Why Institutions Evolve: 
Ideas, Agents and Political Change

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In recent years, institutionalist scholars have focused on the problem of explaining gradual institutional change. While it is clear that institutions change constantly, many of the theoretical and epistemological tools used by political scientists are better equipped for the study of equilibrium and stasis (Levi 1997). The question of how institutions change incrementally over time in ways that culminate in substantial long-term shifts has been a particularly vexing problem for researchers, because rationalists tend to assume relatively static preference structures and historicists tend to see institutions as relatively consistent and stable constraints on behavior. As Hodgson (2007) points out, stronger forms of methodological individualism and structuralism both engage in a process of explanatory reductionism, where either agency or structure is privileged (101). The problem with such reductionism is both approaches lack an explanation for how preferences change, which is necessary for explaining gradual institutional change. This paper argues that the question of gradual institutional change can informed by research rooted in evolutionary theory and cognitive neuroscience (Alford and Hibbing 2004, McDermott 2004). This work builds upon the renaissance in evolutionary theorizing taking place across a wide range of disciplines (Nelson 2006), the primary value-added of which is that the general Darwinist algorithm of variation, selection and replication provides an explicit theory of change. Instead of assuming equilibrium, an evolutionary approach assumes that iterative interactions between agents and structure drive gradual institutional change. As such, it provides a multi-level theoretical framework that links individuals to populations.

I argue that evolutionary theory provides a meta-theoretical framework that helps researchers understand the mechanisms of gradual institutional change. However, the application of generalized Darwinism is not a panacea for explaining complex systems (Hodgson and Knudsen 2006, Nelson 2007), but provides a framework for thinking about the mechanisms of change. Indeed, the particular type of system under study—political institutions—are likely to have very different properties and characteristics from complex systems found in other disciplines. In particular, human intentionality and strategic action are a central part of political evolution, making the process of institutional evolution different from that used to explained biological species (Nelson 2007). Consequently, much of the research agenda for this analysis lies in articulating the specific mechanisms at work in institutional change.

This paper builds on this research agenda by focusing on the bottom-up process of evolutionary institutional change. This perspective focuses on the ability of agents to generate
variation in “ideas” about institutional structure, and how ideas proliferate through communication and learning in ways that ultimately causes changes in preferences and behavior. In order to understand how agents generate and adopt various ideas, researchers must necessarily delve more deeply into the psychological mechanisms by which institutions are constructed and reconstituted. According to Stein (1997) “traditional institutionalist theory appears to be based on a somewhat reductionist perspective of the human mind” (729). However, there is a substantial literature rooted in psychology and cognitive psychology that sheds considerable insight into the origins and complexity of human preferences (Kahneman and Tversky 1979, Alford and Hibbing 2004, McDermott 2004) and the ways that agents learn and adapt (Hall 1993, Stein 1997, Hodgson 2007). Ideas are a central element in this process, so institutionalist scholars have turned to ideas in order to explain change (Blyth 1997, Hall 1997, Pierson 2000). However, scholars using ideational variables have had a hard time finding a place in traditional political science theory. The role of “ideas” can be readily understood in evolutionary terms. For example, if formal institutions are the genes in a political system, then ideas are mutations. Institutions replicate behavior by outlining the routines people should in a particular situation, while ideas allow people to re-imagine how those routine could operate. Thus, the creation and transmission of ideas are a central component to the study of institutional creation and change (Pierson 2000). In order to develop a evolutionary theory of institutional change, this paper seeks to clearly articulate the mechanisms of ideational change.

This analysis proceeds in three parts. The following section briefly reviews the ontological and epistemological foundation necessary for an evolutionary theory of institutional change. The second section introduces past research on the role of ideas, communication and learning, in order to better understand how preferences are shaped by structure yet also change to reflect new information. Finally, the third section applies this theoretical framework to the case of the Chinese economic system to demonstrate how it sheds insight into the process of institutional reform that has taken place over the past thirty years. Employing an evolutionary approach allows one to illustrate hoe the debate surrounding various economic ideas has shaped and re-shaped economic institutions over time to produce a uniquely Chinese “model” of capitalism.
Ontological and Epistemological Framework

“[A] substantial gap has opened up between the methodologies popular in comparative politics and the ontologies the field embraces.”

(Hall 2003: 374)

In order to explain institutional change, researchers must embrace a multi-layered ontology that connects agents and structures, in order to understand the interaction between the two and how they mutually constitute institutions over time. As Hodgson (2007) states, “What is required is a framework within which the transformation of both individuals and structures can be explained. This approach must involve explanations of possible causal interaction and reconstitution, from both individual to structure and from structure to individual [emphasis in original]” (106). Evolutionary theories are based on a less reductionist multi-level ontology that explicitly connects agents to structure without conflating the two. In this view structure cannot be reduced simply to agent preferences, because complex interactions lead to emergent properties at higher levels of analysis. Emergent properties are defined as systemic characteristics that cannot be attributed to any single agent or group. While rooted in a series of individual decisions, institutions are often characterized by emergent properties because they are the product of complex bargaining and compromises at lower levels of analysis and do not reflect the preferences of any single individual. Moreover, institutional structures often exist prior to individual agents and are external to them. Individuals are born into structures, are shaped by them and sometimes help to re-shape them over time. Evolutionary theory addresses the agent-structure debate by viewing agents and structure as different parts of the same institutional phenomena. Thus, institutions are not simply “cognitive constraints” internal to agents at the individual level, but also objective relations that are external to agents (Hodgson 2007: 104). Many agents interact with institutional structures without ever having played a role in shaping them or being shaped by them.

This multi-level ontology stands in contrast to socio-cognitive views such as Stein (1997) who argues that “an institution is not an objective physical phenomenon, but a human mental construct” (730). While this perspective draws attention to the cognitive aspect of institutions, its focus on the inter-subjective construction of institutions that gives the impression that institutions are simply all in one’s head and not something external to agents. Alternatively, Giddens’ (1984) “structuration theory” views structure and agency as different parts of the same
phenomenon, with neither receiving analytic priority over the other. While this perspective acknowledges the importance of both of these levels of analysis, it tends to view agency and structure as two parts of a unity (Hodgson 2007: 103). In contrast, the ontological framework outlined below treats agents and structure as fundamentally separate levels of analysis, each with its own causal role in the process of institutional stability and change.

This ontological framework has substantial precedent in evolutionary theory, which relies on the concept of dual causation, meaning that behavior is a function of both genetic factors and environmental selection (Mayr 2001). In human societies, selection includes culture—or “informal institutions”—and formally codified institutions that shape behavior. This basic concept has been extrapolated to the social domain by Richerson and Boyd (1985, 2005) who argue in favor of “dual inheritance,” which states that both biological and cultural mechanisms are important for understanding human behavior. Lachapelle (2000) highlights that “[Richerson and Boyd’s] main theoretical achievement [is] ontological in nature: they have shown that culture is genuinely evolutionary active. . .this second system of inheritance can have the very same causal effect that biological evolution has, namely, to bring about changes in phenotypes” [emphasis in original] (344). Given that dual inheritance acknowledges that bottom-up and top-down causation matter, this ontological foundation helps to reconcile long-standing conflicts between rationalist and historical institutional scholars regarding the relative importance of agency or structure. As Lachapelle (2000) argues, the “explanatory pluralism” facilitated by this foundation is ultimately “agnostic on the question of whether higher-level or lower-level explanations are better, . . .[and] whether causation operates in a bottom-up or top-down manner.” (352). Consequently, an evolutionary framework supports the notion that agents interact and co-evolve with their environment.

