Conclusions

Chapter 7
7.1 Conclusions

In this dissertation I attempt to show how the idea of an organizational position, which is pervasive in organizational research, has been used as a metaphor rather than as a construct in empirical research. This metaphoric usage has undermined the ability of much existing research to make strong claims about the structure of the contexts that organizations act in, or about the way that these structures influence or are influenced by the actions of these organizations. In order to address these difficulties, I demonstrate how modeling approaches based on the idea of stochastic complexity can be used to answer these questions in an empirical context. This concluding chapter reviews the major findings of this dissertation to these ends. In addition to summarizing the findings of this research, I discuss some of the implications of this research for the broader empirical study of social structure. I conclude by discussing some of the limitations of this research, and by outlining how these limitations can be addressed with future research.

7.2 Summary of Findings

The overarching goal of this dissertation is to theoretically and empirically establish the importance of an organizational position construct. I sought to achieve this goal through achieving three related objectives. My first objective was to establish organizational positions as a construct identifiable through a specific modeling approach, rather than as a metaphor that can only be used to informally define a research area of interest. The second objective was to use this construct and its related set of methods to identify organizational positions in theoretically relevant contexts. Finally, the third
objective was to demonstrate the substantive relevance of organizational positions identified by this process by establishing the relationship between these positions and the actual performance of organizations.

7.2.1 Organizational Positions: Metaphor to Modeling Approach

Chapter 1 outlines the basic theoretical motivation for this dissertation. Contemporary sociologists have broadly argued that the socially constructed context of action plays a major role in determining the economic actions of organizational actors, and they have been similarly broad in developing spatial frameworks in which to prove these arguments. The literature review in this chapter establishes that the organizational positions concept in particular is used in a wide range of theories and applied in a number of studies that seek to establish the empirical validity of these theories. These theories draw upon the idea of spatial closeness in terms of positions being defined in terms of organizations that have similar patterns of relations to one another, and emphasize the importance of defining these positions as a context of action that separated from other action contexts by a boundary.

While this is a useful definition of an organizational position, I argue that the methods applied to the assessment of these positions cannot unequivocally determine their structure using this definition. Chapter 4 presents preliminary analyses of the sensitivity of measures of industry concentration, constraint and autonomy to the way these contexts are defined that provide evidence to this end. As such, I argue that the organizational position idea as applied in existing research is better described as a
metaphor to be used in broadly describing structure than as construct that can be used to explicitly model structure.

The inability of current methods to empirically assess the structure of organizational positions is addressed by the methods presented in Chapter 2 and Chapter 3. Chapter 2 reviews the stochastic blockmodeling approach, and distinguishes it from the descriptive blockmodeling approaches that are typically applied to empirical studies of organizational relations. In particular, I show how stochastic blockmodeling, as a predictive modeling approach, can be used to more transparently assess the relationship between a particular model of structure and the observed behavior of actors with respect to that structure. Chapter 3 introduces the idea of stochastic complexity, and demonstrates how it, along with the stochastic blockmodeling approach, can be used to directly assess the extent to which a particular model of structure is consistent with the observed exchange behavior of actors. These methods can be combined with the ideas of closeness and context boundaries that underlie the organizational position idea to produce a modeling approach that can be used to unequivocally determine the structure of these positions.

7.2.2 The Identification of Organizational Positions

The second objective of this dissertation was to use the methods outlined here to identify organizational positions in two separate contexts. In Chapter 4 I use the stochastic complexity modeling approach to assess the structure of inter-industry exchange in the United States. I consider a set of industry structures defined by the industrial aggregation schema suggested by the Standard Industrial Classification (SIC).
The SIC identifies industries at six distinct levels of aggregation, and I assess each of these using the stochastic complexity modeling approach to determine the level of aggregation that is most consistent with the actual exchange behavior of organizations. I find that this behavior is in fact most consistent with an aggregate structure, in contrast to the possibility that organizations engage in exchanges entirely dissociated with any social structure. I moreover find that the aggregation of firms into industrial groups that is most consistent with the exchange behavior of these organizations is one in which some industry groups, particularly those in the service sector, are aggregated more than others.

