture of the regime complex also reshapes the information landscape for states and other actors.<sup>53</sup> The degree of hierarchy and differentiation in the regime complex affects the diversity and quality of information that institutions disseminate, from economic forecasts to signals about state compliance. The quality of information bears not only on actors' ability to cooperate substantively but also on the ability of principals to foresee the consequences of their choice of architecture. We conjecture that, with high-quality information, successive reforms of complexes will yield stable configurations, but that complexes that generate little new or poor information are more likely to cycle through reforms of the architecture without settling into stable equilibria.

Endogenous change often depends on the manner in which institutions respond to jurisdictional overlap. Contributors to this volume highlight *competition* and *collaboration* as key institutional responses. Kijima and Lipsy (2021) stress competition, which depends in part on issue-area structure, while Henning (2021) and Westerwinter (2021) emphasize collaboration. Both strategies are responses to the potential for conflict to which overlap gives rise – although they can be promoted by principals directly as well -- and have consequences for the subsequent evolution of the architecture. Competition is likely to produce winners and losers, contributing to hierarchy, or, if institutions avoid it, niche finding. By contrast, collaboration is likely to perpetuate overlaps and less hierarchical authority relations.

Kijima and Lipsy theorize that regime complexes in competitive issue areas should evolve toward less hierarchy and a mix of differentiated and undifferentiated institutions, each promoted by weaker and stronger states respectively. Thus, the regime complex for education

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<sup>53</sup> We acknowledge Duncan Snidal for this important insight.

originated as hierarchical and differentiated, with UNESCO and IEA at the core, but became nonhierarchical and less differentiated as the United States and other advanced countries shifted resources to institutions that better reflected their preferences, such as the World Bank and OECD. (Movements of the complexes are traced in the figure in the Appendix.)

Several other papers in this project also identify the exogenous and endogenous mechanisms by which their regime complexes evolved. Eilstrup-Sangiovanni identifies both exogenous and endogenous sources of evolution of the nuclear arms control complex. Technological change and the end of the Cold War eroded hierarchy and policy discipline in the complex, while new institutions created substantial overlap. The “time-inconsistent bargain” between nuclear and non-nuclear states that lies at the heart of the regime is equally important in driving this evolution. In combination with (the also endogenous) international diffusion of nuclear technology, it renders the complex unstable in its current configuration, presaging further adaptation or collapse.

While the regime complex for global private security emerged with a completely nonhierarchical, moderately differentiated architecture around the year 2000, it has evolved to become strongly hierarchical and modestly less differentiated. Westerwinter attributes this shift to an endogenous response to overlap: increasing deference on the part of some institutions toward others, along the lines of comparative advantage as institutions specialized.

Hofmann and Pawlak provide an example where competition among issue frames induces institutions to concentrate on overlapping, higher-stakes issues in cyberspace, hardening substantive policy differences and conferring authority on the multilateral institutions over plurilateral and multi-stakeholder organizations. When a new governance problem emerges (exogenously) in an institutionally dense issue space, framing competition can thus enhance overlap and hierarchy simultaneously.

Bonifai, Newman and Zhang trace an arc for governance of the internet, data privacy and intellectual property rights that begins similarly but then diverges. For them, exogenous technical change shapes the interests of the big data companies and, with them, the preferences advanced by the United States, EU and China. Powerful firms and their (sometimes captured) states used strategies of insulation to create silos that protected their interest in these three areas. Within the silos, principals layered new institutions on top of existing ones. As a consequence, the digital complex evolved from a hierarchical, semi-differentiated architecture originally, to a nonhierarchical-differentiated one in the 2000s, and then a less differentiated one presently. The diverging trajectories traced by the two papers stem from differences in their temporal and conceptual scope. Bonifai, Newman and Zhang begin prior to the technology revolution and examine a narrowly defined set of digital issues, while Hofmann and Pawlak begin their analysis after the cyber revolution and adopt a more expansive view of the issue area. The contrast nonetheless underscores the challenge to analysts of further specifying the conditions under which competition enhances, or reduces, hierarchy and differentiation in the face of an exogenous shock.

The evolution of each regime complex along the two dimensions had reverberating consequences for strategies of contestation and policy adjustment in particular issue areas. The flattening of hierarchy and increasing substantive overlap rendered nuclear arms control less effective over time, as they did to the regime complex for education. The strengthening of hierarchy within the complex for private security was associated with an overall increase in cooperation among its constituent institutions and configured cooperation among dyads. While it may be too early to assess the outcomes, the consolidation of the complex for cyberspace is expected to modestly strengthen the effectiveness of rules and norms, though perhaps differentially among the silos of the issue area. As a group, the papers find general correspondence with the project's theoretical framework, although some identify deviations from expectations and offer novel extensions.