Secondly, evolutionary theory is the study of “complex adaptive systems” (Holland 1992). This concept focuses on the importance of interaction and emergence, and attempts to understand the ways in which interactions of genes, behavior, and environment shape one another in a dynamic process. Interaction is the key aspect of a complex system, which implies that isolating factors as “independent” variables which has been one of the key rules imported into political science from mid-twentieth century versions of “the scientific method” may be an ontological fallacy. This “interactionist paradigm” provides a sound ontological foundation for explaining macro-level political outcomes that are the product of numerous interactions at lower levels of
analysis. One cannot completely understand the evolutionary puzzle by reducing it solely to its agent-driven or structural elements, due to the fact that a series of unguided interactions at the micro-level creates emergent properties at the higher levels of analysis. Just as genes at the micro-level interact to form a unique individual, individuals within a population interact to replicate institutions. The character of the whole institution is thus distinct from a simple aggregation of the constituent units.

Epistemologically, this framework implies a focus on process rather than relationships between variables. Instead of assuming stable relationships between variables and static equilibrium, evolutionary theorists focus on the interactive causal process that shapes outcomes over time. In contrast to epistemological principles derived from a Physics-based philosophy of science, such as determinism, prediction and falsifiability, evolutionary theorists have adopted an epistemology that reflects complex systems by focusing on probabilities. Many believe that physicists, operating in a world of constant laws are able to construct fully deterministic models that can accurately predict outcomes once the underlying components are known. 1 Although biologists create typologies, the greater role ascribed to interaction, chance and emergence makes it very difficult to construct a fully deterministic model. Evolutionary theories articulate “mechanisms,” by which consistent patterns recur, but they are generally more circumspect about defining scope conditions and probabilities, because it is assumed that the complex interactive nature of the system may eventually cause mechanisms to change.

Secondly, the important role ascribed to complex interaction makes evolutionary biology more of a historical science focused on process tracing. Evolutionary biologists often research unique phenomena that cannot be explained by reference to laws, nor can their causes necessarily be discovered by experimentation (Mayr 2004: 32). Consequently, the primary method of analysis is that of a historical narrative that describes the influence of historical contingency and environmental factors on outcomes. Mayr (1988) defends scientific merit of this approach in the following way:

When asked whether or not the adaptationist program is a legitimate scientific approach, one must realize that the method of evolutionary biology is in some ways quite different from that of the physical sciences. Although evolutionary

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1 The reality of modern physics is substantially more complex than this. The Newtonian/Cartesian vision of the physical world as being as finite set of fixed and stable constants governed by universally applicable laws has been abandoned by physicists since Einstein. The fact that so many economists and political scientist have assumed a model of science no longer used by physical scientists is an ironical story in itself. For an excellent history of how economists took this turn, see Eric Beinhocker, 2006.
phenomena are subject to universal laws, as are most phenomena in the physical sciences, the explanation of a particular evolutionary phenomenon can be given only as a ‘historical narrative.’ Consequently, when one attempts to explain the features of something that is the product of evolution, one must attempt to reconstruct the evolutionary history of this feature (149).

Instead of accurately predicting the future, the goal of evolutionary theorists is to understand the forces and dynamics that have shaped the world as we know it. Specifically they are interested in understanding how and why species adapt, prosper, and sometimes die out. Often they do this empirically and inductively rather than deductively. Evolutionary biologists do not embrace the goal of predicting future outcomes, not because they do not have enough data nor because their computer models are too simple, but because evolutionary theory assumes that random variation within complex systems can set development along totally new and unpredictable paths.\(^2\) Moreover, some adaptations that work in one setting can be disastrous in others. Consequently, theory construction in evolutionary biology resembles a process of comparative historical analysis, rather than experimentation and falsification. While historical narratives can be methodologically problematic, they can be “tested” against the historical record and the probability that any particular theory is correct can constantly be updated against new evidence in a process similar to Bayesian updating.

This epistemological position has been supported with methodologies attuned to process and complexity. In particular scholars have turned to process tracing (Hall 1997, George and Bennett 2004) or analytic narratives (Bates et al. 1998) in order to explain complex causal sequences. Additionally, advances in computing power have supported the proliferation of agent-based modeling (ABM) as a means to investigate iterated agent interactions (Axelrod 1997, Harrison 2006, Gilbert and Ahrweiler 2009). As George and Bennett (2004) point out, there is “growing interest across the social and physical sciences in modeling and assessing complex causal relations, such as path dependence, tipping points, multiple interaction effects, selection effects, disproportionate feedback loops, equifinality (many alternative causal paths to the same outcome), and multifinality (many outcomes consistent with the value of one variable)” (9-10). Taken together, these methodologies are more reflective of the evolutionary philosophy of

\(^2\) There is a large literature dealing with these puzzles including: (Futuyma and Slatkin 1983; Hoffman and Riley 1999; Holland 1992; Jervis 1997; Kerr 2002; Mayr 1988; Pierson 2000; Ridley 2003; Zimmer 2001).
science outlined above and provide a rigorous foundation for studying complex adaptive systems at multiple levels of analysis.

Finally, it should be noted that while any particular institutional outcome may be historically contingent, evolutionary theory does not reject general theory development. Indeed, at a sufficient level of abstraction, Darwinism is a general theory of evolution. At its core, Darwinism is a theory that posits general relationships between mechanisms of variation, selection and replication. The theoretical principles of natural selection have been applied to a wide array of phenomena including human institutions. While many mid-level evolutionary theories are still a matter of debate, there is substantial agreement within biology about the importance of general principles and mechanisms. For example Stephen J. Gould, a biologist famous for giving great emphasis to contingency and chance, believed in general theory that he argued operated at higher levels of generalization. Indeed, it was the law-like nature of Darwinism that appealed to Karl Popper, eventually convincing him that evolutionary theory was in fact scientific and could be used in his own work on evolutionary epistemology (Popper 1987).

