Organizational Structure in American Police Agencies

CONTEXT, COMPLEXITY, AND CONTROL

EDWARD R. MAGUIRE

ORGANIZATIONAL STRUCTURE
IN AMERICAN POLICE AGENCIES

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Austin T. Turk, editor

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Edward R. Maguire

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For Meme,

for Mom and Dad,

and for my little buddy Alexander,

the Sunshine of my life.

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Foreword

The way in which police forces are organized is thought to be important in determining how they perform. Whenever problems occur, such as dramatic rises in crime rates, incidents of misconduct, violations of human rights, or inability to meet community expectations, the first response is to reorganize the police by eliminating units, changing lines of command, abolishing or creating new positions, changing rank structures, revising codes of conduct, intensifying supervision, and developing new operating policies. As I observed several years ago, "Changing organizational boxes is to policing what curriculum reform is to universities—a fractious exercise periodically repeated whenever the institution is challenged" (Bayley, 1992).

The problem with this solution, so popular with the public as well as the police, is that it assumes that the organizational structure of police forces is manipulable, that it can be changed by human decision. What if this is not the case? What if the structure of police organizations is shaped by factors beyond easy human contrivance, such as the size and age of the force, the degree of stability in the political environment, the complexity of governmental regulation, the geographical dispersion of the population, or the nature of police work itself? What if would-be reformers aren't given a free shot in changing police organizations?

Ed Maguire tries to answer this question in this insightful and readable book. Doing so requires considerable courage because in order to answer the question it is necessary, first, to develop a way of describing variations in police organizations and, second, to specify a short list of factors that are most likely to play a powerful role in shaping police organizations. Maguire rises to both challenges brilliantly by systematically reviewing with enormous insight the entire field of organizational studies. Indeed, his distillation of the major empirically supported theoretical propositions about the environmental determinants of organizational change is a major contribution of the book.

By developing and testing a parsimonious theory, Maguire rescues police organizations from the intellectual limbo of being considered unique. He provides evidence that allows us to determine scientifically

whether police organizations are different in their genesis and organizational dynamics from other organizations, both public and private. In short, Maguire places the police in the intellectual domain of public administration and organizational sociology.

This book should also revive interest in a topic that, although recognized as important, has received scant scholarly attention. Other than James Q. Wilson's attempt in *Varieties of Police Behavior* (1968) to develop a theory of police service based on governmental determinants, there has been only one other previous scholarly study that took up the challenge of explaining the organization of the police: Robert H. Langworthy's *The Structure of Police Organizations* (1986). Interestingly, Langworthy's study, like Maguire's, began as a doctoral dissertation at the School of Criminal Justice, State University of New York at Albany. What accounts, one wonders, for the growth of this tenuous tradition at Albany? Perhaps it's the water. More seriously, perhaps good work inspires good work.

This book represents the leading edge of theorizing about the diversity of American police organizations. It covers a wide swath of American policing; it develops a concise and elegant theory; it draws inclusively on studies of complex organizations from other realms of public and private endeavor; and it presents its findings in clear, straightforward language. Most important of all, it should hearten reformers who sometimes despair about producing significant change in police organizations. There may be impediments to reform, but they do not lie primarily in the external environment of policing.

David H. Bayley

Acknowledgments

Because this study has benefitted from conversations with dozens of police practitioners, scholars, researchers, conference attendees, and colleagues from around the country, it is impossible to personally thank all of those whose thoughts, words, and ideas have in one way or another influenced this work. There are a number of people, however, whose influence was more direct, and I would like to acknowledge their various contributions personally.

This book is a revised version of my doctoral dissertation from the School of Criminal Justice at the University at Albany, SUNY. The cochairs of the dissertation committee were David Bayley and Rob Worden. Both were responsive and helpful and share the credit for making this a better work. Graeme Newman, David Duffee, and David McDowall rounded out the committee, each lending a unique form of expertise. I owe Graeme a personal thank you for all of his help during the Ph.D. program. Joe Kuhns and Jeff Snipes were fellow doctoral students when I was writing the dissertation that preceded this book, and both contributed to my general notions about what it means to be a good scholar.

Bob Langworthy's 1983 doctoral dissertation at SUNY kindled my interest in police organizations and laid the foundation for this study. Bob was the first person in police research to go this route, and he made the way a lot simpler for those of us who followed. My thinking on police organizations has benefitted from many conversations with him, and his influence is woven throughout this book.