In Chapter 6 I assess the structure of exchange between states rather than industries. I consider this international exchange in the context of world systems theory, in which claims about the number of locations or economic contexts is of some empirical and theoretical debate. In addition to attempting to identify the number of contexts, a particular question I examine in this chapter is whether the basic elements in the structure of international exchange are determined by structurally equivalent positions or by regularly equivalent roles. The stochastic complexity analyses of structure presented in this chapter provide strong support for the claim that international exchange, like inter-industry exchange, is consistent with an aggregate structure rather than a pattern of behavior of atomic states acting in their non-structural economic interest. I moreover find strong empirical support for the claim that the positional structure of exchange changes over time, but also support for the possibility that exchange may have a temporally stable role structure.
7.2.3 Organizational Positions and Organizational Outcomes

The final objective of this dissertation was to establish that the positions identified by the stochastic complexity modeling approach have some bearing on the actual outcomes of the organizational actors located within them. I approach this objective by replicating an analysis using the well-established structural autonomy model (Burt 1982) to determine its sensitivity to the way that organizational positions are defined. There are two potential conclusions that might be drawn based on the findings of such an analysis. The first conclusion concerns the validity of the stochastic complexity modeling approach. To the extent that the structural autonomy model is valid, results that suggest that it performs best using the industrial structure determined by the stochastic complexity modeling approach provide a degree of validation for the method as a way of assessing positional structure. Alternatively, to the extent that the stochastic complexity approach itself is taken as a valid way of assessing structure, such an analysis can point to ways in which the autonomy model might be improved.

The results of this analysis are presented in Chapter 5. In addition to providing some evidence to the fact that the constructs used in the structural autonomy model are sensitive to the way that industrial structure is defined, these results provide some support for both of the conclusions proposed above. Firstly, the structural autonomy model is shown not to have its strongest effects when analyzed using the most fine-grained industrial aggregations, suggesting that the action contexts in the model in general may be best represented by aggregate organizational positions. Moreover, there is substantial overlap between the models of industry structure identified by the stochastic complexity modeling approach and the models that produce significant results for the structural
autonomy model. These results provide some degree of validation for the stochastic complexity model approach. That said, the extent to which the models do not completely overlap demonstrate, at least in principle, how the model might be used to distinguish between the industries in which the structural autonomy model works best, and the industries in which it is less strongly predictive.

7.3 Implications for the Empirical Study of Social Structure

The “null hypothesis” the studies presented in this dissertation attempt to disprove is that social structure does not shape the economic behavior of individual actors—that actors act in their individual interest without responding to aggregate social structures in any perceivable way. The empirical work presented here strongly suggests that this is not the case with respect to organizational positions as a feature of social structure. Moreover, in the case of the study of international exchange, the results presented here even establish the persistence of these positional structures over time. The problem of identifying the existence of social structure or establishing the persistence of social structure over time is not limited to the particular construct of an organizational position. Contemporary theories of social structure are thoroughly engaged with the question of whether social structures in general persist over time, and if so, establishing why it is that they do. While these questions are well articulated by these theoretical treatments, there have been few attempts to develop empirical methods to test the mechanisms implied by these theories.

One of the core issues these theories of social structure address is the relationship between individual autonomy and structural persistence. In particular, theorists following
the hermeneutic approach (Giddens 1984; Sewell 1992) express a concern about how the perceptions of individuals and individual action are implicated in the processes through which structure is reproduced. Any empirical assessment of the process by which structure is produced or reproduced is critically dependent on the ability of a researcher to definitively identify the structure of a social system at a given point in time. To the extent that the methods presented in this dissertation can be applied not only to identifying organizational positions but also to identifying aggregate social structure in general, theories that are based on the presumption of the existence of social structure can be empirically assessed.