In sum, evolutionary biologists have developed a complex multi-level ontology that facilitates the study of political change. Instead of assuming that the world is governed by law-like and static relationships between variables, it assumes that the iterated interactions between factors at different levels of analysis drive change. As Boyd and Richerson (2005) argue “Darwinian tools help us build linkages between phenomena at different levels as given problems require.” (247). The concept of “dual causation” highlights the fact that both micro and macro-level factors are important for understanding institutional outcomes. The research task thus becomes how to understand how both agency-centered and structural processes interact with each other in a co-evolutionary pattern. Traditionally, institutionalist scholars assume preferences such as “rationality,” or a more sophisticated multidimensional set of preference assumptions (North 1992, Levi 1997, Elster 2000; Weingast 2005). Conversely, historicists tend to rely on the fact that preferences are structured by institutions (Steinmo and Watts 1995, Hall 1997). The problem with these traditional approaches is that neither helps to explain change because they both reduce preferences without investigating their origins, tending to view preferences as relatively stable, and varying little within or across individuals. As such, they do not provide a clear understanding of why preferences should change. In contrast, the evolutionary framework presented here argues that agents are not free to construct any
institutions they like because they are constrained by previously existing institutions and social structures. Conversely, agents are not simply prisoners of institutions whose preferences and behaviors are completely structured by them. Therefore, in order to answer the puzzle of evolutionary institutional change, one must develop theories of agent cognition that explains both institutional stability and change.

Cognitive Explanations of Variation, Stability and Change

An evolutionary theory of institutional change must develop three areas of analysis: 1) sources of variation 2) mechanisms of selection and 3) means of replication. While it is clearly beyond the scope of a single paper to fully address all of these complex issues, this paper focuses on a bottom-up account of evolutionary theory of institutional change. In this regard, the research agenda on preference formation and agent variation has been bolstered by research rooted in evolutionary theory and cognition. As with questions of endogenous institutional change, the origins of human preferences pose a serious problem for social science research. Katznelson and Weingast (2005) point out that, “[p]references are foundational for any theory that relies on agency,” but, “[w]e know too little about preferences, where they come from, or how they are generated.” (2). They come to the conclusion that they can “derive” preferences based on the “compelling logic of institutions embedded in particular historical situations.” (2). Thus, institutional theories remain unable to adequately explain change without addressing the process of preference formation. One way of addressing these questions is to develop a more explicitly cognitive approach to positing preferences (Farrell 2009). As North (2006) observes:

the dynamic nature of history implies that the centrality of beliefs – how humans form their beliefs and how they learn– is fundamental to a new social science. This in turn leads us to two inquiries: first, how the mind and brain work to understand their environment; second, how humans learn from one another, for example through culture.3 (1005)

Similarly, Cox (2004) states, “If our goal is to understand why people take certain actions, then certainly we can do better. . . ‘our treatment of how people reason should be informed by modern scholarship on about how cognition and affect information processing.’” This research agenda has been addressed by a growing literature on the evolutionary foundations of political preferences and human decision-making (Alford and Hibbing 2004, McDermott 2004, Alford,

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3 Farrell (2009) argues that rational-choice institutionalists seeking to build a bottom-up account of institutional change need to become more explicitly cognitive.
Funk and Hibbing 2005, Fowler and Dawes 2008, McDermott, Fowler and Smirnov 2008). Such work has been supported by the cognitive revolution in psychology and the social sciences as well as work in cognitive neuroscience that “has also begun to incorporate emotion and motivation into cognitively oriented theories of choice.” (McDermott, Fowler and Smirnov 2008: 335).

At the most micro-level of analysis, researchers have found a heritable component to political behavior (Alford, Funk and Hibbing 2005, Fowler and Dawes 2008). Alford Funk and Hibbing (2005) find that there is a genetic component to political ideologies and predispositions that indicate liberalism or conservatism. Fowler, Baker and Dawes (2008) argue that humans exhibit “inherent variability” in their propensity to participate in politics, and Fowler and Dawes (2008) specifically identify two genes linked to voter participation. Overall, Alford and Hibbing (2004) find that while we often talk about different types of individuals, the reality is that individual preferences and dispositions often fall along a spectrum. In short, there is great variation among individual propensities for critical thinking and political activism within any population at the genetic level. Taken together, this literature provides a clear argument for basic sources of agent variation: individuals vary in their preferences because they vary in their genetic makeup. To be clear that none of these articles engage in genetic determinism. Genes matter for behavior, but they only explain part of human behavior. As Alford, Funk and Hibbing (2005) and Fowler and Dawes (2008) point out, environmental factors still play a very large role in whether and how genetic predispositions are articulated. Indeed, numerous scholars, such as Richerson and Boyd (2005) have argued that cultural evolution has actually outpaced genetic evolution, as changes in human behavior in recent centuries has far outpaced that which could occur genetically. The main point here is simply that there is a genetic basis for understanding agent variation, which is the foundational element of a complex adaptive system. Many individuals may be predisposed to “satisficing” and simply following institutional routines, while others may be more likely to engage in rational-critical thought regarding the functioning of institutions. Variation in agent preferences and behavior ultimately interact with, and are selected by environmental factors to generate change.

Along these lines, McDermott, Fowler and Smirnov (2008) argue that evolutionary theory adds considerable insight into the cognitive “biases” consistently found in prospect theory. Ever since Kahneman and Tversky (1979) chronicled a number of cognitive biases causing
human decision-making to often deviate from a purely “rational” calculations, prospect theory has become “one of the most influential behavior theories of choice in the wider social sciences” (McDermott, Fowler and Smirnov 2008: 335). These cognitive biases include a robust literature on “framing effects” which finds that individuals make substantively different choices based on the way that information is presented to them and the values that it emphasizes (Tversky and Kahnemann 1981, Chong and Druckman 2007, Scheufele and Tewksbury 2007).

Similarly, researchers have consistently found that individuals shift their risk propensity based on whether they face losses or gains, tending to be more risk-averse when facing gains and risk-acceptant when faced with losses. McDermott et al. explain this preference variability as the product of evolutionary adaptations that helped humans’ hunter-gather ancestors survive. They argue that “leaders who demonstrate flexibility and the ability to switch strategies based on particular environmental contingencies may [succeed] best of all.” (343). Consistent with the evolutionary framework presented here, McDermott et al. argue for greater attention to “ecological rationality,” which views rationality relative to the environmental context that agents face.

The concept of “ecological rationality” brings research much closer to understanding how and why preferences vary. It explicitly recognizes the interactive nature of evolutionary change and the fact that agent preferences interact with and are shaped by the broader selection pressures that an individual faces. Extrapolating this research to broader levels of analysis it becomes easier to identify additional sources of agent variation. In brief, researchers have consistently found that human preferences are not neatly structured and consistent, but are in fact complex, multi-layered, with overlapping preferences that are sometimes competing. These multi-layered preferences are the product of humans’ long evolutionary history facing multiple levels of selection. One reason individuals face dilemmas and inconsistencies is because they are concerned about both individual and group-oriented utility (Margolis 1984). Group identities are often are salient influences on an individual’s decision-making and may conflict with individual self-interest. According to Boyd and Richerson, “These ancient [genetic] social instincts conflict with the tribal. We are simultaneously committed to tribes, family, and self, even though conflicting demands very often cause us great anguish” (8). In sum, a broadly cognitive view of preferences makes it difficult to reduce them to a few dimensions. Moreover, it provides a clear
understanding of how preferences and decision making can change in response to new environmental stimuli that emphasize certain values over others.

