Policing in the United States: Developing a Comprehensive Empirical Model
[NIJ Grant # 2002-IJ-CX-0016]
L. Edward Wells and David N. Falcone

ABSTRACT

As a major new paradigm for policing in the United States, *community-oriented policing* (COP) assumes three fundamental premises about policing: (1) a *structural premise* that what police departments do is shaped by their organizational structures; (2) a *contextual premise* that police agencies as "open systems" are constrained and influenced by their environments; and (3) a *universality premise* that, because the essential tasks of policing are the same everywhere, a single universal model of COP policing will apply to all sizes and types of police agencies. While these premises are critical, they remain largely implicit and untested. Major reasons for this omission seem to be lack of a fully developed conceptualization of police agencies as "open systems" and lack of comprehensive and representative data sets on all types of police agencies.

The aim of this study was to provide a systematic empirical assessment of the three basic premises of COP. First, we proposed a comprehensive conceptual framework that links police organizational structures and operations to community-level factors. Next, we synthesized a large nationally representative data set that would include a theoretically comprehensive set of variables on police organizations and their communities collected on the full range of local police agencies in the U.S. The synthesized data set formed by merging data from several different existing national data sources on police organizations--LEMAS surveys, UCR crime data, Census Surveys of Law Enforcement Agencies-- and on their communities--City-County Data Book, Census Gazeteer, Rural-Urban (Beale) Codes-- into a single data file of 3005 local police agencies of all sizes and locations. Multiple regression was used to test if: (a) adoption of COP is influenced by organizational arrangements, and (b) the structure and operations of police agencies are shaped by community contexts. The third premise was tested by comparing similarity of regressions across distinct subgroups of police agencies.

The results provide disappointingly little confirmation for the three premises. In short: Adoption of COP is not related to organizational structure in theoretically meaningful ways. Police organizational features and COP practices are not well predicted by community characteristics. And there large differences across agencies of different sizes and locations. These results underscore the importance of subjecting our theoretical assumptions to careful empirical tests--to assess the soundness of our policy-development models--and of collecting comprehensive national data on police organizations in the U.S. to empirically assess any patterns or shifts that may be occurring.

Policing in the United States: Developing a Comprehensive Empirical Model
[NIJ Grant # 2002-IJ-CX-0016]
L. Edward Wells and David N. Falcone

Summary Report

Arguably the most significant development in policing in the U.S. during the past 50 years has been the development and adoption of Community-Oriented Policing (COP). COP is often depicted as the "new orthodoxy" of contemporary policing, representing a paradigm shift away from the traditional law enforcement-oriented, reactive policing to a more proactive, problem-solving, co-productive, community-oriented strategy. In the process, police organizations are supposed to be transformed as well, changing from specialized, formalized, hierarchical, paramilitary bureaucracies to flatter, more flexible, more decentralized, more civilianized, collaborative, problem-solving agencies. Compared with earlier, smaller scale reforms (e.g., team policing), implementation of COP implies substantial changes in what public policing looks like and how it operates. Implementation of this new COP approach is extensive and ongoing, owing in large part to congressional passage of the "Public Safety Partnership and Community Policing Act of 1994," which authorized $9 billion in funding to support the implementation of COP operations by police agencies of all sizes across the U.S. This included the hiring of 110,000 additional community-oriented police officers and the creation of a new Federal Agency (the Office of Community Oriented Policing Services or "COPS Office") to direct the implementation.

Like all major policing reforms in the U.S. during the last century, the community-oriented policing model is based on several basic presumptions about how police departments work as social organizations operating within their community environments. While widely assumed as virtual truisms of modern policing, very little empirical research is available to confirm or document these premises. They function largely as obvious-and-untested articles of faith. This study was motivated by the perceived need to empirically test and systematically assess three basic presumptions upon which current COP theory and policy development seem to be based. The first is identified as the structural premise which asserts that organizational form and function are strongly interdependent and that how policing actually gets accomplished is shaped by how police departments are set up and structured as organizations. The second, termed the contextual premise, is the presumption that police organizations are necessarily "open systems," which means that they will be interdependent with their environments. The specific content of policing, especially effective policing, will depend on the unique conditions, demands, and resources in each community. It implies a strong correlation between the features of police agencies and their community contexts. The third presumption is the universality premise that the essential dynamic of policing is unitary and universal, meaning that the underlying processes of police organization structure are pretty much the same everywhere even though the surface features seem to vary widely. Wherever we go--small town, medium city, large metropolis--policing is policing; The differences are basically matters of degree not of kind.

The first two premises figure very prominently in discussions and debates about the move to community-oriented policing in the U.S., arguing that if we wish to change the way police

"serve and protect," we must make substantial changes in how they are organized to provide these services. In addition, real and enduring changes must be correlated with differences in community needs, resources, and contingencies. These two premises are explicit and fundamental tenets of the COP model, regarded as widely recognized and well-established truisms of good policing. The third premise is more implicit and less evident, but still fundamental, to this implementation of COP. There is, after all, only one Community-Oriented Policing model prescribed for universal application to all sizes and types of police agencies in all locales. There will be considerable variation in the parameters of the model across communities and agencies, but they are still parameters in just one general model. We note that the universality presumption is also fundamental to virtually all academic research on policing, which is based invariably on limited convenience samplings of police agencies and selected case studies from which broad general conclusions about policing in general are drawn. The validity of this practice is clearly dependent on a presumption that policing operates pretty much the same in all settings.

Analytical Framework

A careful empirical assessment of these three premises requires: (a) a coherent conceptual framework that indicates which variables and relationships will be analyzed, and (b) a large, comprehensive data set that includes variables on all the relevant substantive dimensions and covers the full diversity of police agency types, sizes, and locations found in the U.S. By drawing on the available research on police organizations that accumulated over the past four decades-- summarized in excellent reviews by Sherman (1980), Riksheim and Chermak (1993), Maguire and Uchida (2000)--an analytical framework was constructed consisting of three analytically distinct groups of variables: *community context* variables (reflecting the complexities, demands, resources, and instabilities of the social and physical environment in which police agencies operate), *organizational structure* variables (reflecting the main dimensions by which police agencies are differentiated, configured, and described as formal organizations), and *community-oriented policing operations* variables (reflecting the specific procedures and practices by which police agencies have implemented the community-oriented policing model). The framework is represented graphically in Figure 1.

Within this framework, the structural premise pertains to the strength of the relationships between COP implementation variables and the organizational structure variables--represented in path **c** in Figure 1. Greater implementation COP should correspond with flatter, less complex, less formalized, less centralized, less specialized organizations. In the framework, the contextual premise is expressed in the correlations between structural and community contextual variables, with more complex, unstable, dense, disadvantaged communities leading to greater organizational complexity, formalization, and bureaucratization in their police departments. It should also be evident in correlations between the community variables and implementation of community-oriented policing, which is commonly depicted as a strategic response to environmental complexity, instability, and demand (e.g., high crime rates). The universality premise is not expressed directly in the conceptual framework, but in the expectation that the patterns found in analyzing the first two premises will be relatively invariant across all types and sizes of police agencies.

Data File Construction

The requirement of the analysis for a fully comprehensive data set presents a second and more difficult problem, since no policing data currently exist that are both substantively and geographically inclusive; nor has any prior policing studies collected and used such a data set. To cope with this problem, this study constructed a comprehensive data set by synthesizing from an assortment of available sources--i.e., by merging data available in separate national data sets on communities and police agencies. The base data source used for this synthesis was the 1999 LEMAS (Law Enforcement Management and Administrative Statistics) survey, which contained data on police organizational characteristics and on adoption of community-oriented policing procedures. The 1999 survey was supplemented with additional organizational variables from the 1997 LEMAS survey and from the 1996 Directory of Law Enforcement Agencies (which provides a census of all 18,769 police agencies throughout the United States). Data on community characteristics were extracted from the 1994 County and City Data Book, from the 1998 and 1999 Uniform Crime Reports, from the 1990 and 2000 Census Gazetteer files, and from Rural-Urban Community classifications (distributed by the U.S. Department of Agriculture). The merging of the separate and diverse data sources was accomplished by using the Law Enforcement Agency Identifiers Crosswalk file--a special "match-up" file created by the Bureau of Justice Statistics to facilitate such data file mergers as this one. In all, 23 data files from 8 separate sources collected by 4 different governmental agencies were used to create the merged data set.

Data Analysis

Our data analysis was directed by three research questions, corresponding to the three basic premises. First, how strongly are implementations of community-oriented policing connected to the structural features of police organizations in which they occur? Are they strongly interdependent? Second, how strongly are organizational structures predicted by characteristics of the community environments in which they are located? Do complex and difficult environments seems to yield complex and formal police agencies? Is the adoption of COP predicted by community conditions and demands? And third, are the patterns shown in answering questions (1) and (2) universal? Is there consistency or divergence in these pattern across important sub-divisions or categories of U.S. policing agencies?

The analyses sought answers to these questions by using multiple regression, and proceeded in three distinct steps. The first was a factor analysis of all the relevant variables identifiable in Figure 1 to assess the reasonableness of our conceptual groupings, but also to develop a more parsimonious, less redundant set of indicators for the regression analysis. Using exploratory factor analysis, we identified four community context factors that were consistent and stable across subsamples: economic resources, racial heterogeneity, urbanism, and population change/instability. We also identified three organizational structure factors that were consistent across sub-samples: organizational height (vertical differentiation), formalization, and concentration of services. Several of the organizational structure variables did not show consistent correlations in the factor analysis and were either dropped from the analysis (e.g., task scope, spatial differentiation) or were included as a separate item (unionization). Factor analysis of the community-oriented policing operations variables showed a clear one-dimensional

structure, and these were combined into a single COP Implementation index. Standardized indexes were computed for each of the community and organizational factors identified in this step; these indexes (rather than individual items) were used in the subsequent regression analyses.

In the second step of the analysis, regressions for the structural premise and for the contextual premise were carried out on the full sample to provide a general estimate of how well these applied to police organizations of all types and sizes across the United States. The structural premise was investigated by regressing the COP adoption index on the organizational structure indexes, plus the block of community context variables which served as "environmental controls". These results did not confirm the structural assumptions made by exponents of community-oriented policing. The adoption of COP procedures shows no consistent predictable correlation with organizational configurations. In fact, the only substantial effect found in this regression was a positive relationship of COP with formalization (along with a slight positive relationship with organizational height). However, these associations are opposite to the prescriptions of community-oriented policy, in which implementation of COP should be associated with less formalized and flatter organizations, rather than the reverse. The contextual premise was investigated by regressing the indexes of organizational structure on the community context variables. Here also the results provided little confirmation of the premise, with these regressions showing only mixed or weak effects of community characteristics on organizational structure. The strongest, most consistent predictor of organizational structure was the urbanism index, which had positive coefficients on all the organizational indexes. Notably, that pattern does correspond well with theoretical expectations. However, the other community variables showed weaker, more inconsistent, less intelligible patterns of coefficients; so it is difficult to draw any definite conclusions from the other indicators of community context.