Thanks to Langworthy and others, organizational scholarship in policing is now growing. The thoughts and ideas expressed in this book have benefitted from my intellectual kinship with a number of police organizational scholars. Dick Ritti and Steve Mastrofski both read earlier versions of the manuscript, contributing their insights about both police and organizations. Chuck Katz's work on specialized units influenced my discussion of functional differentiation and institutional theory. William King's application of a life-course perspective to police organizations influenced my discussion of organizational age. As these

scholars and others continue to generate theoretically compelling ideas, I grow more optimistic about the future of organizational scholarship in policing.

The first half of this book was written when I was working for the U.S. Justice Department's Office of Community Oriented Policing Services (COPS). My exposure to police agencies around the nation gave me a more tangible appreciation for the extent to which police organizations vary. Several COPS interns assisted with the literature review and data collection, including Tom Donnelly, Will Keyser, Matt Hickman, Jen Beadle, and Carlo Arquillano. They made the otherwise tedious work of original data collection fun. I especially thank Craig Uchida for making it possible to collect the data and for providing a fascinating firsthand experience with criminal justice policy at the national level.

The second half of the book was completed while I was an Assistant Professor at the University of Nebraska at Omaha (UNO). Dennis Roncek provided expert assistance with questions that arose during the statistical analyses. Samuel Walker contributed to my thinking about the role of organization age and the extent to which organizations are influenced by their own history. Jihong Zhao served as my partner in several research projects on police organizations and also influenced my thinking in these areas. Finally, while at UNO I was also fortunate to have had a dream team of research assistants, especially Kimberly Hassell and Hank Robinson.

No author can responsibly claim complete ownership of all the ideas expressed in a book. I thank all those who have influenced my thinking about police organizations and take credit for whatever else, however good or bad, remains.

Introduction

Formal organizations surround us and pervade almost every facet of our lives. We work in them, shop in them, pay our bills to them; we become angry with them and enamored by them; we are educated and nursed to health in them; we earn credentials from them, seek justice from them, fight against them, and wait in line in them; we are treated fairly and unfairly by them; we are both victimized and protected by them; and, although we might want to, we can almost never escape them. Because formal organizations are such a basic element of modern life, social scientists from a variety of disciplines have strived for many decades to understand them.

In the beginning, research usually focused on particular organizations or types of organizations. Factories were studied as factories, prisons as prisons, and government agencies as government agencies—not as organizations. Early researchers rarely made an effort to draw generalizations beyond the particular types of organizations under study (Scott, 1992). By the early 1950s, scholars began to recognize that although there are many differences between collectivities like factories, prisons, and government agencies, they share one important thing in common: they are all organizations. Many of the classics in organizational studies emerged around this period, including Weber's (trans. 1947) writings on bureaucracy and leadership, Selznick's (1949) analysis of the Tennessee Valley Authority, and Merton's collection of readings on organizations (Merton et al., 1952).

Early organizational scholars emerged from a variety of disciplines, including political science, public administration, sociology, and psychology. Most specialized in various approaches to studying organizations; these specialties often reflected the academic background of the individual. For instance, many focused on social-psychological processes among workers, managers, and other key actors, others on economic aspects of the organization, and others on sociological processes (Scott, 1992). By the late 1950s, organizational specialists from a variety of disciplines began to form schools specializing in organizational studies. A journal, *Administrative Science Quarterly*, was born in 1956 to publish

the growing number of research studies in organizational science. Several classic texts appeared, organizing the collected knowledge of the new field of study (Blau, 1955, 1956; March and Simon, 1958). Since that time, dozens of new schools and journals and hundreds of books have emerged in the organizational studies arena. Today, organizational science is a well-developed field of study, with doctoral programs around the country, annual conferences, and a specialized literature that continues to grow each year. Nearly every conceivable type of organization has been studied using a variety of methodologies. Chapter 2 will expand on this brief history of organizational studies.

One type of organization that has not been frequently subjected to rigorous analysis by organizational scholars is police agencies. Given their role in promoting public safety, responding to emergency situations, maintaining order, and fighting crime, it is surprising that organizational scholars would pay so little attention to the police. Nevertheless, a number of scholars within the policing field have applied organizational theory concepts to the police. Peter Manning's *Police Work: The Social Organization of Policing* and James Q. Wilson's *Varieties of Police Behavior* are classic books on the police that employ an organizational approach. Although these two books contributed lasting insights to the policing literature, theoretically oriented studies of police agencies as organizations are rare.