Therefore, agent variation is partially a function of the many preferences both cultural and genetic that continue to exist far beyond the time that they were adapted. As McDermott, Fowler and Smirnov (2008) argue, evolutionary accounts of human cognition posit that a number of cognitive mechanisms were selected to respond to the adaptive challenges faced by our earlier hunter-gatherer ancestors, yet nevertheless play a role in how we make analogous decisions today (338). This helps us explain why human preferences are not always consistent, coherent and cogent. Humans have multi-layered and sometimes conflicting preferences drawn from both their personal experiences and their genetic past. This leads to a two important points: first, one should expect significant agent variation even within the same system, because human motivations and beliefs are complex and are determined by the imperfect replication of genetic, cultural and institutional rules. Secondly, simply knowing that agents vary in their preferences is not enough. In order to understand how which cognitive schemas and ideas are selected requires one to consider the interaction of agent preferences and institutional and environmental mechanisms. In particular, institutionalists need to develop theories of the cognitive mechanisms that generate institutional stasis and change.

**Cognitive Sources of Institutional Inertia**

In order to explain gradual institutional change from the bottom-up, one must first establish an understanding of the cognitive mechanisms that support the existence of institutions. This line of reasoning draws on the traditions of organizational institutionalism, which emphasizes the role of cognitive schemas and organizational routines that reproduce these ideas as the foundation of institutions (Campbell 2004: 11). Institutions are defined as inter-subjectively understood schemas that detail the rules of behavior both formal and informal. Stein (1997) argues that institutions are a mental construction of the world created through a process of “reduction and elaboration.” Since individuals’ attention and cognitive capacity are limited, we rely heavily on “schemas,” which are defined as models of the way the world works and the normative prescriptions about how to behave in a certain situation. As Hodgson (2007) notes, “individual choice requires a conceptual framework to make sense of the world” (98). Schemas can be consciously adopted or unconscious products of one's personal history and
repeated experiences. Schemas are an interrelated and relatively cohesive set of ideas that govern behavior in a particular domain. As such, they perform a similar role as “ideas” (Blyth 2002) or “policy paradigms” (Hall 1993) do in that they represent a coherent set of interrelated propositions that inform one’s view of how the world works, their goals and means of achieving them. While this concept can also be referred to as an idea, the term schema provides a more accurate description of an interrelated set of ideas constituting a conceptual model of particular policy areas. Thus a schema is not simply an idea but a blueprint, usually designed for solving a collective-action problem.4

How do institutions induce consistent behavior? Nelson and Winter (1982) point to the existence of organizational “routines” as the key mechanism generating institutional stability. Routines represent the rules by which a particular organization or institution operates, as they outline a series of actions to be taken in response to various environmental situations. Nelson and Winter argue that these routines perform in the same roles that genes do in biological systems in that they are designed to consistently reproduce a particular behavior over time. Routines replicate cognitive schemas throughout the population (Jepperson 1991, Campbell 2004). As institutional leadership adopts a particular schema, they generate routines that are designed to socialize individuals working in that environment in a similar fashion. Hodgson (2007) argues that the repeated experience of carrying a particular routine often inculcates “habits” within an individual that re-shapes their preferences and behavior. In other words, individuals learn organizational routines and eventually internalize them as habits. As such, “habit is the psychological mechanism that forms the basis of much rule-following behavior” (Hodgson 2007: 107). Through the analysis of routines at the institutional level and habits at the individual level we can better understand how, for a large percentage of people, institutional rules and procedures serve as a cognitive anchor that routinizes their behavior and socializes them in a way that they adopt the same ideas, habits and preferences that re-enforce and support that institution. Thus researchers in this tradition have developed a framework for understanding the specific mechanisms of institutional reproduction and change at the individual level.

4 For example, in explaining the role of “policy paradigms” Hall (1993) provides the following example: “For most of the postwar period, British policy was based on a highly coherent system of ideas associated with John Maynard Keynes... They specified what the economic world was like, how it was to be observed, which goals were attainable through policy, and what instruments should be used to attain them. They became the prism through which policymakers saw the economy as well as their own role within it.” (279).
This framework helps to explain macro-level patterns of institutional stability. Most people generally have difficulty engaging in radical reconstructions of their thoughts and belief structures and often lack the time and information to carefully consider which schemas to employ, so many decisions are made based on institutional routines and individual habits—“satisficing” rather than conscious rational decision-making is often the norm (Steinmo, Thelen and Longstreth 1992). As Stein (1997) argues, “There is a cognitive inertia in adapting to changes in the surrounding world, including institutional changes” (731). Indeed as a species, humans have an affinity for following rules. This makes it possible for institutions to shape and mold the schemas that individual agents employ, which actually changes their preferences as opposed to simply constraining their choices (Clemens and Cook 1999). This process of “reconstitutive downward causation” (Hodgson 2007) helps to explain why agents adopt similar patterns of behavior within a particular institutional context despite the fact that there is likely to be substantial variation in preferences and beliefs at the individual level. By better articulating the specific mechanisms of institutional reproduction, we also develop a clearer understanding of how societies have been able to engineer extremely complex institutions that structure behavior in predictable patterns outlined by institutional scholars.

While routines and schemas provide a certain degree of self-reinforcing stability to institutions, this framework also facilitates explanations of change, because of the imperfect nature of the process of institutional replication. For institutions to succeed in shaping behavioral outcomes, they must effectively socialize those operating under those rules. The most successful and effective institutions not only constrain individual choice but also change individual preferences. Given the complexity of the mechanisms by which this must take place, it is easy to understand exactly how imperfect institutional replication is and why there is substantial room for ongoing variation in agent ideas and preferences. Even if institutional rules effectively select and replicate particular schemas they cannot completely eliminate the existence of alternative schemas. As long as replication is imperfect there will be space for agents to adopt alternative schemas, and this ongoing variation facilitates the possibility of changing agent behavior in the future. In order to understand how agent schemas change gradually over time we must investigate how schemas are generated and proliferate through political communication and learning.
Cognitive Sources of Institutional Change: Creativity, Communication and Learning

Clearly one of the unique features of human evolution is that we have highly developed cognitive capacities. We are self-conscious, strategic, capable of creating and sustaining highly complex social organizations and able to quickly learn and copy behaviors from others. While many animal species learn and even copy behaviors of others, humans by far have the most developed capacity for learning. Given humans’ advanced ability for deductive reasoning and unique ability for purposeful strategic action, some evolutionary theorists have turned to Lamarckian theories of evolution that point to the inheritance of acquired traits.\(^5\) In this formulation, human evolution is more similar to Lamarck’s theory than Darwin’s because human intentionality allows groups to strategically adopt certain institutional schemas, thereby changing the traits of the system in a short period of time, as opposed to the long-term population dynamics that characterize Darwinism. Nelson (2006, 2007) argues that these attributes raise very important questions about the specific mechanisms of human institutional evolution, but do not preclude the application of Darwinist principles for understanding institutional change. Similarly, Hodgson and Knudsen (2007) point out that “Lamarckism depends on the Darwinian principle of selection in order to explain why any disastrous propensity to inherit acquired impairments does not prevail. . . Accordingly, Lamarckism is not an alternative to Darwinism, even in the social sphere. It is erroneous to see them as rivals because Lamarckism depends on Darwinian natural selection to complete its explanations.” (13) Nevertheless the existence of human creativity and intentionality is an important difference between human evolution and other biological species. Indeed it is clear that the specific process of evolution in human societies are very different than in other species due to our capacity generating new cognitive schemas and the speed by which new ideas and behaviors are learned. Some institutions provide members with competitive advantages, the most obvious examples being wealth and military strength, and these institutions can be copied by other groups.\(^6\) This means that researchers must develop auxiliary theories account for the more developed process of information transfer that drives human evolution.