In the third step of the analysis, the regression just described were repeated on selected sub-samples within the total data set and the patterns of coefficients were compared across contrasting groups of police agencies. The specific sub-divisions comparisons were: county versus municipal agencies; metropolitan versus non-metropolitan communities; large (100 or more full-time sworn employees) versus small agencies; and location in the four census regions of the U.S.. The results of these comparisons showed considerable variability across groups--with coefficients often significantly larger in one group than the other, and occasionally even coefficients with reversed signs. The variability across sub-samples was especially noticeable in the contextual regressions, but it also showed notable divergences (albeit fewer reversals) in the structural regressions as well. Overall, this part of the regression showed that the general patterns estimated in the second step did not hold consistently across different types and locations of police agencies--indeed, substantial divergences were found--and that subsample analyses did not support the idea of a single, general universal model of policing that applies in all sizes and settings of police agencies.

Discussion

The lack of clear findings seems an unsatisfying, ambiguous outcome; "accepting the null hypothesis" is always a tentative and arguable choice open to second-guessing. We emphasize, however, that our findings actually are consistent with other available research

related to the contextual and the structural premises, although no studies are available that *directly* test how either of these premises applies to implementation of community-oriented policing. We note a considerable amount of related research that indirectly or partially examine these premises, including a number of very recent studies involving trend analyses (e.g., Zhao, Livrich, and Thurman, 1999; Roth, Roehl, and Johnson, 2003; Maguire, Shin, Zhao, and Hassell, 2004) and multivariate analyses of many of the elements of these premises (e.g., Hassell, Zhao, and Maguire, 2003; Maguire, 1997a, 1997b; Maguire, Kuhns, Uchida, and Cox, 1997; Worrall and Zhao, 2003). However, since none directly test the premises using all three sets of variables (community context, organizational structure, and COP practices) or using a broadly representative sample of police organizations, the findings of this study seem to represent what we can say empirically about the underlying premises of COP at the present time. Hopefully, this will improve as additional research on COP becomes available.

We cannot and do not present these findings as the final word on this topic, since every data analysis has compromises and shortcomings, including this one. It is always possible that the lack of clear findings in this study might reflect data quality problems, rather than a genuine absence of systematic causal connections. While the data set used here is the most comprehensive sample of policing agencies in the United States currently available, it still under-samples smaller departments and it is open to valid criticisms of the measurements of variables used in the analysis. Measurement issues are characteristic of virtually all organizational research on policing (which lacks standard well-validated set of key indicators) and they become a particular concern in a secondary data analysis such as this study (where the indicators were collected by others for other purposes). The use of organizational self-reporting surveys (such as the LEMAS) entail basic validity concerns regarding the individual respondents who filled out the survey within each agency and how accurately they could report on organizational matters. Nonetheless, overall the data used here represent the best available, since alternative strategies--e.g., on-site observations--are not possible in a large, widely representative sample of organizations. While they will necessarily involve some compromises, we present the findings from this study as probably the best available information at this point to fill in some of the blank pieces in the conceptual puzzle of how policing in the U.S. is organized, along with how and why it changes.

What these results seem to suggest is that the central premises or "received wisdom" of police organization have not been very fully tested and confirmed through systematic empirical research. Instead, they have been selectively documented through multiple studies using convenience samples of limited kinds of police agencies, as well as through case studies of selected departments in a few metropolitan areas. While helpful and illustrative, these are not an adequate substitute for comprehensive analysis of the full range of policing organizations and settings.

The findings reported here affirm the importance of testing our theoretical presumptions about how public policing agencies organizations operate, since these provide the basis not only for developing good theory, but also for developing and implementing police organizational policy. Thus, their empirical validity is not just an academic question but a practical issue of considerable administrative concern. In addition, these findings demonstrate that the received wisdom maybe mistaken. Even though they may seem self-evidently true, the findings

demonstrate that systematic empirical research may very well disconfirm what seemed to be well known and well established. What "everybody knows full well" may turn out in fact to be incorrect.

The results of this analysis also provide an emphatic acknowledgment of the relevance of sampling variations in limiting our ability to draw general conclusions about police organizations and practices. The pervasive reliance on local convenience samples, on selected case studies of a few interesting agencies, or on national samples of a limited category of police departments (e.g., municipal police departments with 100 or more full-time sworn employees) cannot be counted on to yield generalizable knowledge, either about the frequencies of police organizational features or about the organizational dynamics that tie them together. As these findings indicate, we cannot assume that policing is "all of one cloth." In both research and policy development we must take into account the wide diversity of organizational settings and contexts within which policing is carried out in the U.S.

These findings of this study point to the conclusion that, at this moment, we really cannot say with much confidence or certainty what the prevailing patterns and dynamics in community-oriented policing in the United States are, because we lack comprehensive empirical data from which to extract this information. The available body of knowledge about COP is at best a patchwork quilt, formed by piecing together fragments (based in selective or incomplete samples) and indirect evidence (based on studies of a few of the relevant variables). As research on community-policing has proliferated in the last few years (especially with the increased federal funding associated with creation of the COPS program), more studies have sought to utilize larger, more inclusive national samples, resulting in a fuller picture of the prevalence of community-oriented policing practices across police departments in the U.S. But the available research still leaves us guessing about the correlates, causes, and consequences of adopting COP practices; and it does not allow us to assess if the adoptions are a cosmetic tactical adaptation or a systematic philosophical shift (reflected in how the agencies are organized and how they relate to their communities).

Implications

The most immediate and obvious implications of the findings presented here are research-related rather than policy-related. They suggest that several things should be done to improve the body of research-based knowledge we have about policing organizations and operations. The first has already been mentioned above, which is the need for policing research to use more widely representative or broadly inclusive samples of policing and to estimate the limiting effects that sampling restrictions have on the validity, generalizability, and comparability of their findings. This means encouraging and supporting the use of national samples of police agencies, as well as encouraging the systematic study of policing organizations that are more broadly representative of the types of police departments and offices that actually make up the majority of agencies in the U.S. While it may seem more interesting and more convenient to study a few hundred large municipal police departments, there are very good reasons for studying other sizes and types of police agencies as well. The vast majority of police agencies in the United States are moderate in size (i.e., under 50 full-time sworn personnel) and about half are very small (i.e., fewer than 10 FTEs); and a large number of these are located in non-metropolitan communities.

As the results here show, there may be striking differences in the organizational dynamics of small and large police organizations, sometimes displaying opposite effects. In addition, restricting research to larger agencies and larger communities often results in very restricted variance on important theoretical variables, resulting in attenuated correlations or ceiling effects, and yielding less informative multivariate analyses. In many cases, studying mainly large departments will yield misleading conclusions about national trends.

The second research-related implication of this study's findings is that they affirm the importance of the LEMAS surveys as a primary source of national information and data on policing in the United States, both for providing an accurate and current picture of the state of policing in the nation as well as for providing an ongoing, publicly available national data source for high quality policing research. Given its importance as a data source, the study suggests a high priority be placed on improving and extending the LEMAS survey. This would include such things as: adding more items about organizational characteristics, increasing the numbers of smaller agencies included in the sample to better reflect the distribution of types of police organizations across the United States, and including more extensive data identification codes (e.g., FBI ORI codes) to make the LEMAS data file more compatible with other national data sets. An additional suggestion would be to further strengthen the validity of data collected in LEMAS by adding additional quality control procedures where practical--e.g., follow-up validation telephone interviews of a randomly selected sample of responding agencies.

Beyond their implications for research, the findings in this study also point to one simple but important policy recommendation. This is the obvious suggestion that we must be wary of adopting a "one size fits all" policy for changing police organizations, given the diversity of agencies and the differences in their organizational dynamics. Programs developed for large metropolitan municipal agencies will not necessarily apply to small agencies in non-metropolitan settings; programs for use in agencies in Northeastern states may not apply to agencies in other regions like the South; and they may even be counter-productive in the latter contexts. This study has shown that the links between organizational structures and operational practices are not the same across all types of public policing agencies, so that the tasks of implementing community-oriented policing may also differ widely across agency types, sizes, and locations. Given the predominant impetus of federal funding in the move to community-oriented policing, there is a natural tendency to view change-producing policies in terms of unitary, centrally administered, globally applied programs. The results from this analysis provide evidence that this approach does not match the empirical reality of policing in the United States, and for this reason is ill-advised and unlikely to be effective.

References

Hassell,K.D., Zhao, J. and Maguire, E.R. (2003). "Structural arrangements in large municipal police organizations. Revisiting Wilson's theory of local political culture." *Policing: An International Journal of Police Strategies and Management, 26(2)*: 231-250.

Maguire, E.R. 1997a. *Context, Complexity and Control in Large Municipal Police*

Organizations. Ph.D. Dissertations, State University of New York, Albany.
------. 1997b. "Structural Change in Large Municipal Police Organizations During the Community Policing Era." *Justice Quarterly* Vol. 14 No. 3, 547-576.

Maguire, E.R., Shin, Y, Zhao, J., and Hassell, K.D. (2003). "Structural change in large police agencies during the 1990s." *Policing: An International Journal of Police Strategies and Management, 26(2)*: 251-275.

Maguire, E.R.; and Uchida, C.D. (2000). Measurement and explanation in the comparative study of American police organizations, in *Measurement and analysis of crime and justice*, Vol. 4, D. Duffee, ed. Washington, D.C.: U.S. Department of Justice, Office of Justice Programs.

Riksheim, E.C., and Chermak, S.M. (1993). "Causes of police behavior revisited." *Journal of Criminal Justice* 21: 353-382.

Roth J.A., Roehl, J., and Johnson, C.C. (2004). "Trends in the adoption of community policing." In *Community Policing: Can It Work?*, ed. W. Skogan. Belmont, CA: Wadsworth.

Roth, J.A. and Ryan, J.F. (2000). *The COPS Program After 4 Years--National Evaluation (Research in Brief)*. Washington, DC: National Institute of Justice. (Bulletin Number NCJ183644).

Sherman, L.W. (1980). "Causes of police behavior: The current state of quantitative research." *Journal of Research in Crime and Delinquency* 17(1): 69-100.

Zhao, J., Thurman, W.C., & Lovrich, N.P. (1995). "Community oriented policing across the United States: Facilitators and impediments to implementation." *American Journal of Police*, 14: 11-28.