Social scientists have studied the police for nearly four decades. Yet, the majority of these studies have focused on police officers and police work, rather than police organizations. This is not surprising, given the frequently heard sentiment that it is not the organization that matters, but the people within it. In a chapter entitled "Organizations Matter," Wilson (1989) argues that although people and tasks are important, we cannot fully understand either until we understand their organizational context. The almost exclusive focus on people and tasks has left a large gap in our systematic knowledge of the police. Although reformers have described numerous schemes for reorganizing the police, scholars have echoed well-worn complaints about the paramilitary nature of the police "bureaucracy," and many have outlined the flaws of the police rank structure, there have been few empirical studies describing and explaining police organizations and their features. Duffee's (1990) advice to criminal justice scholars seems particularly appropriate—we should focus on describing and explaining what criminal justice organizations do, rather than on what they should be doing.

Unlike other Western nations, the United States has an extremely fragmented and localized "system" of policing, with a confusing array of overlapping jurisdictions and responsibilities (Bayley, 1985; Maguire

et al., 1997b). Under the American federal system of government, thousands of local governments created their own police forces (Bayley, 1992). Each of these forces is separate, distinct, and under autonomous command. Though most police agencies have informal or formal mutual aid agreements (in case of emergency) with those in neighboring communities, they are independent entities with their own unique structures, cultures, policies, and procedures (Ostrom et al., 1978a). The result of the fragmented and localized evolution of American policing is that: (1) there is a huge number of police agencies, and (2) these agencies exhibit tremendous variety in organizational form.

According to the 1992 Directory Survey of Law Enforcement Agencies conducted by the U.S. Census Bureau (Reaves, 1993), there are 17,344 publicly funded state and local law enforcement agencies in the United States. Of these, 12,444 are classified as municipal police departments. The majority of these are quite small, with over 11,000 (over 90%) serving communities of fewer than 25,000 people, and nearly 12,000 (over 95%) serving communities of fewer than 50,000 people. These smaller municipal agencies employ a mean of 12 full-time sworn officers—half employ 5 or fewer officers. Although the remaining 529 agencies serving populations greater than 50,000 constitute only 4.2% of all municipal police agencies, they employ 58% of the sworn officers—a mean of 383 officers per department.[1]

While small police agencies exhibit less variation in formal organizational structure than larger agencies, there is still some structural variation among smaller agencies (Ostrom, Parks, and Whitaker, 1978b). However, larger agencies have more people, more resources, and more tasks. One method for improving coordination and control as organizations grow is to institute formal structures. The largest municipal police agencies in the country exhibit staggering variety in the way they are organized, both in terms of the complexity of their structural arrangements, and the modes of structural coordination and control that they employ. Some have 4–5 rank levels, whereas others have 10–12; some operate out of a single headquarters facility, whereas others have dozens of precinct houses; some are staffed by generalists who respond to nearly every conceivable situation, whereas others are staffed by specialists in dozens of areas, from missing children to traffic accident reconstruction; some are heavily decentralized administratively, with front-line supervisors empowered to make strategic decisions, whereas others are highly centralized, with decision making authority granted only to the chief or a few selected deputies; some have hundreds of forms, rigid rules, and written policies covering almost every imaginable contingency, whereas others rely on more informal mechanisms for maintaining order; some

employ large administrative staffs to keep the organization under control and running smoothly, whereas others maintain lean administrative units to focus their resources "on the streets." What factors explain this tremendous variation in the structure of large American municipal police agencies? That is the focus of this study—to empirically examine the determinants of formal organizational structure in large municipal police agencies.

To do so, I rely extensively on the large body of theory and research which has emerged in the sociology of organizations and structural organization theory over the last four decades. Several hundred studies have examined the factors which influence the structures of nearly every type of organization: manufacturing and service, professional and nonprofessional, public and private, profit and nonprofit, large and small. Police organizations, however, have received very little attention in these studies.

Only one scholar has imported the accumulated knowledge of structural organization theory into policing in a comprehensive fashion. Robert Langworthy examined for the first time the determinants of structure in large municipal police agencies (1983b). He followed the dissertation with several articles (Langworthy, 1983a; 1985a; 1985b), and a book (Langworthy, 1986). What research into the determinants of police organization structure that has been done since has been at least partly based on Langworthy's work.