\(^5\) Lamarck’s theory was premised on functional assumptions regarding change, so, for example, the giraffe develops a slightly longer neck by constantly reaching to eat leaves at the top of trees. In institutional terms, strategic action allows entities to acquire advantageous traits that are then replicated in subsequent generations.

\(^6\) For example, Gureck et al. have shown that humans adapt their institutions and behaviors when they see other groups which use strategies or institutions that yield higher payoffs (Gureck, Irlenbusch, and Rockenbach 2006).
First, it is clear that the human capacity for deductive thought and creativity facilitates the generation of a wide variety of institutional schemas. Hall (1993) highlights the fact that key agents—what I will call “ideational entrepreneurs”—play an important role in promoting certain ideas about possible changes. While large segments of a population may operate based on unconscious routines and habits, and all agents are shaped by the institutions in which they operate, ideational entrepreneurs possess the ability to re-envision how the world should work. What makes someone an ideational entrepreneur as opposed to someone who behaves purely based on routine? In genetic terms, there are likely to be some agents on the edges of the normal distribution that have a particular predisposition for critical thought and political activism. Alternatively it is possible that their activism is the product of environmental selection—they have experienced the negative consequences of existing institutions, which has radicalized their views to the point that they feel compelled to seek to change those institutions (O’Brien and Li 2006: 135). Regardless of the source of this activity, the capacity of conscious re-imagining of institutional structures that drives innovation and the creation of new schemas. Indeed, change often comes originates in the fringes of society from those thinkers and visionaries that are able to successfully promote new ideas. In this way agents play a central role in the evolutionary process by generating variation in schemas, which are then subject to selection by bureaucratic, institutional and structural mechanisms.

However, simply generating variation in terms of new schemas is only the foundational stage of evolutionary institutional change. Ideational entrepreneurs that wish to promote a particular schema must compete with alternative schemas for attention and acceptance. The structure of information and means of communication are central to the diffusion of policy ideas, shaping the process by which schemas proliferate to other agents. As in all complex adaptive systems, information is the key mechanism by which ideas are replicated in other agents. As the modes of communication and learning change, so too does the process of institutional evolution. A strong case can be made that human evolution has in fact become more rapid over time as the modes of communication and information transfer have changed. Easier access to new ideas and information on their performance relative to other schemas has facilitated a process by which individuals are able to more quickly learn from others’ experiences and copy those adaptations that prove to be relatively more successful.
This focus on ideational proliferation brings the study of political communication to a central position in the study of institutions. A robust literature in communication studies provides some foundation for understanding why certain ideas gain salience over others. Media and communications determine how schemas are communicated and evaluated. While there are many agency-driven and environmental reasons why certain ideas gain prominence over others, the modes of communication represent the playing field on which such competition takes place and is often the proximate cause of schema proliferation. How schemas are structured and communicated matters for whether they are persuasive in convincing others that they are the proper model. For example, the robust literature on framing effects (Tversky and Kahnemann 1981, Chong and Druckman 2007, Scheufele and Tewksbury 2007) shows that how information is presented to an audience substantially affects their subsequent views. Schemas that emphasize values and ideas that are congruent with the values and ideals of audience members are more likely to be persuasive. In this regard, the framing of ideas is sometimes as important as the ideas themselves in determining whether they become more widely adopted. In brief, communication helps to determines whether ideational entrepreneurs are successful and the pace at which schemas proliferate.

While the structure of information is an important element determining the “evolvability” of a system, it does not completely determine whether a particular schema is successful. Agents play a key role in generating schemas and actively trying to frame them in a way that resonates with others, however, these ideas must interact with the broader structural factors that influence the process of social learning. In other words, variation in schemas are “selected” by other agents based not only on whether they are congruent with their preferences and values, but also based on whether or not they are perceived to provide a solution to various problems. For example, North (1990) distinguishes between communicable and tacit knowledge. Communicable knowledge is that which is easily transfer to others, while tacit knowledge can only be gained through experience. Communicative learning deals solely with the transfer of ideas in the abstract, while trial-and-error learning incorporates feedback from implementation and experimentation. Both of these processes matter for the proliferation of ideas; however, the second form of learning comes only after a multi-stage process of selection. Agents adopt a particular schema in the first stage of selection—an intentional and strategic choice—but the success or failure of that idea is partially determined by how that schema performs in the broader
environment. This second stage of environmental selection is just as important for the continued spread of a schema.

This two-stage model of selection is central to a number of theories of evolutionary change. For example, Popper (1987) highlights that trial-and-error learning is central to the evolution of knowledge. Rarely are studies complete in the first formulation. Instead, researchers propose an idea for a paper, write a draft, test whether it receives a positive response from their peers and then re-evaluate and re-formulate it based on the results. Similarly, Beinhocker (2006) constructs an evolutionary theory of economic development based on the concept of “deductive-tinkering,” which highlights how innovators deduce a novel solution to functional problems, test it to see how it performs and then make adjustments to improve the design. He contends that this process is what drives evolutionary changes in products and economic models. Moreover, innovators rarely come up with wholly new ideas for products; instead, they often build upon and improve previously-existing designs.

In sum, agent creativity constantly interacts with selection pressures to drive evolutionary change. Agents strategically design schemas that provide solutions—or potential adaptations—to perceived problems with existing institutions, but those schemas must compete for influence with alternative ideas, be selected by key constituencies within the state and then perform well if they are to thrive and proliferate. I contend that this theoretical framework provides a solid foundation for analyzing evolutionary institutional change occurring through a process of “linear learning” (as opposed to revolutionary learning; see Stein 1997). As Hall (1993) argues, social learning in policymaking is based on two important factors: the performance of past policies or “policy legacies,” and key agents in particular bureaucracies and the intelligentsia that specialize in a particular policy domain (277). The first part of this equation represents the fact that policy often has a stochastic element to it. Secondly, it highlights the fact that gradual change is often in response to feedback from environmental selection—i.e., how well a particular institutional arrangement performs its desired function. This interactive process constantly generates feedback that encourages gradual adaptations and informs future decisions. Thirdly, Hall highlights the fact that key agents—or “ideational entrepreneurs”—who are “experts in a given field of policy” play a central role in generating ideas regarding potential institutional adaptations. In this way agents play a central role in the evolutionary process by reducing complexity into communicable schemas, thereby generating variation, which is then subject to
selection by bureaucratic, institutional and other structural mechanisms. Communication and learning process structure how particular schemas proliferate. Learning ultimately is based not only on the availability and logical merit of alternative ideas, but also on how a schema is communicated and the extent to which it is perceived to provide a solution to the performance problems of previous policies. Finally, a schema’s ongoing survival depends on the tacit knowledge that comes from the experience of implementation and the additional feedback that it generates.