Policing in the United States: Developing a Comprehensive Empirical Model

Final Report

to

The National Institute of Justice
Grant Number: 2002-IJ-CX-0016

Co-Principal Investigators:

L. Edward Wells
Department of Criminal Justice Sciences
Illinois State University
Normal, IL 61790-5250
Phone: 309-438-2989
FAX: 309-438-7289
email: ewells@ilstu.edu

David N. Falcone
Department of Criminal Justice Sciences
Illinois State University
Normal, IL 61790-5250
Phone: 309-438-2002
FAX: 309-438-7289
email: dnfalcon@ilstu.edu

April 2005

Policing in the United States: Developing a Comprehensive Empirical Model
[NIJ Grant # 2002-IJ-CX-0016]
L. Edward Wells and David N. Falcone

Final Project Report - Section Outline

I. Introduction: The Context for the Research

II. Prior scholarship and research

III. Conceptual framework

IV. Research Hypotheses/Questions

V. Research Methods

VI. Findings

VII. Summary and Discussion

VIII. References

IX. Figures

X. Tables

Appendix A: Construction of the Data Set

Policing in the United States: Developing a Comprehensive Empirical Model

(NIJ Grant # 2002-IJ-CX-0016)

L. Edward Wells and David N. Falcone

Final Report

Introduction

Framing the Study

Arguably the most significant development in policing in the U.S. during the past 50 years has been the development and adoption of Community-Oriented Policing (often better known by the acronym COP), which has dominated contemporary thinking about policing in the United States since the early-1990s. This is reflected both in the large volume of publications in scholarly and professional literatures on policing and in the widespread adoption of some form of community-oriented policing by police agencies across the U.S. in all forms, sizes, and locations. (Maguire, 1997b; Roth, Roehl, and Johnson, 2004; Worrall and Zhao, 2003; Zhao et al., 1999). Many police agencies across the nation report the use of COP as a tool for solving community and neighborhood problems, crime reduction, fear of crime, and the creation of improved police/ citizen relations. (Maguire, 1997b; Maguire, Kuhns, Uchida, & Cox, 1997; Trojanowicz, 1994; Wycoff, 1994; Zhao, 1996; Zhao, Lovich & Thurman, 1999; Zhao & Thurman, 1997; and Zhao, Thurman & Lovrich 1995). According to the recent national surveys (Hickman and Reaves, 2003; Roth and Ryan, 2000), a majority (66-68%) of local-level police departments in the United States have adopted at least some elements of COP, and more than 100,000 additional full-time personnel have been hired to carry out COP functions.

The national trend toward the adoption of COP (or at least some of its procedures) is substantially a result of the passage of the 1994 Violent Crime Control and Law Enforcement Act during the Clinton presidency. This federal act, similar in many ways to the federal Omnibus Crime Control and Safe Streets Act of 1968 (as both acts encouraged and anticipated experimentation and innovation in modes, methods, and strategies in policing), provided front-end funding for the hiring of 100,000 new community police officers and was the harbinger of the Office of Community-Oriented Policing Services (COPS), housed under the U.S. Department of Justice. This initiative to germinate and expand COP programs in American police agencies was part of the most heavily funded federal anti-crime effort in the history of the republic (National Institute of Justice, 1997). The Community Policing Act of 1994 authorized $8.8 billion to fund the implementation of COP programs, innovations, and experimentation for local-level police agencies, resulting in the hiring of 110,000 police officers to work in some capacity as community police officers in over 8,000 American police organizations.

While the real impact of these developments on policing in the U.S. remains an open (and actively debated) question, Community-Oriented Policing has been described widely and frequently as constituting the "new paradigm" or the "new orthodoxy" in American policing. According to some observers, the notion of "community policing" has become the catchphrase for almost any organizational change within police agencies in recent years (Bayley, 1988; Eck

and Rosenbaum 1994; Rosenbaum, 1998). As occurs with most policy reforms, there is considerable disagreement about what exactly the term *community-oriented policing* means and what specifically it entails as a reform strategy (e.g., Oliver, 1998; Peak and Glensor, 1999). Indeed, much of the criticism of COP has focused on its conceptual and operational ambiguity and its ability to mean quite different things to different people. However, common to virtually accounts is the idea that COP represents a fundamental change in the way police work is organized and carried out.

In general terms, COP is presented as a paradigm shift away from the traditional law enforcement-oriented, reactive policing to a more proactive, problem-solving, co-productive, community-oriented strategy. In the process, police organizations are supposed to be transformed as well, changing from specialized, formalized, hierarchical, paramilitary bureaucracies who maintain a professional distance from the communities they protect to flatter, more flexible, more decentralized, more civilianized, more proactive, problem-solving agencies who collaborate with the communities they serve. Compared with some of the smaller scale reforms of earlier decades (e.g., team policing), the implementation of COP seems to imply very extensive and fundamental changes in what public policing looks like and how it operates. It is, after all, consistently presented as a paradigm shift, although considerable disagreement exists about whether the changes actually implemented in police agencies have been genuine and fundamental, rather than supplemental or superficial (e.g., Maguire and King, 2004).

As with most policing reforms in the United States over the last half-century, the COP model is premised on several basic assumptions about how policing works in organizational terms. While these assumptions are generally treated as intuitively obvious, well-known, and well established truisms of modern policing, they largely represent implicit-and-untested premises underlying most policy development and research. While they are widely taken to be well established, very little empirical research on police organizations actually is available to confirm or substantiate them (Maguire, 2003), and indeed some recent studies have raised doubts about their validity or universality (e.g., Maguire 1997b; 2003). In light of their importance to the underlying rationale for developing and implementing community-oriented policing in the U.S., a more systematic empirical evaluation of these basic premises seems essential as a first step in evaluating the new paradigm. As Moore (1992: 139) notes: "To evaluate an organizational strategy in the public sector, one must consider whether the new strategy is well founded as well as effective."

The first assumption of policing reform involves the structural premise that how police agencies operate is highly dependent on how they are organized--or in organizational terms, form determines function. This premise asserts that what police organizations do and how they do it will be strongly influenced by how they are set up and structurally arranged. Thus, if we wish to change how police work is carried out, we need to set up organizational structures that are congenial to and facilitative of the intended work style. This is not a new idea. As Green (2004):has noted, "Virtually all reforms of the police in the twentieth century expected to change not only how the police do business, but also how the police were to be organized." As early as the 1880s and in the following decades of the Progressive era (Link and McCormick, 1983), police reform efforts aimed at changing both the forms of local governments and the structures of

police organizations that accompanied them. The progressive reformers pressed to narrow the scope of the police function from a broadly based provision of diverse social services to a narrower, more professional and efficient law enforcement orientation. To accommodate the narrower law enforcement mission, the reform mandated that police organizations adopt a paramilitary organizational structure, with a hierarchical chain of command, tall bureaucratic structure, and a specialized division of labor (Walker and Katz, 2002). The adoption of a professional model of policing required an efficient, bureaucratically organized, professionally detached, militarily ordered organization that could effectively wage war against the forces of crime, while remaining unencumbered by political interests. Virtually all subsequent policing reforms of the twentieth century up to and including COP (which seeks to undo many of the changes introduced by adoption of the professional model) have followed a similar pattern that clearly reflect this first assumption. That is, they invariably seek changes in police operations by changing in how police departments were organized and administered.

A second fundamental assumption of COP is the contextual premise that police organizations necessarily are "open systems" operating within larger social and physical environments with which they are interdependent (through the exchange of resources, demands, inputs, and outputs). This assumption is a slightly newer element of contemporary thinking about policing, reflecting the mid-twentieth century development of systems theory. As Maguire (2003: 71) observes: "Perhaps the greatest contribution of organizational theory to the study of actual organizations is the fundamental principle that organizations are shaped by the contexts in which they are embedded." This premise asserts that police agencies cannot be viewed in isolation from the political, economic, and ecological contexts in which they exist and operate. Organizational effectiveness and viability require that police departments be responsive to their environments in the same ways that other institutions in American life have over the past few decades. This idea is exemplified in Moore's (1992: 120) observations on recent policing reform strategies:

> "one common idea across these concepts is that there may be no one best way to deal with each of the problems facing policing. The best response will often depend on local circumstances. Thus the mark of an effective police department will not be how successful it is in implementing the most recent national model of a successful program but instead in how thoughtfully it crafts a local solution to a local problem, taking into account the local character of the problem and the local means of dealing with it."

This premise is particularly important in the rationale for community-oriented policing, where policing operations *by design* are to be actively responsive to the particular needs, problems, and contingencies of their community.

A third assumption-- more implicit and less widely mentioned that the first two, but no less important for Community-Oriented Policing policy-- involves what may be termed the universality premise. This embodies the common perception that wherever it occurs and despite its apparent diversity, "policing is basically still policing." This notion, widely shared by police administrators and police scholars alike, is the belief that because policing is an essential social function found in all modern societies, its core tasks and behavioral dynamics are universal and unitary, such that the business of policing is pretty much the same everywhere. That is, the organizational forms that various police organizations adopt, the tasks they are mandated to

perform, and the methods by which these tasks are accomplished are essentially similar across the apparent differences among departments, fundamentally varying only in degree not kind. This implies a single general model of how police organizations work (or should work) that applies to agencies of all types, sizes, and locations. In this view, particular police departments may display wide diversity in their surface features, but these merely represent variations in the multi-dimensional parameters of the common general model, not different models.

The third assumption, while not commonly expressed or acknowledged, is clearly implicit in the development and implementation of Community-Oriented Policing (particularly as official implemented in the federal COPS program), which is always depicted, both by its advocates or critics, as a singular concept and strategy. Considerable debate has occurred among police scholars and practitioners about the application of Community-oriented policing, these disagreements have been about the essential content of the correct COP model, not the number of models. They presume that there is one model for community-oriented policing (whether right or wrong); they do not seriously entertain the possibility of multiple, distinctly different, alternative COP models that might apply to different kinds of police departments. Beyond its implicit importance to the community-oriented policing paradigm, the universality assumption has even wider relevance as an implicit cornerstone of the social science research carried out on police organizations and operation over the past several decades. This research has been carried out almost exclusively on larger urban municipal police agencies located in major metropolitan areas, although these actually constitute only a small subset of the police agencies in the U.S. Thus, the available body of research-based knowledge about police is based heavily on selective, nonrandom, convenience (or purposive) samples of city police departments located in a small number of metropolitan areas of the U.S., even though the research findings are interpreted as valid estimates of general patterns of policing across the U.S.--e.g., the landmark studies by J.Q. Wilson (1968), by Langworthy (1986), or more recently by Maguire (2003). An assumption clearly made by this research strategy is that the body of findings from this subset of agencies (which are more convenient and/or more interesting to study) will also apply to all the other kinds of police organizations operating in the U.S. How reasonable and valid is this latter presumption? To date, little systematic empirical research has been available to confirm the assumption's validity, but some recent studies of rural policing have suggested reasons to be doubtful (Weisheit et al, 1994, 1999). Thus, the reasonableness of this third assumption lingers almost of sight as an open and more problematic issue for policing research in general and for research on community-oriented policing in particular.

Prior Scholarship and Research on the Organization of Police Agencies.