The theory of structuration (Giddens 1984) is a comprehensive representation of a hermeneutic approach to the analysis of social structure. Giddens outlines the objectives of the structuration framework with respect to explaining the persistence of structure by arguing that human social activities are self-reproducing and recursive (1984: 2) and by attempting to explain the “binding” of “discernibly similar social practices” across space and time (1984: 17). In doing this, he emphasizes the role of individual agency in the maintenance of structure by highlighting the “knowledgeability” of social actors—their awareness of the rules and procedures that constitute social structure, and the interpretive process through which structure shapes individual behavior actors (1984: 21). Giddens also notes how individual behavior is implicated in the reproduction of structure (1984: 25).

The structuration framework proposed by Giddens not only explains why it is that social structure persists over time, but it also allows for the possibility that a variety of behavior on the part of individual social actors might be consistent with a given regularity
in the pattern of social relations. While this may seem like an obvious point, the explicit provision of a theoretical basis for divergences from a given pattern of behavior is critical, at least when related to empirical research. For instance, one of the critiques presented of descriptive modeling approaches in Chapter 2 is that they characteristically produce models of social structure that do not account for individual divergences from structure. A descriptive model of exchange in the world system that states that nations in the periphery export raw materials to core nations cannot provide an explanation for a peripheral nation that does not. The structuration framework provides a theoretical basis for the possibility that Wallerstein’s (1974) model of international exchange actually does reflect the basic flow of goods between states, even though the behavior of some actors does not correspond to it exactly. Rather than sidestepping the question of individual divergence from structural patterns of behavior by refining the catalog of such patterns, Giddens’ theoretical framework directly engages the question of exactly how it is that individuals come to behave in ways that are not exactly specified by structural rules.

While the framework proposed by Giddens allows for the possibility that individual action is not completely constrained by structure, it essentially seeks to explain why structural regularities are maintained, even in the face of interpretive flexibility on the part of individuals. The theoretical framework proposed by Sewell (1992) addresses the possibility of structural change more directly by critiquing and extending Giddens’ formulation (and drawing heavily on the theory of practice and concept of habitus outlined by Bourdieu [1977]). In characterizing the duality of social structure, Giddens conceptually separates the virtual component of structure—knowledge of individuals about structural rules from the structured behavior of individual social agents in their
employment of structural resources (1984: 17). Sewell expands upon this notion by proposing a more complete definition of what these “rules” and “resources” might be, and argues that both play an equal role in structural processes. Specifically, he argues that rules, to the extent that they embody individual and collective knowledge about stable patterns of social relations, correspond in a meaningful way to schemas (1992: 8). He further argues that resources are actual (as opposed to virtual) instantiations of structure in the material world (1992: 10). This characterization of social structure as being comprised of reciprocally related schemas and resources figures centrally into Sewell’s account of how structural change is possible. One axiom he offers in support of the possibility of structural change is the transposability of schemas (1992: 17). Schemas are useful because they can be applied to a variety of cases that diverge from the specific context in which they are learned. Similarly, Sewell offers an axiom about the polysemetic nature of resources (1992: 18-19). Although resources are generally the instantiation of a given social schema, when a given actor is engaged in the interpretation of a resource, the meaning is never completely unambiguous. The very flexibility that makes structure useful in managing the complexity and variation of the material world enables the ability of those structures to change over time.

The ideas of similarity and generalizability form the core of each of these theoretical approaches. In order to substantiate the claim that a set of behaviors is converging to (or diverging from) a given pattern, a social scientist must be able to empirically establish that those behaviors fall (or do not fall) within some criterion of similarity, or that they represent some generalization of the implicated pattern. In order to prove that social relationships have remained stable (or changed) over a given time
period, an empirical social scientist must be able to establish that the behavior in an earlier time period is similar enough (or not similar enough) to behavior in a later period. The ideas of similarity and generalizability have figured explicitly into theories of social structure. Giddens is explicit in his reference to these ideas, noting that social practices must be “discernibly similar” across time and space to be structurally systemic (1984: 17) and that the rules of social life should be regarded as “generalizable procedures” (1984: 21). In his discussion of the transposability of schemas, Sewell notes how they must be applicable to “similarly shaped problems” (1992: 17).