In order to illustrate how this framework adds insight into the process of gradual institutional change, the following section applies it to the case of Chinese economic reform to explain how the country has moved from a socialist command economy to a market-driven one without “shock therapy” or punctuated institutional change.

**Case Study: Economic Ideas and the Evolution of China’s Socialist-Market Economy**

Instead of assuming static agent preferences, cognitive theories assume agent variation in goals and preferences for achieving them. While many agents are simply shaped by the institutional routines and personal habits inculcated by existing political structures, key agents known as ideational entrepreneurs, possess the ability to re-imagine the way that institutions could operate. These agents are instrumental in distilling a complex world into cognitive schemas and generating additional variation in potential institutional adaptations. Given that alternative schemas compete with each other for social influence, the capacity for creative deductive thinking coupled with strategic efforts to frame schemas make ideational entrepreneurs a central element to the process of gradual institutional change. As outlined in the case of China below, the intentional and strategic actions ideational entrepreneurs are the starting point for generating and promoting schemas that eventually have a wide-ranging influence on behavior throughout the system. Ultimately, the interplay between agency, ideas and communication are a foundational element to theories of gradual institutional change.

Compared to other post-communist market transitions, China has transitioned from a command economy to a market driven without “shock therapy” by following a paradigm of gradual institutional reform based on the method of decentralized experimentation. Chinese leaders use the term “socialist market economy” to describe the resulting hybrid capitalist system comprised of a simultaneous state-supported and private sector. The ambiguity of this term
along with the ever-changing dynamics of economic reform in China has generated a number of questions regarding the exact nature of the Chinese economy. More recently, in light of the current economic crisis, some have questioned whether the China model, or a “Beijing consensus” has overtaken the Anglo-Saxon regulatory model as the most influential model of capitalism in the developing world. This section illustrates that the Chinese economy is not the product of a particular “model” of economic development; instead, it is the product of evolutionary institutional change and the dynamic interplay of numerous economic schemas. Key agents within the Chinese elite have promoted schemas that inform policy-making and experimentation, and successful institutional arrangements have proliferated until negative feedback causes the adoption of new economic ideas. The relationship between the state and the market has followed a gradual evolutionary path, where policy constantly adapts to changing political and economic obstacles to further reform. The slogan “crossing the river by groping for stepping stones (摸着石头过河)” most accurately describes this economic reform process. Instead of emulating a specific model of capitalism, Chinese leaders desire to promote a uniquely Chinese model of development based on their own unique evolutionary path.

I contend that the development of the socialist-market economy is shaped primarily through elite disagreement over the appropriate relationship between state and market, and resembles an ad-hoc series of compromises between neo-liberal reformers on the right and the socialist left rather than a coherent “China model” of development. The Chinese phrase “crossing the river by groping for stones” used to describe the process of economic reform illustrates that how the leadership has engaged in a constant debate over the next step in the economic reform process, and the ongoing search for successful economic models to copy has played a particularly salient role in shaping economic institutions.

Neo-liberal market reformers dominated economic policy during the early reform period of the 1980s and the post-Tiananmen period of the 1990s, pushing through reforms to downsize the state-owned sector and transition to more of a regulatory state. During the early reform period of the 1980s, the “old left” socialists were still heavily ensconced in the state bureaucracy, so the success of neo-liberal ideas required that they be framed in a way that did not raise too much opposition from this faction. Deng Xiaoping’s (1978-1992) famous statement that “it doesn’t matter whether a cat is black or white, as long as it catches mice” succinctly captured the essence of neo-liberal reform during this period. This framing did not explicitly espouse a
particular economic ideology but rather focused on economic success as they key criterion, implicitly lending legitimacy to pro-market reforms. In communicating economic ideas in this fashion, Deng sanctioned a wide array of economic experimentation. Many government officials “jumped into the sea” of capitalism and started private enterprises or quasi-private enterprises such as town and village enterprises (TVEs), which were technically local state-owned enterprises (SOEs) but in fact were often political covers for private enterprises. The quasi-private enterprises were referred to as “wearing the red hat.” The relative success of this novel institutional arrangement caused it to proliferate and drive the majority of economic growth in China in the 1980s (Tsai 2006).

An important period of economic uncertainty occurred just prior to the Tiananmen Square incident in 1989, where many leaders such as former General Secretary and staunch neo-liberal reformer Zhao Ziyang were purged from the party and replaced with “pragmatic careerists.” Many of these pragmatists, such as former premiere Zhu Rongji were nevertheless protégés of Zhao Ziyang, and a relative elite consensus emerged around the policy of promoting rapid economic development and institutional reform as the best way to alleviate social tensions stemming from the crisis and develop China (Pei 2008). Unlike the early period of reform, these pragmatic reformers clearly advocated neo-liberal principles, pushing policies to downsize the SOE sector, enter the World Trade Organization and dismantle the cradle-to-grave socialist welfare state. While post-Tiananmen policies fostered rapid economic growth during the 1990s and improved the “performance legitimacy” of the Chinese Communist Party (CCP) in the wake of the Tiananmen incident, this period also saw the emergence of new challenges and the gradual buildup of negative feedback stemming from the contradictions of a free-market economy. Rapidly increasing income inequality, property-rights concerns and extreme environmental degradation all became key sources of social and political tension (Yang 2006: 156).

The gradual buildup of negative feedback from neo-liberal policies eventually led to a new search for ideas on the proper balance between equity and growth. Once again, we find that ideational entrepreneurs were central to starting a process that culminated in substantial institutional change. In the mid-1990s the “new left” emerged as a reaction against the neo-liberal policies blamed for many of the negative externalities of rapid growth. Unlike previous periods of change the structure of communications significantly altered the process by which new schemas were generated and proliferated. Instead of schemas coming directly from top
leaders in the form of policy speeches and internal reports targeted mainly at other government cadres, the rise of new academic journals targeted to a broader elite audience proved to be particularly important. This demonstrates that the mode of communication is important for how policy ideas diffuse throughout a system. Leading new left thinkers, such as Wang Hui, the former editor of the influential magazine *Dushu* (*Reading* 读书), have argued for a return to socialist principles in the form of greater social welfare provision, particularly for those groups left behind by rapid modernization—namely workers and peasants. Many of these thinkers are influenced by Marxist and socialist ideals, sometimes going as far as to assert that neoliberalism is a tool of Western powers and the “theoretical expression of the international monopoly capitalist class” (Fewsmith 2003: 3). During this decade, the new left has seen its ideas proliferate as its intellectual influence, and more recently its political influence, has consistently risen. It has gone from a fringe intellectual group with little political clout, to a broad-based elite movement with substantial mass support that increasingly informs state policy.