Numerous scholars (e.g., Klinger, 2004; Maguire, 2003; Maguire and King, 2004) have noted that the large majority of research on policing involves micro-social analyses of individual officer attitudes, behaviors, and interactions, rather than macro-social studies of organizational structures and patterns. Nonetheless, a substantial and impressive amount of research on the social organization of policing has accumulated over the past three decades, much of it focused on the empirical correlations between police practices, organizational forms, and community contexts. Periodic, systematic, and thoughtful reviews of this research have been provided by

Sherman (1980), by Riksheim and Chermak (1993), by Maguire and Uchida (2000), and by Maguire (2003) that systematically summarize and synthesize the collected empirical knowledge about police organizations. The consensus of these reviews (which span at least three decades) is that despite the considerable and growing number of research efforts, we still lack a very systematic body of empirically documented knowledge about how police organizations adapt and operate within their environments. In the aggregate, the numerous empirical studies done on police organizations provide a rather fragmented, inconsistent body of findings from which definite inferences are difficult; indeed contradictory conclusions might be drawn. Thus, it turns out that much of the available conventional wisdom for evaluating policing practices and developing new strategies may be intuitive and logically appealing, but it is not very well supported in prior policing research. It remains mostly a rudimentary and intuitive body of ideas for thinking about police administrative reform; but it does not constitute a well-grounded, empirically documented technology for planning organizational reforms or for assessing the theoretical viability of the community-oriented policing paradigm.

The large majority of the available organization studies in policing seem to have focused on the structural premise, although as just noted, these collectively yield only weak or inconsistent findings. J.Q. Wilson's pioneering work on *Varieties of Police Behavior* (1968) effectively introduced the idea that organizational structures are closely correlated with policing styles, practices, and outcomes, along with the notion that these correlations could be systematically tested in empirical data. This work served to define organizational thinking about police for more than a decade, but never generated a systematic body of research efforts or garnered strong empirical support. Langworthy's (1986) application of formal organizational theory to urban police departments provided a much more systematic analysis of organizational patterns in police departments, using a moderately large sample of 200 metropolitan police departments in the U.S. and a formal model of organizational development to guide hypothesis-testing. This study also provided the paradigm (and inspiration) for numerous efforts at more quantitative studies of police organizations that followed in next decade and a half.

While numerous studies have been published focusing on the correlations between organizational structures and the ways policing is carried out, the body of research available to test the structural premise has not been very informative or conclusive. As Klinger (2004) observes, "the body of knowledge about how organizational and environmental forces shape American law enforcement practices are not nearly as developed as one might have expected." The research shows that size of organization is strong correlate of most dependent variables, but beyond this singular finding, few definite conclusions can be drawn from the findings. The studies of police organizational processes and patterns have been hindered by several basic limitations, the most serious of which has been the studies' reliance on geographically limited, nonrepresentative convenience samples of police agencies or, in a few studies, case studies of only a few selected communities. An additional weakness has been a the restricted content of the organizational variables studied. Very few studies have examined a full range of organizational variables within a comparative framework. Much of the inconsistency in published results noted above is likely due to differences in the samples and the particular variables being analyzed. While recent studies of police organizations adopting community-oriented policing have begun utilizing more broadly representative national samples of agencies (e.g., Maguire and Mastrofski,

2000; Maguire, Shin, Zhao, and Hassell, 2003; Roth, Roehl, and Johnson, 2004), these remain restricted in the range of organizational variables included in the analyses and correspondingly limited in their conclusions about structural patterns.

Far less scholarly attention has focused on directly testing the contextual premise, although a number of studies have reported strong correlations of organizational variables with the community's population size. Beyond this almost automatic inclusion of population size (and occasionally, region), few environmental or contextual variables have been systematically considered in the police organization research. This omission is surprising in light of several social science developments in the past several decades--one being pervasive influence of "open systems theory" as a widely adopted theoretical perspective, a second being the proliferation of "contingency theory" as a dominant framework for analyzing organizational change, and a third being the emergence of "community" (and communitarian ideology) as a potent contemporary political theme. While police practitioners, policy makers, and scholarly researchers seem to agree that effective policing must be responsive to community conditions and environmental contingencies, very little research has actually addressed the nature and strength of these contingent effects. Much of this neglect may derive from the deceptive difficulty of the contextuality issue. As Maguire (2003: 31) puts it:

> "The concept of organizational environment is the great snafu of organization science. The discovery of its importance was one of the most important achievements in the study of organizations, but conquering its overall complexity remains one of the greatest challenges."

Thus, research may be missing, because valid tests of the assumption are difficult to carry out, or because the results are not very reassuring. For example, in the several studies where the impact of community contextual variables has been systematically estimated (e.g., Maguire, 1997a, 2003; Smith, 1986,1987), only weak contextual effects are reported (except for the ubiquitous correlations with community size). In each of these studies, community characteristics seem to account for very little of the variance in police structural features and service behavior across agencies, which suggests disconfirmation of this important assumption. In addition, as already noted for research on the structural premise, the samples used in these studies were limited, certainly not representative of all (or even most) American communities or police agencies, which further limits the conclusions that can be drawn.

By comparison with the structural and contextual assumptions, virtually no empirical research has seriously addressed the universality assumption. This premise posits basically that all police agencies (in whatever size or location they may be found) represent merely variations on a universally common organizational model--as embodied in the modern urban municipal police department. Large metropolitan police departments located in major cities will represent this model very directly and clearly, while smaller police departments in non-metropolitan settings, non-municipal policing agencies (e.g., county, state, or federal), or alternative policing organizations (e.g., park police, transit police, campus police) will embody the same model but in weaker, less well developed or defined form. In popular terms, the police department in Mayberry is just a smaller, watered down version of the real thing--the urban police department. The pervasive reliance in policing research on local convenience samples of larger metropolitan agencies clearly rests on this assumption; and it makes good methodological sense if the

assumption is correct, since larger urban police departments will display larger and more interesting variations in the key variables (e.g., Maguire, 2003). And yet there is little empirical evidence to support this assumption and some good reasons to be skeptical. Some recent studies of rural and small-town policing--summarized in Weisheit, Falcone, and Wells (1999)--have suggested that policing in smaller, non-urban settings may be different in fundamental ways from the traditional urban municipal policing model. Moreover, studies of small-town and nonmetropolitan police departments often show equal or wider variations on key community and organizational variables, rather than restricted variances. Indeed, studies of smaller police departments (with less than 100 sworn officers) suggest that because organizational size has a nonlinear relationship to most organizational properties, the most meaningful variations in organizational variables will occur among smaller-- rather than larger-- departments and the observed patterns of correlation may be different in smaller agencies (e.g., Crank and Wells, 1991). However, these contrary findings are merely suggestive evidence of limitations in the universality premise, being too few and scattered to permit any definite inferences. To date, no published research can be cited that provides a systematic assessment of the validity of the universality premise, despite the centrality of this assumption both for in the policing research and policy development.

Overall, our survey of the available social science research reveals that empirical documentation for the organizational premises underlying contemporary policy development in policing is disappointingly thin. In the areas of greatest research attention (i.e., on the structural premise) the evidence remains fragmentary and inconclusive; while in other areas of policing research (i.e., on the universality premise) it is almost nonexistent. The recognition of these deficiencies defines the orientational context for this study, where our goal is to use the most comprehensive data available on policing agencies and their communities to carry out a systematic empirical assessment of fundamental assumptions upon which policing policy and research are based.

We note that any serious efforts to test basic premises about policed organizational patterns must provide for two fundamental requirements. The first is an explicit, general conceptual framework that spells out in researchable hypotheses how community environments, police organizational structures, and police operational practices are interrelated and that provides a coherent model for connecting these propositions into a inclusive, comprehensive picture. The second is a large, broadly representative data set that includes measurement of all the relevant substantive content domains identified in the conceptual framework-- community context, organizational structures, and operational practices--and that also covers the full diversity of police agency types, sizes, and locations found in the U.S. The lack of research on basic assumptions reflects the fact that, to date, neither of these has been available to policing researchers. In this study, we have attempted to provide a solid reference point for further efforts to build a solid data-based foundation for policing policy development and evaluation.

The Conceptual Framework

Despite the fact that these issues have been widely discussed in the growing body of empirical research and policy analyses focused on community-oriented policing, no explicit and

comprehensive model has yet been developed to explain how police organizations fit into their community environments nor how contextual processes shape the operational content of what police agencies do. Surprisingly, as Klinger (2004: 124) notes, "police scholars have devoted hardly any effort to developing theories about how organizational and environmental properties might affect how the police operate as they do." This is not to say that policing research has been atheoretical, but rather that little development of explicit testable models of organizational processes in policing, especially of the community influences on police, has occurred. We note that some conceptually derived models have been offered to link police organizational structures and operations to community contexts, but these have been rather tentative and incomplete, especially in identifying which elements of community environment will have important impacts on police organizations. In general, the available theoretical accounts incorporate only some, but not all, of the potentially relevant variables, being especially incomplete in their coverage of community environmental variables--e.g., being mostly limited to two easily measured variables: community size and geographic region. These models provide only a loose discursive account of how variables are causally ordered and related, consisting mainly of bivariate predictions and correlations. And none of the available studies of community effects on police organizational patterns has been carried out on a sample of police departments representative of the various police agencies found throughout the United States. For unknown and incomprehensible reasons, efforts to develop more complete and explicit organizational models in policing have not been recognized or appreciated. The most fully explicated and throughly analyzed models of American police organizations are found mostly in unpublished scholarship-- i.e., in doctoral dissertations and a presentations at professional meetings (e.g., see Davenport, 1996; Maguire, 1997a; J.M. Wilson, 2001; Zhao, 1996)--and only the Maguire analysis was eventually published (Maguire, 2003).

In order to provide a useful conceptual framework to guide this analysis, a general "causal model" has been synthesizing ideas and hypotheses from the available literature on organizational dynamics and on the implementation of community-oriented policing. We emphasize that this is a synthetic framework developed by abduction (rather than pure induction or deduction) from previously offered accounts of police organizational patterns, relying on theoretical accounts provided by Crank (1990), Davenport (1996), Langworthy (1986), Maguire (1997a, 2003), Slovak (1986), J.M. Wilson (2001), and J.Q. Wilson (1968). By virtue of its synthetic construction, the model should look generally similar to a number of prior theoretical accounts but identical to none. This model is offered as an analytic guide rather than a formal theoretical system--i.e., a way to coherently frame the analysis in conceptual terms and to generate research hypotheses that are empirically estimable.

Graphically presented in Figure 1, the conceptual framework is composed of three major conceptual components: (1) community environmental factors, (2) organizational structural patterns, and (3) operational practices and outcomes.

Conceptual Groupings

Community Environment. Four dimensions or components of community context comprise this theoretical category: complexity, instability, resources, and demands. The complexity category includes issues such as, the degree of racial heterogeneity, inequality, conflict, and

competition . The instability variable involves, for example, the degree of transience within the community as measured by population changes, and percent of home ownership versus rental housing. The resources variable is composed of such factors as average income, percent of community above the poverty level, and educational achievement levels . Lastly, the demand variable includes the amount of crime in the community, the level of urbanization, and the volume of community calls for police service.