Collectively, these papers highlight a shift over time in the initial architecture that characterizes new regime complexes. The quarter century after WWII witnessed the creation of several global multilateral institutions that loomed large in their respective issue areas. These became the focal institutions around which regime complexes emerged in the last quarter of the twentieth century. As Kahler (2020) observes, the dramatic increase in globalization, mobilization of domestic interest groups, decline in the cost of organization (Abbott and Faude 2020), proliferation of civil society organizations, and emergence of new issues on the agenda rendered global governance much more complex after the end of the Cold War. Thus, whereas new regime complexes tended to emerge in the hierarchical-differentiated corner of Figure 2 during the early postwar decades, they instead tended to emerge in the nonhierarchical-undifferentiated corner during the two decades of the twenty-first century.

We expect that in the future new complexes will continue to emerge in this corner, given the limits on principals' ability to anticipate emerging issues and their tendency to create new institutions without specifying their relationship with overlapping bodies. However, our framework also suggests that nonhierarchical and undifferentiated institutions are inherently competitive. Secretariats, when operating autonomously, can differentiate their institutions along lines of comparative advantage, selecting niches that reduce institutional conflict. By creating winners and losers, or displacing institutions, competition will tend to establish or reinforce hierarchy. Some institutions might defer to others, or hierarchy might be instilled through other means, to soften competitive pressure. We thus conjecture that the regime complexes in the nonhierarchical-undifferentiated corner are dynamically *unstable* and will – if left to their own devices and given sufficient time – migrate toward one of the other three corners. The well-documented cases of trade in GMO products and patenting of AIDS drugs are examples where intense rule conflict eventually yielded to a *modus vivendi* among the institutions.<sup>54</sup> Regime complexes may remain in the nonhierarchical-undifferentiated corner for extended periods, if principals actively manage interinstitutional disputes or, perceiving benefits from competition, block mutual accommodation. But absent such intervention, we expect regime complexes to migrate away from the nonhierarchical-undifferentiated corner over time.

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<sup>54</sup> See, for example, Gehring and Faude (2014) and Faude (2015).

## 6. CONCLUSION

Given the increasing institutional density of international relations, theories of cooperation that do not take account of the relationships and interactions among international institutions are seriously incomplete. The concept of international regime complexity has thus generated substantial interest among international relations scholars. However, continued progress in this research program requires pairing the 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 architecture of regime complexes and argues that variation in this architecture helps explain substantive outcomes. We believe that this classification scheme has analytical benefits relative to schemes employed previously in complexity research.

The main contribution of the paper is articulating the effects of different architectures on substantive outcomes. We develop testable expectations with respect to all four combinations of hierarchy and differentiation, which we map to the extent of policy adjustment and the strategies of contestation adopted by dissatisfied actors. The paper applies the framework by identifying regime complexes in specific issue areas that express each of these architectures and finds outcomes that generally correspond to our *ex ante* expectations. A second important contribution is theorizing the evolution of regime complexes, identifying circumstances under which their architectures become more or less hierarchical, or differentiated, over time and sorting endogenous from exogenous processes of change.

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. To that end, this volume tests the framework's expectations for the four types of architecture that we map against the regime complexes examined in seven articles. These contributions demonstrate the promise of the framework, underscoring the range of issue areas and time periods in which it can be employed, while drawing on a rich diversity of methodological approaches. 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.

While our volume contributes directly to scholarship on regime complexity, it also suggests several further steps to continue advancing the research agenda. First, scholars should establish and refine metrics for authority relations and differentiation that can be deployed comparatively. Scholars have developed measures of hierarchy, and to a lesser extent differentiation, but would benefit from refashioning them for analysis of *interinstitutional* interaction as well as configuring them to be applicable across, not simply within, different

regime complexes. Similarly, our touchstones for outcomes, policy adjustment and dissatisfied actors' strategies, will benefit from more detailed specification, but again in forms that facilitate cross-complex comparison.

The research program would also benefit from compiling further data on institutional interactions. Current databases tend to contain information on institutional attributes, whereas data on interaction better relate to questions about competition, collaboration and interinstitutional relations generally. These quantitative metrics can supplement and reinforce the use of comparative case studies and process tracing to ensure findings are robust across different methods.

Another fruitful step would be to extend comparisons of historical trajectories of complexes, as theories of regime complex evolution remain relatively unexplored terrain. Finally, our field of scholarship would benefit from developing normative approaches to the design of complexes to enhance the substantive quality of governance, improve information, bolster the resilience of well-performing institutions, and facilitate reform of under-performing complexes.