The ideas of similarity and generalizability are at the heart of the problem addressed in this dissertation. Sewell (1992: 17) goes so far as to argue that “whether a given problem is similarly shaped enough to be solved by analogical transfers of schemes cannot be decided in advance by social scientific analysis.” In other words, he does not believe that empirical tools exist that would allow a social science researcher to determine the boundaries of generalizability of a social practice. For instance, if the patterns of inter-industry exchange are theorized to be manifestations of the social structure of the American economy, it seems that Sewell would conclude that empirical tools could not be used to establish the boundaries within which a particular rule about exchange should be observed. The analyses presented in this dissertation establish that this is precisely not true in the case of organizational positions, and moreover these results imply that this may not the case for a much broader set of social structures.

The approach developed in this dissertation also has implications for the study of the persistence of structure, and for the study of the processes by which individuals are implicated in the production and reproduction of structure. Giddens (1984: 17)
differentiates manifest structure from the awareness of structure by an individual actor and Sewell provides a specific codification of each of these as resources and rules respectively (1992: 8-10). Following these distinctions, the analyses of inter-industry and international exchange are studies of the structure of resources, but the methodological approach can be straightforwardly applied to the study of rules as well. The analytic approach applied to these manifest exchange data could easily be applied to cognitive social structure data (Krackhardt 1987) as expressed by key actors in this system in order to determine their perceptions and beliefs about structural rules. An assessment of the structure of both rules as well as an attempt to establish the correspondence between the two (or the lack thereof) over time is a critical step in empirically testing the hermeneutic approaches of Giddens and Sewell.

Finally, this dissertation has implications for studies that seek to empirically determine the consequences for actors that express behavior that is either convergent to or divergent from a given set of structural regularities. Theories that claim to establish the persistence of social structures over time do so by identifying the set of mechanisms that keeps structure from changing. Giddens (1984: 176) conceptualizes these mechanisms as different kinds of constraint on the behavior of individual actors, and identifies three types of constraint. Material constraint is constraint due to the physical characteristics of the world—limitations on the body and the way it interacts with physical space. Sanctions preserve structure by providing inducements for individual actors to express behavior consistent with a particular structural pattern. Structural constraint is identified as deriving from the “given” or structurally available set of options that an actor perceives in a particular context. Giddens is most concerned with
structural constraint of these three, and to the extent that these structural constraints correspond to the “rules” theorized by Sewell, the stochastic complexity approach presented in this dissertation could be used to identify these constraints. That said, sanctions have also been theorized to play a role a critical role in maintaining structures over time, and may be particularly important in the analysis of the social structure of economic action. This theoretical claim cannot be empirically validated without first establishing what the structure is that actors are either conforming to or deviating from. More interestingly, an empirical investigation that first establishes the pattern of structural regularities and then separately identifies the degree to which actors conform or deviate can identify the characteristics of contexts where deviance is rewarded rather than penalized.

7.4 Limitations and Future Research Directions

The limitations of the research presented in this dissertation fall into three distinguishable categories. The first set of limitations is comprised of analyses that could have been performed using the methods outlined here and the data analyzed, but were outside of the scope of this dissertation. Principal among these is an analysis of the international trade flows at a fine-grained commodity level to determine the way commodities should be aggregated into commodity groups. The analyses in Chapter 6 are based on the aggregation of commodities proposed by Nemeth and Smith (1985), who suggest that these do in fact reflect a stable structure. Their analyses, however, correspond to commodity exchanges between 1965 and 1980. The analyses presented in Chapter 6 covers 1965 to 1995, a substantially longer period of time in which advances in
technology could reasonably be thought to have changed the relevant typology of commodities in exchange. As such, an analysis of the structure of commodity exchange over the entire period of study could quite likely sharpen the results of this analysis.