Organizational Structure. Three organizational constructs or components complete this theoretical block: complexity, control, and concentration. The complexity component has two dimensions, i.e., the vertical and functional dimensions. The vertical dimension speaks to the issue of the height of the organization, as measured in terms of the distance between the salary of entry-level patrol officers and the CEO of the police organization (chief of police, superintendent, or sheriff). Also included in this dimension is the percent of sworn officers responding to calls for service, as a measure of vertical distribution or concentration. The functional complexity dimensions includes the number of specialized task units within the organization, e.g., gang or SWAT units, and the number of different policing tasks actually performed. The control component involves the issues of standardization (for example, standardized entrance examinations, selection criteria for new recruits, universal employee training requirements, mandatory drug testing), codification (e.g., formal written elaboration of rules and procedures, formal mission statements and policy guides), and centralization (e.g., unionization and collective bargaining arrangements). The concentration component involves the relative volume of sworn police personnel available to provide service to the community. This has both an external component (number of police per community population) and an internal component (proportion of police personnel in assignments providing direct service to or contact with the community.

Operational Practices. This theoretical block refers to what police do and how they do it. That it, it deals with the types of policing activities in which the agency is engaged and the style of policing that dominates the organization, for example, traditional/professional model law enforcement-oriented policing activities or community-oriented policing activities. In the present study, our emphasis is on the adoption and implementation of community-oriented policing practices as a distinctive mode of policing.

Causal Linkages

Beyond showing the groups of variables being analyzed, Figure 1 also suggests the causal relationships implied in the first two premises being analyzed in this study. As depicted in the block diagram of Figure 1, the Structural premise is summarily represented by path **c** between the Organizational Structure and the Mode of Operation blocks of variables. The Contextual premise is primarily represented by path **a** between the Organizational Structure and Community Environment blocks, but secondarily by the additional path **b** between Mode of Operation and Community Environment blocks. The Universality premise is not directly represented by any specific path in the diagram, but rather by the consistency observed in the Structural and the Contextual paths across distinct subsamples of police agency types and community types.

Research Hypotheses/Questions

The analyses carried out in this study are intended to assess the empirical viability or reasonableness of the three premises noted in the introduction, which are labeled: structural, contextual, and universality. This entailed the following specific research questions which guide the data analysis.

The Structural Premise

- How strongly is the implementation of community-oriented policing by police agencies across the U.S. predicted by the organizational structures of agencies?
- Is adoption of COP closely correlated with distinctive organizational features or changes (i.e., flatter, more simplified, less formalized or bureaucratized structures) as the advocates of COP argue?

The Contextual Premise

- How strongly do community contextual characteristics determine or predict the form of the police agencies operating in those communities?
- How much does the adoption of COP seem to reflect local variations in social, economic, and ecological conditions of the communities in which the agencies are located?

The Universality Premise

- Does a single general organizational model universally describe the inter-relations among community contexts, police organizational structures, and implementations of community-oriented policing procedures?
- Do the causal dynamics linking community contexts, organizational structures, and COP implementations differ significantly contingent on the kinds of police agencies and community environments being considered (thus nullifying the possibility of a single universal model)? In specific terms, do the following contrasting categories show the same patterns of community-organization inter-relations: county vs. municipal agencies; metropolitan vs. non-metropolitan contexts; small vs. large organizations; geographic regions of the U.S. (South/Northeast/Midwest/West)?

Research Methods

The Data

The analysis proposed here clearly requires a substantial data set to be informative. The data need, first of all, to be nationally inclusive and widely representative--including the full range of local agencies that provide police coverage to communities across the U.S., from the smallest to the largest departments and operating at both county and municipal (or township) level. In addition, the data set needs to be substantively or theoretically inclusive--i.e., including a comprehensive assortment of theoretically relevant variables to reflect the attributes of the communities or environments in which police agencies operate, to reflect the full range of

organizational characteristics and structural patterns of police departments, and to index police agencies' procedural implementations of various elements of a community-oriented policing strategy. These represent a demanding set of data requirements, which to date have not been achievable, either in the previously studied studies on policing or in the available data sets currently accessible to policing researchers. Previously and currently available data on police organizations address either one or the other of these two requirements (large nationally representative sample and theoretically comprehensive measurement of variables), but not both in the same data set. The data used in most policing research involves geographically limited, unrepresentative convenience samples of a limited range of police organizations, usually larger municipal departments located in major metropolitan areas; for example, the fairly detailed analysis of organizational patterns in police departments by Davenport, 1996; Maguire (1997a, 2003); Slovak (1978), J.M. Wilson (2002, 2003), and Zhao (1996), which are theoretically comprehensive but utilize limited, atypical samples of police agencies. In contrast, several recent surveys of policing practices have used national samples of police agencies to provide more widely representative findings (e.g., LEMAS, 1997, 1999, 2000; Maguire, 1997; Maguire, Kuhns, Uchida, and Cox, 1997; Maguire et al, 2003; Roth et al., 2004; Worrall and Zhao, 2003). However, these studies have been restricted in their substantive content, containing somewhat abbreviated information on organizational variables and little or no information on community contextual factors (beyond population size and region). Thus, they cannot provide systematic analyses of how such factors may be linked to variations in community policing.

Since nationally collected information on communities (at various governmental levels) and on police agencies (including their organizational and operational characteristics) are periodically collected by federal agencies, principally the Bureau of the Census and the Bureau of Justice Statistics, the requisite data would seem to be readily available. However, while publically available, they are accessible separately in different data files collected and maintained by different government agencies. The critical task of jointly analyzing these various kinds of information would entail a data synthesis--i.e., creation of a common data set suitable to the present analysis that merges information from a variety of different sources. In combination, this would include theoretically relevant information on community contextual characteristics, on police organizational structures, and on implementation of community-oriented policing practices. This was the strategy adopted in the present study--a merged data set constructed by combining data from the Bureau of the Census, the Bureau of Justice Statistics, as well as additional crime data from the Federal Bureau of Investigation and demographic data on counties from the Department of Agriculture.

The idea of merging data from separate data sources is not unique or new to this project. Several prior studies of police organizational patterns have used this strategy--e.g., most notably the data set of large police organizations created by Maguire (1997a; 2003), which was also used subsequently by J.M. Wilson (2001, 2003). However, these prior data sets were more limited in sampling scope, involving smaller samples of at most a few hundred cases where the merging of information from outside sources can be done mechanically (i.e., coded or edited by hand). This strategy is impractical for constructing broadly representative data sets with national-scope samples involving several thousand cases, where computer-matching of cases across data files is necessary. This latter strategy seems to be used quite effectively by Maguire (1997b; also

Maguire, Shin, Zhao, and Hassell, 2003). However, in these latter studies only relatively similar policing data files are combined; no community context data from outside data sources are included (which adds another level of complexity, as wells as theoretical information, to the data merger task).

The major limitation on merging data from separate and very different data sources is the inability to match data collected by different groups for very different purposes coded by different data-coding systems--especially case-ID codes that uniquely identify each element in the data set. Until recently, the problem of different data-ID codes has been an unsurmountable barrier to merging policing data with social, governmental, and demographic data on communities. Policing data files (such as Uniform Crime Reporting data) typically identify local police organizations by ORI (Originating Reporting Agency Identification) codes developed by the Federal Bureau of Investigation to uniquely identify police agencies for purposes of tabulating crime data and police employee data in the Uniform Crime Reports. Community-related data on local populations and geographic units in the U.S. Census (and other demographic) data sets are invariably identified by FIPS (Federal Information Processing Standards) codes adopted by the U.S. Department of Commerce (through the National Institute of Standards and Technology). These are substantially different from the ORI codes even though they may, in many cases, apply to common communities or jurisdictions. The local governments who provide the jurisdictional authority to police agencies are commonly identified by GOVID (Government Division) codes developed by the Census Bureau as part of its Governments Integrated directory; these may be substantially different in reference (as well as specific codes) from either ORI or FIPS codes since they refer to governmental authorizing units, rather than to specific organizations, populations, or geographic areas. Several different police agencies may be authorized by the same governmental unit, albeit with distinctive jurisdictional assignments. While the ORI codes are used by the FBI to identify police agencies (for crime-reporting and employee-reporting purposes), the GOVID codes are used as agency identifiers in the Law Enforcement Management and Administration Statistics (LEMAS) surveys conducted by the Bureau of Justice Statistics. To complicate things even more, the Census Survey of Local Law Enforcement Agencies (also conducted by the Bureau of Justice Statistics) uses an alternative (longer) version of the GOVID codes that are not directly comparable with shorter GOVID codes used by the LEMAS surveys. The coding protocols used in these different data identification systems are divergent from each other not only in their code values and assignment syntax, but also in what things they specifically identify (e.g., agency vs. government vs. political territory vs. census group). Upon initial consideration, they would seem to be incommensurable data systems, resistant to any systematic attempt to establish equivalences between them; and until recently they were.

The solution to such a data collection "Tower of Babel" was provided by the Bureau of Justice Statistics in early 2000 with the construction and release of the Law Enforcement Agency Identifiers Crosswalk File (Bureau of Justice Statistics, 2000; Lindgren and Zawitz, 2001). This special data set was created to link together in a single file: ORI identifier codes for police agencies, FIPS codes for the city and county in which the agency is located, and GOVID codes for the governmental units which authorize the agency. With the LEAI Crosswalk file as a common reference source, it becomes operationally possible to link together two or more

separate data files containing different kinds of data (but on essentially the same geographic or political units) which have been stored with different data record identification codes. This is the strategy utilized in this project, making possible the construction of a rather unique and comprehensive data set on community patterns in policing organizations and practices in agencies all across the U.S., an operation not possible prior to the release of the LEAIC Crosswalk file.

Constructing the Merged Data File

In order to obtain the data set used in the analysis for this project, data f rom a total of eight separate data sources (which were stored in 23 separate data files) were merged to form the final working combined file. These included:

(1) the Law Enforcement Management and Administration Statistics surveys, 1997 and 1999 (Bureau of Justice Statistics, 1999, 2001);
(2) the Census Survey of Law Enforcement Agencies, 1996 (BJS, 1998);
(3) the Law Enforcement Agency Identifiers Crosswalk File, 1996 (BJS, 2000);
(4) Uniform Crime Reporting Data for 1996, 1997, 1998 and 1999 (using separate agency-level and county-level files for each year) (FBI, 2000a, 2000b, 2001a, 2001b);
(5) the City-County Data Book, 1994 (using separate data bases for Counties and for Places) (U.S. Dept. of Commerce, 1995);
(6) Census Bureau Gazeteer files for 1990 and 2000 (U.S. Census Bureau, 1990, 2000);
(7) Rural-Urban Continuum codes for Counties (ERS/USDA), 1995 (Economic Research Service, 1995);
(8) Urban Influence codes for Counties (ERS/USDA), 1993 (Economic Research Service, 1993).

A schematic diagram of the data file creation process is provided in Figure 2 that maps the steps by which the separate data sources were merged to create the final combine data file, and also indicates which ID codes were used to match files at each step.