In terms of economic policy, the new left supports continued state ownership and greater developmental-state intervention in directing the market. However, once again one finds that the framing of ideas matters greatly for whether they resonate with other agents and proliferate. Unlike the old left of hardliner socialists, there is no question that the market is the fundamental driver of economic growth. This formulation does not threaten to fundamentally rollback neoliberal reforms, but instead seeks to gradually adjust existing institutions to more closely reflect socialist ideals. The increasing policy influence of the new left is optimized by the current government’s overarching policy framework of building a “harmonious society” (*hexie shehui* 和谐社会), a novel framing in itself, first introduced in 2005 (Hook 2007). This slogan essentially represents a new schema that refers to a package of populist policies that seek to address the concerns of those “disadvantaged groups” (*ruoshi qunti* 弱势群体) that have been left behind by rapid development and the dismantling of the SOE sector and the social welfare state. Such policies have shifted the balance in favor of greater equity to address the concerns of groups critical of neoliberalism and better manage the societal impact of economic transition. Both President Hu Jintao and Premier Wen Jiabao have made numerous populist appeals to the socialist principles of the CCP and the need for greater social equity in economic policy.

At the same time the “new right” has seen its influence wane considerably. Neo-liberal advocates, such as Beijing University professor Zhang Weiyang, argue for broader adoption of a
US regulatory model of economic governance that continues to shrink the state-owned sector. According to Mark Leonard, Zhang “thinks that China will not be free until the public sector has been dismantled and the state has shriveled into a residual body designed mainly to protect property rights” (Leonard 2008: 2). However, after dominating the reform process in the 1980s and 1990s, the new right has found its influence on policy shrinking, with some opinion polls showing them to be the least popular group in China (Leonard 2008: 3). While part of this waning influence may be attributable to an inability to frame their schema in a way that persuades people of its merits (first stage selection), a more important reason for this decline is the negative feedback built up over time from environmental selection. The negative consequences of neo-liberal policies coupled more recently with the perceived failure of the US-style regulatory model during the current economic crisis has dramatically undermined the influence of these ideas.

Thus, beginning in the mid-2000s, moderate ideological factionalism re-emerges within the CCP with increasing opposition to further neo-liberal economic reforms. Debates over the controversial property rights law best illustrate this tension, as this reform would dismantle the last vestiges of the socialist economy—collective ownership of land and property. This law set a legislative record by failing to pass for at least six consecutive sessions of the national Congress before finally passing in a modified form in 2007 (Hook 2007). First introduced in 2002 by neo-liberal reformers viewing private property as the fundamental legal foundation of a market economy, this law became the source of the first open ideological debate within the CCP in years.7 Prominent academics on the left, such as Peking University Law School Professor Gong Xiantian and Tsinghua University political scientist Cui Zhiyuan criticized the law for ignoring the communal aspects of property ownership and contradicting the constitution.8 The resulting compromise, the implementation of which remains unclear, addressed these concerns by providing greater protection of public property and seeking to avoid contradictions with the constitution.

The inability of neo-liberals to push through a property rights law highlights the subtle shift in influence that has occurred in Beijing over the last nine years. Increasingly leadership speeches and policy substance reflects the concerns of the new left for more equitable

development and cessation of further neo-liberal reforms. Thus it is clear that economic policy, as it has been throughout the reform era, is compromise between elite factions organized around competing institutional schemas (Huang 2000). For example, in discussing the 11th five-year plan unveiled in 2005, Mark Leonard argues that it is “a template for the new Chinese model. From the new right, it keeps the idea of permanent experimentation—a gradualist reform process rather than shock therapy. And it accepts that the market will drive economic growth. From the new left, it draws on concern about inequality and the environment and a quest for new institutions that can marry co-operation with competition” (Leonard 2008).

While policy shifts towards the new left were already underway before the global economic crisis, the crisis clearly accelerates this trend. The perceived failure of US-style capitalism has greatly undermined neo-liberals in China who would like to see a more complete dismantling of the state-owned sector. Conversely, according to elite politics experts Bo Zhiyue and Chen Gang (2009), the crisis opens up avenues for the new left to promote a “state capacity” view of economic policy, where heavy state regulation and involvement in the economy are necessary to manage development (Bo and Chen 2009). The selection pressures of the global economic crisis, by exacerbating unemployment and social instability, serve to bolster the influence of the new left.

In 2008-2009, the party-state reasserted its role in the economy through a fiscal stimulus package, which as a percentage of GDP is much larger than a similar package passed in the US, and more substantial state support for and involvement in pillar industries.9 The process of privatizing SOEs, while slowed considerably since the 1990s, might be slowed even further (Roubini 2009). The global economic crisis and increasing social tensions raise the influence of the new left championing a softer form of capitalism—the European social-welfare state (Bo and Chen 2009: ii). In this regard, the global economic crisis represents the culmination of negative feedback that has accumulated over a period of time, and it may play a role similar to the one played by the great depression in the United States, where clear information on the failure of free-market ideology created the political conditions for New Deal policies. According to Zhang Xudong, professor at New York University, the new left is looking for “a middle-of-the-road approach—a Scandinavian social model, the British welfare approach, or the US New Deal” (Hook 2007). Thus, the shift in economic policy currently underway in China is analogous to

that taken by Western economies following the Great Depression, and in some way mirrors the shift toward greater state intervention in the economy taking place throughout the developed world. While ideational entrepreneurs had already been promoting a new left schema and its proliferation was gradually gaining greater influence over policy, dramatic periods of environmental selection, such as the economic crisis, provide important informational feedback that further accelerates the success of this schema.

In sum, the concept of “socialist market economy” is one that has evolved over time, reflecting ongoing debates and shifting preferences within the Chinese leadership over the proper balance between equity and economic growth in the market-driven system. While ideological divergence regarding the particular model of capitalism China should follow remains, relative agreement exists around the need to build market-supporting institutions and a rule of law regime to resolve social and economic conflicts (Yang 2006: 158). Although they continue to affirm the maintenance of social stability and the ruling position of the CCP, elites agree on the need for more pluralistic avenues for interest articulation and mechanisms to deal with social conflicts arising from a modern economy. While these ideas of political reform fall far short of electoral democracy, they are nevertheless an attempt to make the single-party regime more attentive to social tensions and flexibly adapt to a more pluralistic socio-economic stratum (Thornton 2008). This reflects the fact that policy legacies are important for shaping further reform. Over thirty years of reform market-driven routines and habits have become widespread throughout the system, limiting the ability of leftist reformer to dramatically alter economic institutions. Instead, they have framed their policies in a way that provides incremental solutions and gradual adjustments to various problems stemming from a neo-liberal schema. The decline in influence of neo-liberal economic ideology in China in recent years and the rise of a more pluralistic elite debate have gradually shifted the course of economic reform in China without revolutionary punctuated change.