Langworthy's work forged a new road in the study of the police. Langworthy argued persuasively that nearly all scholarly attention to police organizations as a unit of analysis was based on normative theories and prescriptions, leaving a large empirical gap of unexplored territory. His analysis was the first comparative empirical examination to treat the structure of police organizations as a dependent variable. Since his work appeared, a few empirical articles on the subject have been published, but, in general, the examination of police organizational structures has not progressed in an orderly fashion.

This study will update, expand, and improve upon the prior literature on police organization structures, making four contributions. First, the entire study process—from the development of a theoretical model, to variable selection, measurement issues, and methodology—will be more firmly rooted in the broad sociological literature on organizational structures. Second, the cross-sectional data set used for this analysis contains information from approximately 400 large municipal police agencies, far more than in prior studies. Third, because some of the data used in the analysis were collected specifically for this study, I will be able to measure some concepts (such as centralization of com-

mand) that have been unavailable in other data sets. Finally, the statistical analysis that will be used in this study will be more concise, cohesive, and powerful than prior analyses. Most studies have used bivariate correlations and other similar techniques to infer relationships among a dozen or more variables. This study tests a series of multivariate theoretical models using structural equation modeling techniques. With these four contributions, this study picks up where Langworthy and others left off.

The results of this study will be directly applicable to ongoing debates about how police organizations ought to be structured during the community policing era. Despite three decades of normative prescriptions urging police agencies to modify their structures, police administrators may not be entirely free to design their organizations as they see fit. Police organizations exist in certain contexts—they have different histories and traditions, they come in a variety of sizes, they approach the job of policing in different ways, and they are located in different environments. For decades, organizational theorists have studied the impact of these contextual features on how organizations are structured. Put simply, certain organizational forms may simply "go with" certain contexts. Langworthy (1986, p. 2) explored this possibility by examining the "extent to which the structure of police agencies is constrained by factors beyond managerial control, including city size, composition of the population, and agency size, or by more basic decisions, such as how the job of policing is to be done." This study will extend Langworthy's analysis by testing for the possibility that these and other social forces constrain the way that police organizations are structured. Although the primary goal of this study is to develop and test a theoretical model of formal structure in police organizations, the results of this exercise will have implications for policy, reform, and practice in policing.

Outline of the Work

Chapter 2 examines the definition of organizational structure, delineates the various components of structure, and reviews the different strategies for measuring structural variation. Organizational structures have two primary dimensions: complexity and control. Structural complexity is a cluster of attributes that gives the organization its shape. Vertical, functional, and spatial differentiation are the individual components of structural complexity. Structural control and coordination mechanisms are tools that an organization uses to control and coordinate its work and its

workers. Formalization, centralization, and administrative density are the individual components of structural control and coordination.

Chapter 3 discusses the "context" of organizational structure. The four broad components that comprise an organization's context are its size, age, technology, and environment. This chapter reviews the various conceptual and methodological issues in each of these four areas, and summarizes the research evidence on the effects of these factors on organizational structures.
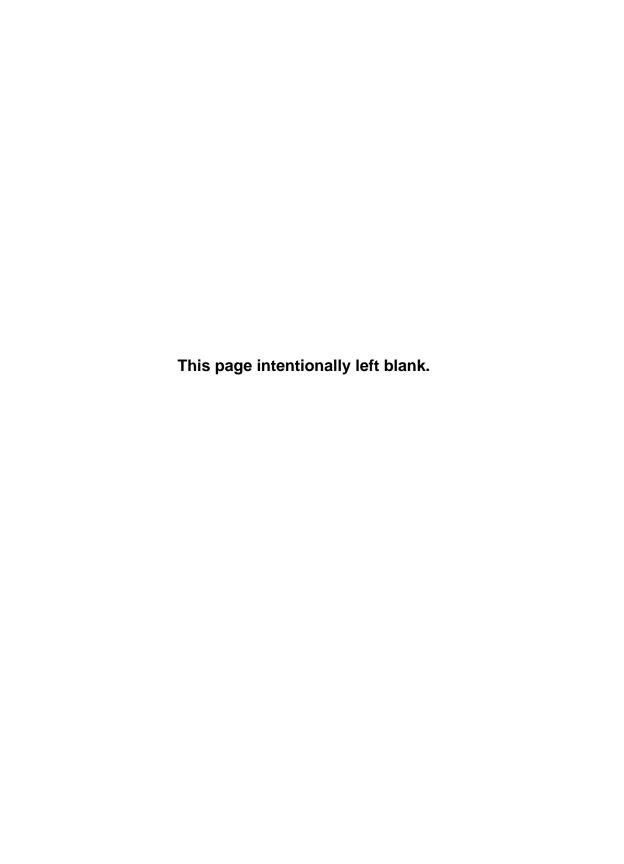
Chapter 4 briefly reviews the specific literature on police organizational structure. Although the literature that explicitly examines police structures is quite small, certain empirical and theoretical works have implicitly touched on structural issues. I first discuss the frequent uncritical use of structural concepts and variables in prior theory and research on the police. I then try to extract from the policing literature any works or ideas that may be useful for developing and testing a theoretical model of police organizational structure.