An important procedural note is that the data merging sequence depicted in the Figure 2 diagram was actually carried out twice in two parallel but separate operations. This was done to construct two separate but structurally equivalent files with identical sets of variables--one for municipal agencies and their jurisdictions and the other for county-level agencies and their jurisdictions. This separation was necessary because the Census Bureau data for counties and for municipalities (as census-recognized urban "places") are stored in separate and different data bases and referenced with different (and unmatched) sets of FIPS identification codes. Using FIPS codes, each county is identified by a 2-digit numeric state code plus a 3-digit numeric county code, while each municipality is identified by a 2-digit numeric state code plus a 5-digit numeric "place" code; a single place code may be associated with more than one county code. In addition, the UCR crime rate data for county-level and local/municipal agencies are stored in different data files containing different file structures. Thus, data files for county-level and municipal agencies had to be separately constructed from somewhat different sources yet yielding data files with identical formats and variable structures. The next-to-last step in the data merge process was to combine the municipal and county files into a single common data file for

merging with the county-level data on rural-versus-urban locations (using county FIPS codes).

The base data file upon which the combined data file was constructed in this project was the 1999 Law Enforcement Management and Administrative Statistics (LEMAS) survey produced by the Bureau of Justice Statistics; the 1999 survey was the most recent LEMAS file available at the time the data file was developed. The LEMAS survey was selected as the most complete and up-to-date national policing data set which contains reasonably detailed questions about organizational structures, technologies, and policies, along with a lengthy checklist of items regarding Community-Oriented Policing practices. It admittedly does not cover all possible aspects of police organizational structures (including all the elements indicated in our conceptual framework), but it is more complete than any other publicly accessible data set. It provides a large nationally representative (although disproportionately sampled in favor of large agencies) survey of over 3,000 public police agencies of all types and sizes in all 50 states, with a very high response rate from the sampled agencies (over 98%). LEMAS survey have been administered periodically (approximately every three years) since 1987. However, prior to 1997, useful information was collected only from large, metropolitan police departments (i.e., having at least 100 full-time sworn officers). Only an abbreviated survey was taken of smaller agencies collecting only cursory data on general characteristics of a much smaller sample of such agencies (even though the smaller agencies constituted over 95% of police departments operating in the U.S.). However, beginning in 1997 LEMAS survey sampling and administration were broadened to include fuller coverage of all sizes of police agencies at all levels of local government, although still not in equal proportions--larger agencies are still over-represented in the survey. From the full 1999 LEMAS data file we extracted a working data file containing all the available items in that survey relevant to the conceptual framework shown in Figure 1; this was supplemented by some additional items extracted from the 1997 LEMAS survey (specifically items dealing with training and selection procedures for sworn employees, unionization of employees, and salary levels) that were not included in the 1999 questionnaire.

The two LEMAS data files were merged using using their16-digit Agency ID codes (from the Bureau of Census Governments Integrated Directory) by which the LEMAS survey uniquely identifies each police agency in the sample. However, because the LEAIC "Crosswalk" file uses a 9-digit Government ID code instead, the 16-digit Agency ID codes in the combined LEMAS data file were converted to Government ID codes by truncation. That is, the right-most 7 digits of the Agency ID code (used in the Governments Integrated Directory to uniquely identify each agency or department within the parent governmental unit) were stripped off to transform them into 9-digit Government ID codes (i.e., the left-most 9 digits of the Agency ID code), making them ID-compatible with the Crosswalk file for the next step in the merging process. This same conversion was also used with the Directory of Law Enforcement Agencies 1996 data file, which also originally contained the 16-digit Agency ID codes.

The 1996 Directory of Law Enforcement Agencies (DLEA) and the 1996 Law Enforcement Agency Identifiers (LEAIC) Crosswalk data files were used as our "matchup" files in the merging process for policing and crime data, since they contained information on almost every policing agencies in the United States and included multiple forms of ID codes on each. The crime data from the Uniform Crime Reporting files for 1998 and 1999 were merged using the the agencies' ORI codes and these were then matched with agency-specific data extracted from the

Directory of Law Enforcement Agencies 1996 file (also by using the agency ORI code). The UCR crime data files used were obtained from the National Archive of Criminal Justice Data maintained at the Inter-University Consortium for Political and Social Research, to which they had been supplied by the FBI. The crime data were extracted separately for municipal and county-level jurisdictions, since these are stored in separate data archives (with different file structures and formats). Local agency-level crime data were matched to a subpopulation of municipal police departments extracted from the Directory of Law Enforcement Agencies census file, while county-level crime data were matched to a subpopulation of county police agencies extracted from the DLEA file. We note that this particular step in the data merging process introduced a considerable (and unavoidable) amount of missing data into our data set, since UCR crime data are notoriously incomplete due to incomplete reporting by many police agencies and non-standard reporting practices in several states (including our home state of Illinois). The merged Crime+DLEA data sets (municipal and county separated) were then merged with the corresponding subpopulations (municipal and county separated) from the LEAI Crosswalk data file (this time using the 9-digit Government ID codes), which in turn was merged with the previously merged LEMAS 1997+1999 data files (municipal and county separated). Altogether, this produced the merged "All Police+Crime Data" file shown at the top-right of Figure 2 (actually two files, one municipal-level and one county-level).

A separate data merging operation involved extracting community contextual variables from the Census Bureau data sets (City-County Data Book 1994, plus Census Gazeteer 1990 and 2000) and from Economic Research Services (in the U.S. Department of Agriculture) data sources. For the Census Bureau data, two separate community characteristics data files (separate but identically structured files--one for municipalities and one for counties) were constructed by extracting equivalent items from the "place" and "county" data base files in the 1994 City-County Data Book archive (obtained on CD-ROM from the U.S. Department of Commerce). The demographic data extracted from the City-County Data Book were then supplemented by some additional (and slightly more complete) population and geographic information from the 1990 and 2000 U.S. Census Bureau Gazeteer files-- with separate files for place and county statistics; these were obtained from Census Bureau internet site). The two separate Census Burea-derived merged files ("places/municipalities" and "counties") were then merged with the respective "Police+Crime Data" files for the same units using the appropriate FIPS codes yielding two combined "Crime+Police+Community data" files. All agencies in the county-level merged file were assigned a Place FIPS code of "99999" (municipal agencies had been assigned a relevant county FIPS code in the LEAI Crosswalk file), and the cases in the two separate-parallel "Crime+Police+Community data" files were combined into one single overall merged file.

The final step of the data merging process involved adding in the combined ERS data file containing information about the rural-urban and metropolitan-nonmetropolitan qualities of the counties in which the agencies were located. This was done by matching files on the County FIPS code assigned to each agency in the LEAI Crosswalk file with the county-level codes in the ERS file. This produced a complete merged data set containing variables on community environment (including crime rate), police organizational structure, and community-oriented policing procedures for each agency. All the editing and merging operations resulted in a combined final sample of 3005 local general jurisdiction policing agencies (2034 municipal-level

and 971 county level) for which we had matching community-demographic data (from the City-County Data Book) on 2449 and valid crime rate data (from the UCR) on 2242.

While this data set is national in the scope of its coverage, we emphasize that this data set does not constitute a random sample of all police departments in the U.S. First, the LEMAS survey on which the merged data set was constructed uses a variable, disproportionate sampling procedure that includes all large police departments (larger than 100 full-time sworn officers) and then undersamples smaller departments. The sampling fraction for agencies of less than 100 officers is inversely proportional to agency size and directly proportional to their frequency in the population of U.S. police agencies. As a result, the smallest and most frequent police agencies (e.g., less than 10 officers) will be least likely to be included in the sample, resulting in a biased sample by agency size. A second consideration is the substantial amount of missing data in the final merged data set which undercuts the use of probability sampling is undercut which introduces some non-random selection bias into the sample. For these reasons, our analysis will avoid over-reliance on significance levels as interpretive criteria; and generally we did not rely on weighted estimation procedures (using the original sampling weights). In acknowledging these shortcomings of the data, we strongly emphasize that it is a very substantial data set, one that is broader in coverage and content than anything yet used in police organization research. At the same time, we emphasize that it is not presented here as ideal or as providing final, conclusive estimates.

Measurement of Variables

The variables used in this analysis are organized by the three conceptual categories outlined earlier in our analytical/theoretical framework: (1) Community Environmental factors; (2) Police Organizational Structure; and (3) Operational Implementation of Community-Oriented Policing. All of the variables in the first category of Community-Environmental Factors were extracted from the City-County Data Book, the Census Gazeteer, the ERS Rural-Urban classifications, and the Uniform Crime Reports. Variables reflecting the latter two categories--Police Organizational structure and COP Implementation-- came from the 1997 and 1999 LEMAS files.

Specific items selected to provide indicators of the theoretical dimensions of <u>community environment</u> (as suggested in Figure 1) represented the dimensions of: environmental complexity, environmental instability, resource availability, and input demand (magnitude of demand for police services). Note that the political context dimension included in Figure 1 is not represented in these data since no direct measures of governmental structure or political culture were available from our data sources (attempts to incorporate this information from the International City/County Managers Association yearbook were foiled by the absence of common identifier codes in this data file). Specific variables selected to measure <u>environmental complexity</u> focused mainly on indicators of *racial/ethnic heterogeneity* and of *urbanization*. The former included: percent black; percent hispanic; and a Racial Heterogeneity or racial diversity index computed on the distribution of racial populations of each jurisdiction (using the heterogeneity index popularized by Blau, 1977). Indicators of the urbanization category included two variables: population density (computed as persons per square mile) and Urban Influence codes (provided for each county for the Economic Research Service, U.S. Department of Agriculture). Variables selected to measure <u>environmental instability</u> included measures of both

population instability--i.e., percent population change in the community between 1990 and 2000-- and of housing instability--i.e., percent of housing in the community that is renter- (rather than owner-) occupied and percent of households that are single-person households (more likely to be short-term, transient housing). Measures of resource availability represented mainly the economic well-being and social resource level of the community, including: median personal income in the population, percent of families living above poverty level, the employment rate, and percent of the adult population with at least a high school education. The input demand dimension of community environment was measured by the index crime rate for the community (the average annual Index crime rate for 1998 and 1999 based on UCR statistics for "offenses known to police"). The latter measure of crime rate was the only community context variable not obtained from Census Bureau or ERS data.

Variables selected or computed from the LEMAS files to represent organizational structure included structural indicators of: functional differentiation, vertical differentiation, formalization, specialization, and organizational concentration. Functional differentiation was operationalized by two indicators: the total number of different functions for which the agency reported primary responsibility (a measure of functional diversity), and the number of separate physical facilities or sites operated by the agency separate from headquarters (a measure of spatial differentiation). Vertical differentiation (or organizational height) was operationalized by three indicators: salary differential between top and entry level ranks in the rank (as a percent of the entry level salary), administrative overhead (percent of all sworn personnel who are in administrative positions), and percent of sworn personnel responsible for responding to calls for service. Formalization was operationalized as including a measure of codification (total number of policing concerns explicitly covered by written policies and procedures), standardization (extensiveness of formal department requirements governing selection/hiring criteria, training, and testing of employees), unionization (degree of unionization in agency and extent of collective bargaining). Organizational concentration was conceptualized in both external and internal terms, where external concentration, as reflective of the concentration of police in the community, was indicated by the density of police officers per community population (number of full-time sworn officers per 1000 persons), and internal concentration, reflective of the concentration of agency personnel in the primary tasks of policing, was measured by the percent of all full-time personnel assigned to field (law enforcement) operations (rather than in administrative or support operations).