Moreover, the structure of information and media institutions has had an important impact on how ideas are generated and proliferate. The development of academic publishing outlets and a more pluralistic commercially-driven mass media has generated new channels for schemas to proliferate. Instead of being limited to top-leadership and policy speeches couched in traditional CCP rhetoric, new schemas can now come from the academic elite, are formulated in more direct terms and can be targeted to mass audiences as well as government leaders. The
evolution of communication institutions has had important implications for which ideas are selected and spread to a broader audience. Finally, it should be noted that policy learning in China has been explicitly based on trail-and-error. Utilizing a long-entrenched method of decentralized experimentation, or “proceeding from point to surface” (youdian daomian 由点到面), the CCP adhered to a reform process characterized by gradual strategic adaptation rather than fully importing foreign economic models, as was the case in Eastern Europe and the former Soviet Union (Heilmann 2008). Local experimentation is designed to generate feedback on the relative effectiveness of an institutional arrangement at the local level before it is implemented at the national level. This method of experimental learning has facilitated the proliferation of multiple institutional schemas that may or may not reflect an overarching economic ideology. For example, the existence of TVEs mentioned above represents an institutional arrangement that was the product of a compromise between capitalist ideals and policy legacies of the socialist past. Thus the Chinese economy is currently a mixture of different economic models, reflecting both historical legacies and differing ideas about the proper role of the state in the market.

Conclusions

This paper has sought to develop a theory of evolutionary institutional change that emphasizes the bottom-up process of causation driven by agents and the schemas that they promote. As outlined in the case of China above, the intentional and strategic actions of Deng Xiaoping, and later new leftists such as Wang Hui, were the starting point for generating and promoting schemas that eventually proved to have a wide-ranging influence on behavior throughout the system. One can argue that without a reservoir of new schemas to draw upon, societies are less “adaptable” to the environmental challenges that they face. Thus, the interplay between agency, ideas and communication are a foundational element to theories of gradual institutional change.

However, as this paper has shown, this agency-centered process is only the first necessary condition for institutional evolution. In order to completely understand how institutions evolve, we must construct an analytic narrative that analyzes the interaction of schemas with political structures. Only by analyzing this multi-level interaction can one begin to understand why certain schemas proliferate and become influential while others do not. This
paper has outlined three important structures that select certain ideas over others and shape the course of institutional change: existing institutions and policy legacies, key constituencies within the state that govern a particular policy domain and the structure of information and communication within the system. While agents may be able to partially influence these structures, they are not simply the constituent units of them. These structures often exist prior to individuals and their actions and hence constrain and shape the kinds of strategies and ideas they can promote. For example, Deng Xiaoping may have harbored strong neo-liberal policy preferences, but the existing makeup of the “selectorate” (Beuno de Mesquita et al. 2003), specifically the large number of old left socialists within the CCP, shaped the way that he communicated that schema. Similarly, many new leftists may harbor strongly Marxist schemas, but the existence of neo-liberal routines and habits means that they can only advocate incremental rather than revolutionary institutional changes. In other words, agents must frame their schemas in terms that are most likely to resonate with a broad audience if their goal is to achieve widespread influence.

This interactionist framework derived from evolutionary biology, cognitive neuroscience and communications helps to develop a theory of change whereby agents can incrementally re-shape institutions in a bottom-up fashion at the same time institutions structure agent behavior in a top-down fashion. This framework thus integrates levels of analysis rather than privileging either agency or structure. As much of the new institutionalist literature has shown, it is very difficult to explain gradual institutional change without analyzing the interactions between the two. This type of analysis is supported by the less-reductionist philosophy of science found in evolutionary biology—a scientific framework better suited to the study of complex systems. Institutional scholars have been confronted with questions of falsifiability and prediction, implying that the lacking clear and quantifiable answers to these questions relegates ones work outside of the realm of “science.” These critiques often miss the point of historical and case-based analysis precisely because they assume a world that is stable and static—a world in which mechanisms and process are secondary to the correlations of variables. Whereas the laws of Newtonian physics are based on the constancy of the physical world evolution assume contingency, inconstancy and emergence.10 For complex macro-level phenomena such as

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10 Modern physics has also moved away from these stable assumptions. Not only does quantum physics challenge many of Newton’s basic assumptions, “string theory” goes even further, arguing that it is theoretically not falsifiable.
institutions, the study of politics is the study of complex systems. Mechanical models based on static and fixed relationships between independent variables cannot capture the realities of the living world driven by the iterative and dynamic relationship between preferences, behavior and outcomes. In contrast, evolutionary theory provides an appropriate framework for understanding many aggregate political outcomes because it offers a dynamic theory of politics. Evolution assumes change, not equilibrium. Most importantly, evolution’s focus on dual causality offers the chance to account for both micro and macro-level dynamics. Research rooted in evolutionary theory has already added considerable insight into the question of preference formation. Moreover, the ability of generalized Darwinism to integrate levels of analysis holds out the possibility of moving beyond earlier dichotomous debates about the relative importance of agency or structure found in the new institutionalisms, by recognizing that both are important mechanisms in the evolutionary process.

To say that the evolutionary process applies to institutional change does mean that it provides a comprehensive explanation for all of the mechanisms and specific types of changes. As Hodgson (2002) argues, evolutionary theory “provides an encompassing framework within which particular theories can be placed” (272). As should be clear from this analysis, the future research agenda for social scientists using this framework includes the development of auxiliary theories of variation, selection and replication that fully explain this overall process. There are ample opportunities to gather empirical data on arguments regarding the three primary components of institutional evolution. Moreover, as this paper has pointed out, there are numerous avenues for future research on questions such as the relative “adaptability” or “evolvability” of systems. For example, do democratic systems evolve faster because they have informational and institutional mechanisms that more quickly incorporate “feedback” from the policy process or do authoritarian systems based on local experimentation provide just as adequate a model? Such questions can be formulated to generate testable empirical hypotheses regarding the relative ease with which different systems adapt to environmental challenges.

Finally, in focusing on ideas as the primary mechanism of institutional change, this research has raises interesting questions about why certain ideas proliferate, how human’s learn and how different forms of information transfer affect the process of institutional evolution. For example, do new forms of information infrastructure such as the Internet impact the nature and pace of change? Given that the specific mechanisms and characteristics of institutional change
are different from biological processes, a significant amount of work is required to fully articulate a mature research program. Nevertheless, the framework outlined above provides a sound scientific foundation for integrating research on a common question of institutional change. It can benefit from and provide a value-added to the existing institutionalist literature on endogenous change, even as the overall research agenda is informed by the renaissance in evolutionary theorizing taking place throughout a wide array of fields. Just as much of the work in evolutionary biology since Darwin’s time has been in filling in his theory and debating the specific mechanisms of biological evolution, so too must the work of those looking at gradual institutional change focus on an ever more refined articulation of the specific mechanisms of change.
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