A second set of limitations of the research presented in this dissertation derives rather directly from the implications identified above. If the hermeneutic approach advanced by Giddens and Sewell is taken seriously, then a complete analysis of social structure would need to assess both the structure of resources as manifest in expressed shared behavior as well as the structure of rules as expressed in individual beliefs about structure. The inter-industry and international exchange data analyzed in this dissertation reflect only the former, but the theoretical arguments to which they correspond clearly implicate the latter. It is difficult to understand how the mechanisms of structural autonomy (Burt 1982) could be dependent on the social structure of industry groups if no decision-making managers in firms are aware of or otherwise cognitively influenced by this structure. It is equally if not more difficult to understand why the role structure of international exchange persists over time if no managers or political actors are aware of this role structure, particularly to the extent that states occupy different roles over time. The implications identified here suggest at least two studies that might further our understanding of how individual action is implicated in the production and reproduction of the structure of exchange.

A first study along these lines would seek to identify the correspondence between the structures implied by the perspectives and beliefs of key actors and the structure implied by the aggregate pattern of exchange. Such a study could either investigate the implication of these expressed beliefs and perspectives on either inter-industrial or
interstate relational aggregate structures. A number of studies have established the relationship between individual attributes and the ability to perceive network elements of structure in a general sense (Casciaro 1998; Casciaro, Carley and Krackhardt 1999). By investigating changes in these structures over time, such a study could likewise identify the characteristics of actors that are more or less likely to have a strong correlation between the positional structures they perceive in exchange networks and the aggregate positional structure of the networks that subsequently emerge.

A related study that follows directly from the implications of this work to the study of the production and reproduction of social structure would investigate how both positive and negative sanctions are applied to actors that express behavior that either converges to or diverges from aggregate positional structure. A number of studies (Zuckerman 1999, 2000) establish that organizations can be penalized for expressing behavior—in this case behavior in terms of choices about firm structure—that diverges from a normative set of legitimate structures. However, these studies do not problematize the question of empirically identifying the normative structural context, and simply choose one of a set of possible structures. In order to conclusively identify the mechanisms of this sanction process, an analysis must first establish that the assumed normative structure is meaningful to the actors that are presumably embedded in it. Moreover, an analysis that dynamically identifies structure could distinguish, for instance, the penalty that a firm receives for expressing behavior consistent with an outmoded structure from the rewards that a firm receives for expressing behavior with a structure that is about to be legitimated.
Finally, a third set of limitations of this research corresponds to the fact that the method introduced here was only applied to the assessment of organizational positions. There are a number of social structures that are either based on a logic of aggregate structure to which the stochastic complexity modeling approach can be applied. While there are surely more of these structures than I can identify here, two in particular that seem particularly well suited to this kind analysis are career structures and discourse structures. Abbott (Abbott and Forrest 1986; Abbott and Hyrcak 1990; Abbott 1995) argues that careers can usefully be thought of as wholes rather than as transitions between occupations. He advocates an approach in which similarities between whole careers can be used to identify career types and the career systems they comprise are a central analytic feature. Stovel, Savage and Bearman (1996) apply this approach to the analysis of changes in the structure of career systems in an institution. Given the role of similarities between actor behavior and the aggregation of individuals into types plays in these analyses, it seems that a stochastic complexity analysis could contribute substantially to the understanding of the structure of these phenomena. Similarly, the approach to the study of roles in discourse advocated by Gibson (2003) invites a method that can be used to establish the correspondence of various structures to the observed behavior of individual actors. While the participation shift approach to discourse analysis (Gibson 2003) does not incorporate the idea of spatial closeness or context boundaries, it does offer a predictive model of individual behavior based on an assignment of acts and actors to categories. Given that these categories can be defined in different ways, a stochastic complexity analysis could be used to assess which of these categorical schemas most closely corresponds to the discourse behavior these actors actually produce. These
examples are simply two of the many possible contexts in which the stochastic complexity modeling approach advocated in this dissertation could make a meaningful contribution to the collective understanding of social structure.