Chapter 5 develops a new contextual theory of police organizational structure. This chapter briefly reviews the role of theory in prior studies of police structure, and then outlines a basic theory that assumes a causal order between context, complexity, and control in large municipal police organizations. Next, this chapter outlines the details of the contextual theory of police organizational structure by expanding the concepts of technology and environment as they pertain to police agencies. In all, this chapter outlines more than fifty hypotheses about the direct effects between individual elements of context, complexity, and control in large municipal police organizations.

Chapter 6 first describes the sample and the various data sources that will be used to test the theory developed in the prior chapter. Next, this chapter describes all of the variables used to measure the theoretical concepts. Finally, this chapter provides descriptive statistics for all of the variables in the model. Since there is a twenty year gap in our descriptive knowledge of how large police organizations are structured, the discussion of structural dimensions provided in this chapter represents the state-of-the-art.

Chapter 7 first describes in detail the methods used to test the theory outlined in chapter 5, and then reports the results. This chapter improves on prior tests that relied on simplistic measures of association by estimating a series of comprehensive multivariate models. Structural equation modeling techniques are used to simultaneously estimate the measurement and structural portions of each model. Following the results of the analysis, this chapter summarizes the evidence for and against a contextual theory of police organizational structure.

Chapter 8 summarizes the findings from the previous two analytical chapters, and then assesses the utility of these results in three areas: (1) implications for future theories of police organizational structure; (2) implications for future research on police organizations, including studies of police behavior that use organizational variables; and finally, (3) implications for policy and reform in large municipal agencies.

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What is Organizational Structure?

This chapter introduces the concept of formal organizational structure and the various roles that it has played in theory and research on complex organizations. Structure was initially considered important only for how it might impact other organizational attributes like performance or employee productivity. However, as sociologists began to apply their theoretical perspectives and research methodologies to the study of complex organizations, structure came to be regarded as a dependent as well as an independent variable. Sociologists added much to the growing field of organization theory, and for several decades, structure occupied center stage in sociological research on organizations. As a result, the theories, methods, and concepts used for studying formal organizational structure were refined repeatedly throughout the literature. Today structure no longer occupies center stage in the study of organizations, but it remains an important and well-grounded element of organization theory (Donaldson, 1995; Kalleberg et al., 1996).

Organizations as a Unit of Analysis

Organizations have been the focus of empirical research for several decades. Much of the early research sought to discover organizational correlates of increased performance, in whatever way performance might be measured. In order to make organizations better, early reformers argued, it was necessary to change their leaders, personnel, culture, behavior, policies, and/or structures. Most early studies of organizations sought to confirm or deny normative prescriptions for achieving better organizations. These studies typically examined organizations as independent variables.

In the late 1950s researchers began to conceive of organizations as more than just rationally-derived mechanisms for the production of goods and services, but as entities worthy of understanding for what they are in addition to what they produce. Organizations are greater than the sum of their parts. They expand and contract, rise and fall, and

generally take on lives of their own. Organizations, like individuals and social groups, do not only act, but are acted upon as well. They are influenced, shaped and constrained by a complex interaction of political, social, economic, cultural, and institutional forces. Organizations exhibit patterned regularities, and they can (and indeed should) be studied apart from the people within them (Blau et al., 1966; Blau and Schoenherr, 1971). Just as psychologists strive to understand the behavior of individuals, organizational researchers strive to understand the behavior of organizations as "corporate persons" (Coleman, 1974). As Scott (1992, p. 7) argues, organizations are "actors in their own right . . . they can take actions, utilize resources, enter into contracts, and own property." Furthermore, they can commit crimes and cause large-scale accidents (Hall, 1999, pp. 12–14). The general point here is that organizations vary. Explaining this variation is worthwhile. Therefore, organizations have come to be regarded in empirical research as dependent as well as independent variables.