Some studies of global governance go beyond explanations of substantive cooperation to examine how institutional layering and competition expand or restrict access to policymaking and agenda setting, empowering new stakeholders, shifting the policy agenda and enhancing, or degrading, accountability. We are sympathetic to this broader research agenda but seek to contribute to it by developing a core theory and testing its expectations comparatively against outcomes in different regime complexes. On a common framework, subsequent scholarship that relaxes the assumptions made here and expands the scope of analysis can build in a more cumulative fashion. Provided that their causal logic is consistent with such an analytical core, supplementary approaches can be theoretically progressive.

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Appendix

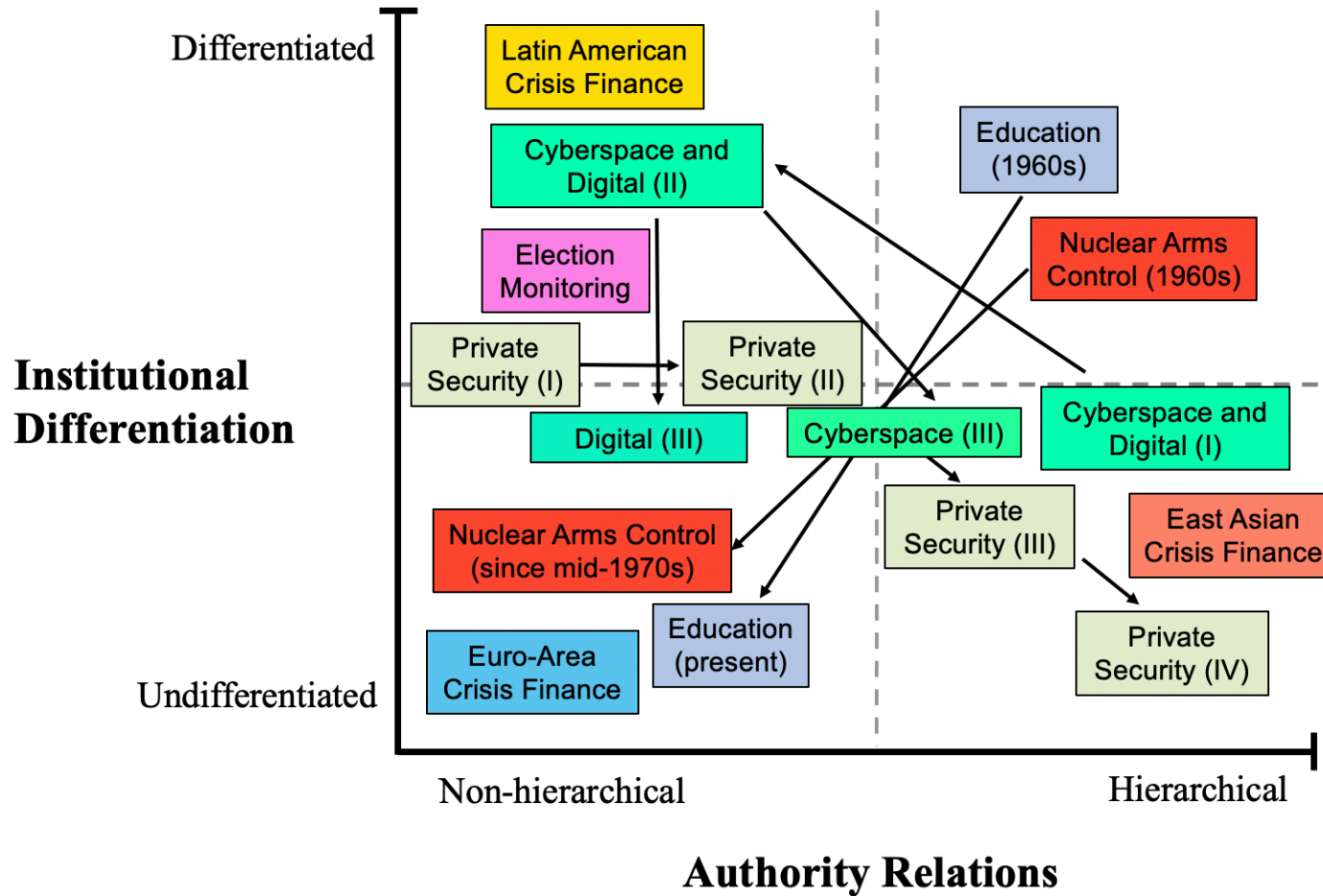


Figure A1: Location and Evolution of Eight Regime Complexes