Our category of Community-Oriented Policing Mode of Operation was measured by six indicators, all of which came from the 1999 LEMAS survey. These included: the percent of full-time sworn officers assigned to community policing positions (Questionnaire Section III, Question 4); whether the agency had a formal written plan for doing Community-Oriented Policing (Section IV, Question 1); the extent and amount of training in community-oriented policing required for agency employees (Section IV, Question 2); the extent to which agencies systematically implemented community-oriented or problem solving policing practices (Section IV, Question 3); the extent of regularly scheduled meeting with community groups and constituencies (Section IV, Question 4; and the use of community surveys for planning, formulating policy, and evaluating performance (Section IV, Question 5). Ultimately, following

a confirmatory factor analyses, all six indicators were all combined into a single Total COP Implementation index.

Data Analysis Procedures

Data analysis was carried in three steps, with the first stage involving dimensional analysis of the numerous variables being used in the analysis to look for parsimonious clusters of variables and to assess the suggested dimensionality of our conceptual framework. The aims here were both conceptual (i.e., to explore the dimensionality of the indicators being considered) and methodological (i.e., to select a parsimonious set of variables for use in the subsequent multivariate analyses). The second stage in the analysis entailed multiple regression analyses to estimate the empirical viability of the first two theoretical premises framing this study: the structural premise (that police activities will be substantially shaped by their organizational structures), and the contextual premise (that the content of what police agencies do and how they are set up will be substantially shaped by the environmental context in which they operate). Estimation of the first premise involved multiple regression of the community-oriented policing indicators on the police organizational factors, while estimation of the second premise involved regression of police organizational structure variables on the community context variables to assess environmental impacts on policing organization. In the third stage of the analysis, the universality premise is examined by carrying out out separate regression analyses in different subsamples of the total data set, then evaluating how different the regression patterns across different categories of policing agencies or their communities.

Results

Sample characteristics

Summary statistics are presented in Table 1 to describe the sample characteristics of the merged data file. Reference percentages are provided (in brackets on the right side of each sub-table) to indicate how the sample's distribution of agency and community characteristics compare with the percentages of those characteristics according to the 1996 Census Survey of Law Enforcement Agencies (Reaves and Goldberg, 2000). These indicate, that while the coverage of the data set is comprehensive, the sample does indeed under-sample municipal police departments in smaller communities and non-metropolitan areas, particularly in the West and Midwest, while it heavily over-samples the largest metropolitan departments and county agencies. These "non-equivalences" are due to the sampling design of the LEMAS survey, which uses disproportionate probability sampling based on agency size (as noted above), as well as to possible nonrandom biases in missing cases (which seem more likely to involve the smaller agencies and communities).

Dimensional Analyses and Index Construction

The analysis began with separate factor analyses of each of the sets of items measuring (a) community context, (b) police organizational structure, and (c) implementation of Community-Oriented Policing practices, respectively. The initial analytic procedures used were confirmatory

factor analysis (CFA) using LISREL 8.3 statistical software. However, the confirmatory results were mixed, only consistent and informative for the community-oriented policing items. The CFA estimations did clearly confirm the common unidimensional (single-factor) measurement of COP practices reported in Maguire and Mastrofski (2000), but they also revealed a rather poor fit to the data for our postulated structures of community context dimensions and organizational structure dimensions (as suggested in Figure 1). Indeed, the fit was poor enough that additional tweaking and adjustment of the factor structures (using LISREL modification indices) were tantamount to an exploratory analysis with a confirmatory factor analysis facade. In the interests of consistency and face validity, exploratory factor analysis procedures (i.e., principal factors extraction with varimax orthogonal rotation as familiarly accomplished in SPSS 11.0) were used subsequently for the dimensional analyses of community context and organizational structure variables.

The factor analyses were carried out with both data reduction and content identification motives. That is, beyond identifying the main content clusters in our data (for comparison with other studies of police organizations), we also had a more pragmatic aim of reducing a larger number of variables down to a smaller, more manageable set in index variables that would have greater reliability than sets of individual variables, as well as less multi-colinearity concerns for multiple regression estimates. Three judgmental criteria framed our factor analyses and our judgment of appropriate solutions: parsimony (in reducing the number of variables used in multivariate estimations), consistency (in identifying content dimensions or clusters that were stable across different subsamples or stratifications within the data set), and intelligibility (in identifying clusters that seemed to correspond to meaningful dimensions or areas of content).

Exploratory factor analyses were first done on the entire sample (for each of the three groups of variables) to see if a general dimensional structure was identifiable in the data set. Then, factor analyses were carried out separately within sub-sample dichotomies--i.e., county vs. municipal police agencies; metropolitan vs. non-metropolitan communities; large (100 or more full-time sworn officers) versus small organizations--to look for factorial structures that were robust or consistent across different portions of the total national sample. Not surprisingly, the exploratory factor analysis of the community-oriented policing variables clearly showed the same single-factor solution as the confirmatory factor analysis. So our exploratory factor analysis focused mainly on the community context variables and on the organizational structure variables; the results for these are shown in Table 2.

According to the results in Table 2, several patterns are evident (and were used subsequently in computing several multi-item indexes for use in the regression analyses). The analysis of community context variables reported in Part (a) of the table shows four factors representing: (1) economic resources (or lack of); (2) racial disparity (percent minority); (3) urbanism; and (4) population turnover/instability. These dimension correspond moderately well, although not completely, to the content dimensions suggested in our conceptual framework. The economic resources, urbanism, and racial heterogeneity items factored as predicted in our initial conceptual framework. However, several community context items did not. Percent of renter-occupied housing did not load as expected on the population stability factor, but rather consistently loaded with the urbanism items. Thus it was added to the multi-item Urbanism index. The percent of single-person households did not follow any consistent factor pattern and

correlated negligibly with other relevant variables; so it was dropped from the analysis. Percent of Hispanic population also showed inconsistent factor patterns across sub-samples, suggesting that its social meaning and causal relevance varies considerable across community contexts. But because it correlated significantly with other relevant variables in the analysis, percent Hispanic was left in the analysis as a separate single-item indicator. Similarly, annual crime rate was also included as a single-item indicator of community demand for police services. These factor analysis results were used to compute four community context indexes corresponding to each of the four factors in the table, using the items with highest factor loadings (shown in bold) for each index.

The factor analyses of police organizational structure variables revealed a more complex and ambiguous structure than predicted in our conceptual framework. The results across subsamples showed either a three-factor or a four-factor solution depending on the particular subsample used; however, the three-factor pattern was the most general, consistent, and interpretable, and is displayed in Part (b) of Table 1. In accepting this factor solution, we note that three items showed rather inconsistent patterns of factor loadings across sub-samples-- i.e., Administrative Overhead (percent of full-time employees in administrative positions), Task Scope (number of separate tasks for which agency reported primary responsibility), and Number of Facilities (number of separate district stations or substations)-- as well as a fairly uninterpretable pattern of loadings in the total sample. Judging the empirical meaning of these three items to be rather ambiguous in this data set, we dropped these items from the analysis. However, a fourth item that also showed inconsistent factor loadings across subsamples-- unionization (formed by combining the union membership and collective bargaining items)-- nonetheless showed substantial correlations with other relevant variables, and was retained in the analysis as a separate index. Thus, three factor-based indexes of organizational structure were computed from the EFA results: (1) Formalization (computerization of tasks; codification of procedures in formal rules; and standardization of selection, testing, and training) ; (2) Organizational Concentration (extent to which sworn agency personnel are concentrated in field operations [where services are directly delivered to the community]); and (3) Organizational height (top-to-bottom salary differential, and percent of personnel who respond to calls). Items that loaded highest on each of these three factors (loadings shown in bold) were used to compute the corresponding indexes. In forming these factor-based indexes, items were standardized before combining, so that each item contributed unit variance to the composite score; and the resultant composite indexes were also standardized to facilitate comparison of regression coefficients across variables.

We might note that the factors for the organizational structure variables do not show close correspondence to the content dimensions modeled by Jeremy M. Wilson's (2003) confirmatory factor analysis of large police departments (the most rigorous factor analysis of police organizations to date), or even an exact match to our own conceptual framework (which was based on prior theoretical speculations). However, the results in Table 1 do represent the most parsimonious, empirically consistent, and stable clusterings of the variables included in our merged data file. Since it is the most comprehensive and representative data set available, we have elected to follow the consistent findings in our data rather than impose our own *a priori* predictions or speculations.

Multivariate Estimation of a General Model

The second stage in the project utilized multiple regression analysis to empirically assess the plausibility of the first two underlying premises of the Community-Oriented Framework. The Structural premise predicts that implementation of COP will be associated with changes in the organizational structure of police departments to facilitate or support these new practices. That is, police agencies that have implemented COP more extensively should evince flatter, less formalized, less specialized, more flexible and responsive organizational structures. This premise is examined by regressing the Community-Oriented Policing index on the Organizational Structure variables, while also including Community Context variables to serve as control variables (to account for the possibility of spurious structural influences due to common environmental factors correlated with both organizational structures and practices). The contextual premise predicts that variations in police organizational structures and operations (e.g., implementations of COP) will be dependent on the community contexts in which they occur--that policing will look different in each community where it occurs, reflecting the unique resources and demands that each presents. The second premise is examined by regressing Organizational Structure variables on Community Context variables to see how much of the former's variation is correlated with or accounted for by contextual factors, as well as estimating the communities' influences on COP indexes.

We emphasize that the regressions in this section were carried out using the total sample of police agencies in the merged data file; the aim here is in estimating a general model of the community/organizational structure of community-oriented policing that applies to the U.S. as a whole. Because we wish both to compare effect estimates across variables in the same sample and to compare effect estimates of variables across (sub-)samples in the next stage of the analysis, we note that the regression tables are reporting unstandardized coefficients (to permit valid cross-sampled comparisons of coefficients) with standardized variables (to permit meaningful comparisons between variables in the same sample). All the variables in the analysis--both independent and dependent--were standardized on the total sample (transformed to unit variances in the full data set) prior to the regressions. This procedure allows meaningful comparisons of regression coefficients (as effect estimators) both across sub-samples and across variables.