The Sociology of Organizations

In the late 1950s and 1960s, the study of organizations split into two separate but related camps: micro-level organizational behavior and macro-level organizational theory. Doctoral programs in organization studies tend to reflect this split—faculty within programs usually specialize in one or the other. For those focusing on organizational behavior, the attitudes and behaviors of actors within organizations are the primary unit of analysis. Academics from this group emerged primarily from psychology and management backgrounds. For those focusing on organization theory, organizations themselves—their processes, structures, and goals—are the primary unit of analysis. Academics from this group emerged primarily from sociology, public administration and political science backgrounds.

Early organization theorists focused a great deal of attention on the many differences between organizations. They sought to find out how these differences developed, and whether or not they were important. As Scott (1992) argues, "while organizations may possess common generic characteristics, they exhibit staggering variety—in size, in structure, and in operating processes." Organizations are defined by a number of conceptual components, including, but not limited to their structure, size, performance, goals, leadership, professionalism, culture, and identity. All of these components are important features of organizations, and all have received a good deal of research attention. Starting in the early 1960s,

however, the formal structures of organizations began to receive a disproportionate amount of attention in the empirical and theoretical literature. This trend continued strongly into the early 1980s, and then tapered off. Although research examining organizational structure continues to appear in popular organizational studies journals, the bulk of the research in this area emerged in the twenty-five year period from approximately 1960 to 1985. By the mid-1990s, however, it began to experience a mild resurgence (Donaldson, 1995; Kalleberg et al., 1996).

Much of this research attention was devoted to defining structure, identifying its distinct components, and seeking valid and reliable methods for measuring structural variables. Over this two-decade period of intense research on organizational structure, researchers and theorists debated the merits of various definitions, theoretical perspectives, measurement schemes, and methodologies. Like many scholarly debates, some of the issues emerging from the search to understand organizational structures were never entirely resolved. Researchers have developed long lists of variables to describe organizational structures, and have suggested a number of methodological and conceptual schemes for grouping these individual dimensions together into meaningful constructs. Yet, for the most part, although researchers continue to squabble over naming conventions and other particulars, a basic consensus has developed about the key generic dimensions of formal structure.

Dimensions of Structure

Organizational structure is the formal apparatus through which organizations accomplish two core activities: the division of labor and the coordination of work (Scott, 1992). Mintzberg's (1979, p. 2) definition of structure eloquently reflects these two dimensions:

> Every organized human activity—from the making of pots to the placing of a man on the moon—gives rise to two fundamental and opposing requirements: the division of labor into various tasks to be performed, and the coordination of these tasks to accomplish the activity. The structure of an organization can be defined simply as the sum total of the ways in which it divides its labor into distinct tasks and then achieves coordination among them.

Organizational theorists and empirical researchers have identified dozens of individual structural variables. Some of these have been widely discussed throughout the literature; others have appeared only briefly. Some have achieved a broad consensus among organizational

scholars as core elements of structure; others have been dismissed or ignored altogether. Some overlap conceptually with others, and some are considered conceptually distinct. But nearly all of them relate to how an organization divides, controls, coordinates, organizes and structures its workers and its work. The following list shows a sampling of the more popular structural elements identified in the literature (Blau and Schoenherr, 1971; Robbins, 1987, pp. 54–55).

- Administrative Component
- Autonomy
- Centralization
- Complexity
- Concentration
- Delegation of Authority
- Differentiation
- Formalization
- Functional Differentiation
- Integration
- Occupational Differentiation
- Professionalization
- Segmentation
- Span of Control
- Spatial Differentiation
- Specialization
- Standardization
- Vertical Span

The sheer number of variables that are used to describe organizational structures prompted researchers to seek out ways of organizing the variables into a more parsimonious conceptual model, and/or to combine the individual features into broad constructs.

Just as efforts to identify the features that constitute an organization's structure have prompted decades of debate, the best way to reduce the number of variables necessary to describe the variation in structure has also been problematic. Some researchers have turned to inductive statistical data reduction techniques such as factor analysis (Pugh et al., 1968; Reimann, 1973), cluster analysis (Reimann, 1973), or Q-analysis (Blackburn, 1982) to identify the core dimensions of structure. Others have attempted more deductive approaches, relying on intuition, common sense, or theory to develop parsimonious conceptual schemes for describing organizational structures (e.g., Hsu, Marsh, and Mannari, 1983). Despite the technique used, nearly all of these efforts have resulted in similar two- or three-dimensional descriptions of structure. Hall, Haas, and Johnson (1967) distinguished between complexity and formalization; Hage and Aiken (1967b) distinguished between complexity and centralization; Klatzky (1970) distinguished between complexity and coordination; Blau and Schoenherr (1971) distinguished between differentiation and administration; Child (1973) distinguished between complexity and bureaucratic control; Kriesburg (1976) distinguished between differentiation and centralization; Rushing (1976) distinguished between differentiation and coordination; Ford and Slocum

(1977) distinguished between complexity, formalization, centralization, and administration; Mintzberg (1979) distinguished between division of labor and coordination mechanisms; Dalton and his colleagues (1980) distinguished between structural characteristics and structuring characteristics; Hsu, Marsh and Mannari (1983) distinguished between complexity and control; Robbins (1987) distinguished between complexity, formalization, and centralization; Scott (1992) distinguished between division of labor/structural differentiation and coordination and control of work; and most recently, Glisson (1992) distinguished between complexity, formalization and centralization. This list represents just a sample of efforts to develop parsimonious conceptual schemes for describing the variation in organizational structures.

Reviewing the above list of structural dimensions, one is struck by the conceptual similarities. In fact, there are really only two prominent differences between the various schemes: differences in nomenclature, and differences in indicators. The differences in nomenclature are prominent and are likely to confuse an organizational theory novice wading through the vast literature for the first time. After acquiring some familiarity with the literature, however, it becomes readily apparent that division of labor, differentiation, and complexity are terms that are nearly always used interchangeably to describe the way the organization slots, places, organizes, or locates its work and its workers.[1] Likewise, coordination, administration, control, formalization and centralization are all used to describe mechanisms by which an organization achieves coordination and control among its work and its workers. Hsu, Marsh, and Mannari (1983) and Child (1973) term these two clusters of variables "complexity" and "control." Despite differences in the nomenclature used to describe variation in organizational structures, researchers have essentially settled on two main dimensions: structural complexity and structural control. These naming conventions will be used throughout the rest of this study.

More problematic than differences in nomenclature are differences in the individual variables and/or indicators that are used to measure structural complexity and control. Throughout the literature, organizational scholars mistakenly confuse structural concepts, using complexity variables to measure control, and control variables to measure complexity. Stanfield (1976) argues that this type of error is a serious flaw in the organizational literature, and is based on the tendency of organizational researchers to rely on "unrationalized categorizations." This type of error results when researchers use careless or partial indicators of a construct, when they define a concept poorly, or when they fail to distinguish between two related concepts. Part of the problem can also

be attributed to the abstract nature of the prominent concepts in organizational studies. The solution to the problem of unrationalized categorization is to select variables that are clearly indicative of structural complexity and structural control, and to justify their selection based on the bulk of prior research, rather than relying on individual studies to justify variable selection. In the following sections, I define complexity and control, and describe the individual structural variables used to measure each concept.

Structural Complexity

Structural Complexity, according to Robbins (1987, p. 5), is "the extent of differentiation within the organization. This includes the degree of specialization, or division of labor, the number of levels in the organization's hierarchy, and the extent to which the organization's units are dispersed geographically." Thus complexity has three basic components: vertical differentiation, functional differentiation, and spatial differentiation.[2] The more an organization becomes differentiated in any or all of these areas, the more complex its structure. As I will argue many times throughout this book, it is very important for a number of reasons to view the elements of structural complexity as analytically distinct.

Vertical Differentiation

Vertical Differentiation focuses on the nature of the hierarchy within an organization. Organizations with elaborate chains of command are more vertically differentiated than those with simpler command structures. Organizational hierarchies are often described as pyramids, with the width of the pyramid signifying the number of workers, and the distance from the base to apex representing the number of layers. Analysts interested in vertical differentiation have used graphical techniques to compare the shapes, or the "morphology" of different organizations (Kaufman and Seidman, 1970). The pyramid analogy is particularly helpful for understanding vertical differentiation.

The most obvious element of vertical differentiation is the number of command levels, or the segmentation, of an organization. Police departments often measure the number of levels by counting ranks. Previous research has shown that most police agencies in the United States have between six and twelve levels, from patrol officer to chief executive (Bayley, 1992). Departments with fewer ranks would be characterized by a very short pyramid, whereas those with many ranks by a very tall pyramid.