The results of the regressions for the *structural premise* are displayed in Table 3, reporting the regression of the Community-Oriented Policing index on Organizational Structure indexes, and on both the Organizational Structure variables and the Community Context variables (with the latter included as environmental control variables). After noting that several of the components of the Community-Oriented Policing index seem to have stronger bivariate correlations with organizational and community variables than the total index, the regression analyses were repeated separately with each of these specific COP indicators as the dependent variable. The results of these additional regressions are provided in the far right sections of Table 3. The pattern of regression coefficients are very similar for the components and the total combined COP index, leading to similar conclusions regarding the effects of organizational structure on community-oriented policing. However, the R^2 values for the component variables separately are noticeably higher than for the combined index. This is a curious pattern, since the factor analysis clearly showed a common factor structure and the reliability of combined index

(along with its correlations with other variables) should be higher than for its components individually. The higher R^2 values for separate components may suggest some cautionary indications--single-factor analysis solution notwithstanding-- against combining COP indicators into a single global index.

According to the Community-Oriented Policing model, organizations who have implemented COP practices should be less hierarchical, less rigidly formalized, less centralized, less segmented, less legalistic, less bureaucratic. The patterns of regression coefficients in Table 3, for the Total COP index as well as for the two component indicators (Community Meetings and Problem-Solving Procedures), clearly do not evince the predicted pattern. The strongest coefficients in the table are for the effects of Formalization, but the direction of effects are opposite to that predicted by the COP model. The second strongest coefficients are for organization Height (vertical differentiation), but here also the effects are in the opposite direction from the predictions of Community-Oriented Policing. The other two dimensions of organizational structure (Unionization and Concentration) are not significantly correlated with or consistently predictive of implementation of Community-Oriented Policing. Thus, the results of this part of the regression analysis are surprisingly incongruent with widely held assumptions about the organizational design and structural implications of Community-Oriented Policing. Adding community context variables into the regression does not appreciably change these patterns of effects; this demonstrates that the organizational structure influences on COP practices, while unanticipated, are nonetheless direct and nonspurious.

The results for the *Contextual premise* are presented in Table 4. In these regressions organizational structure variables are regressed on community context variables to estimate the extent to which organizations may be shaped by the characteristics of their environments. Based on a traditional "professional bureaucracy" model of police organization, the general expectation is that the greater the complexity and uncertainty of environmental inputs (e.g., racial/ethnic diversity, urbanization, population density, population instability, environmental resources and demands), the greater will be the complexity and bureaucratization of the organization (e.g., more hierarchical, more segmented, more formalized and standardized, more organizationally buffered from the environment). Such predictions are somewhat at odds with the prescriptions of Community-Oriented Policing philosophy, which is based on a different model of a responsive, collaborative, problem-solving organization being more flexible, innovative, and proactive as the environment becomes more diverse and less predictable.

The results of the regressions shown in Table 3 are more consistent with the traditional bureaucratic model, although they show some variability across different dimensions of organizational structure. Two community context variables show pattens of effects on organizational indexes consistent with the bureaucratic model. Urbanization shows the most consistent and positive effects on all structural indexes, albeit measurably weaker in predicting organizational Height (vertical differentiation) than the other three structural dimensions. The strong regression coefficient for the organizational Concentration index indicates that communities with denser populations have denser police organizations. Overall, police agencies in more urbanized communities are formalized, hierarchical, and reactive. Economic Resources (the inverse of the usual economic hardship index) also show positive effects on Formalization

and (slightly less so) on Unionization and Height, suggesting that economically advantaged communities tend to have more formalized police organizations but not more concentrated. However, the other three community variables show very inconsistent and difficult to interpret patterns of effects on organizational variables. Racial Diversity has notably mixed effects on organizational structure--i.e., a strongly positive coefficient on Height but a negative correlation with Unionization-- that fit no intuitively predictable or readily explicable pattern. Population Change shows a similar, albeit weaker, pattern. Percent Hispanic shows positive effects on three of the structural variables (Concentration, Unionization, and Height), but again the pattern is not readily predicted or explained. Crime Rate shows positive coefficients on Formalization and Concentration, but negative (and weaker) coefficients on Unionization and Height---half congruent and half incongruent with the bureaucratic model of organization. In sum, the majority of our community context indicators do not show a clear and consistent pattern of structural effects across the full range of police agencies.

As an additional check on the robustness of these findings, the analyses in Tables 3 and 4 were repeated with community size added as a control variable in the full regression. According to Langworthy (1986) and Maguire (1997a), environmental size is the major predictor of variations in organizational structure and tends to emerge as the dominant factor in multiple regression analyses of police organizations. In an prior analysis of structural and contextual effects using 194 suburban agencies in a single metropolitan area (Wells, Falcone, and Rabe-Hemp, 2003), the size variable seemed to "swamp" the analysis--i.e., when size was included in multiple regressions, the estimated coefficients for all other variables became insignificantly small. Thus, inclusion of community size conceivably could change the observed patterns of effects attributed to other community characteristics. However, in the present sample, the addition of community size had surprisingly little effect on the patterns shown in Tables 3 and 4, especially the Community-Oriented Policing regressions in Table 3. Adding community size to the regressions increases the total explained variance (R^2) by a modest amount, but did not change the pattern of observed effects appreciably, except for the regression of Organizational Height on Community factors. In the latter, community size is highly correlated with the height of police organizations, and it does dominate the regression equation when included (reducing the coefficients of other community variables to insignificance). But except for that one dependent variable, inclusion of community size (or organizational size in the structural effects regressions), did not change the pattern of findings or alter the conclusions drawn from these data. This suggests that the often reported dominant effects of the size variable in organizational analyses might be due partly to the use of limited, nonrepresentative samples of agencies with restricted ranges of variation on size-related variables. It seems to underline the importance of using large broadly representative samples of police agencies for estimating reliable effects and effect patterns.

Sub-Sample Analysis of Multivariate Models

The third stage in the data analysis for this project deals with an empirical assessment of the universality premise that there is one basic underlying structural model of policing that applies in all settings and organizations-- any differences observed between kinds of organizations or locations are matters of degree not of kind. The premise is examined here by comparative sub-

sample regressions across relevant categories of police organizations or their community settings. The aim was to see if regression structures are consistent across various types and sizes of police agencies and across community locales. Specifically we compared regression patterns (estimating the same regression models reported in Tables 3 and 4) as they were estimated in each of the following sub-samples of the merged data file: (a) county versus municipal agencies; (b) large (greater than 100 full-time sworn) versus small (less than 100 full-time sworn) organizations; (c) metropolitan versus non-metropolitan communities; and (d) the four census regions of the continuous United States. These sub-sample partitions correspond generally to the kinds of sample restrictions often found in the available research on policing agencies--e.g., samples limited to municipal departments larger than 100 sworn officers, to departments only in metropolitan statistical areas, or to all departments in a particular geographic region (to which access is conveniently available).

The central questions in this part of the analysis are: (1) Whether it is plausible to expect a single general model of policing to apply across all types and sizes of police agencies in the U.S.; and (2) Whether using restricted samples of police agencies (limited either locally, demographically, or organizationally) is likely to yield skewed or inconsistent findings about police organizational dynamics. To address these, the Structural regressions reported in Table 3 were repeated within each of the four subdivisions of the full national sample noted above. The separate regression results for the first three subdivisions (municipal vs. county; metro vs. non-metro; large vs. small) are presented in Table 5; the regressions for the four census regions of the U.S. are presented in Table 6. The Contextual regressions reported in Table 4 are repeated for the first three sample subdivisions in Table 7, while the regressions for the four census regions are provided in Table 8.

Consider first the sub-sample regressions for the structural premise--i.e., that Community-Oriented Policing will be correlated with a flatter, less formalized, less concentrated organizational structure. The results for some sample divisions (e.g., for city versus county police agencies) show minimal differences from the full sample in regression coefficients; they yield the same pattern of paradoxical findings that agencies with taller, more formalized structures exhibit more community policing characteristics. All sample divisions yield the same pattern regarding the positive correlation of formalized structure with implementation of COP. On this issue, sampling restrictions make no difference in findings or conclusions. However, sample divisions do tend to yield somewhat different patterns for the other three indexes of organizational structure, even showing different signs of coefficients across sample divisions. The most notable sampling variation in the findings concerns the observed covariation of organizational height with implementation of COP. In the full sample, height positively correlates with COP. When regions are examined separately the correlations become negligible. However, when large and small agencies are separately analyzed, the Height-COP relationship shows a notable reversal--i.e., modestly positive in small departments but significantly negative in large departments. In fact large agencies show a pattern of correlation consistent with the premises of Community-Oriented Policing philosophy, while the full sample shows the opposite. This shows that conclusions one might draw about the organizational patterns associated with implementations of Community-Oriented Policing depend heavily on the types of police agencies included in the sample.

Considering our earlier conclusion that the Contextual premise regressions in Table 4 show no striking or consistent pattern of effects for community factors on police organization structure, the regressions were replicated across sub-samples of the full data set to see if the effects might be conditional on other factors. Certainly the diversity of often contradictory findings reported by Maguire and Uchida (2000) in summarizing prior research on such effects (which was based on localized or selective convenience samples) raises this possibility. The results of these sub-sample analyses are presented in Table 7 for county versus municipal agencies, metropolitan versus non-metropolitan communities, and large versus small agencies, and in Table 8 for the four census regions of the United States.

The most striking pattern evinced in the sub-sample analyses is the wide variation in coefficients (both regression and R^2 values) across different divisions of the full data set. For example, the regression coefficients for Urbanism, which are the largest and most consistently positive of the community effects in the full sample, show surprising deviations from this pattern across sub-samples. In the Formalization regressions, Urbanism coefficients are essentially zero in sub-samples for metropolitan counties and for large agencies. In the Concentration regressions, the Urbanism coefficient changes sign, becoming negative in the sub-sample for county-level agencies. In the Unionization regressions, Urbanism has consistently positive coefficients across all sub-samples. However, in the Formalization regressions, the coefficients become negative in two sub-samples (metropolitan counties and large agencies) and essentially zero in two others (non-metropolitan counties and smaller agencies). The other community context variables show similar tendencies to vary widely and unpredictably across sub-samples (including sign-reversals as well as magnitude fluctuations). Regional variations and deviations are also notable in the contextual regressions, although seemingly less extreme than the variations in Table 7 (e.g., fewer sign-reversals). Of the sub-sample comparisons, the large-vs.-small and the regional variations are perhaps most unsettling, since these correspond directly to kinds of sampling limitations that invariably characterize the available research on police organizations--i.e., mostly larger departments (over 100 FTEs) and geographically localized samplings of agencies.

Summary and Discussion

Summary

This study has been motivated by the perceived need to systematically and empirically assess three basic presumptions upon which current policing theory and policing development are based. The first is the structural premise that organizational form and function are strongly interdependent--that how policing gets carried out operationally is shaped by the organizational structure of police departments. The second is the contextual premise that police organizations are "open systems," so that how policing is done and organized in particular communities will depend on the unique conditions, demands, and resources in each community. The third premise is the universality assumption that the essential dynamic of policing is unitary and universal--that the underlying processes of police organization structure are pretty much the same everywhere even though the surface features seem to vary widely.

The first two premises figure very prominently in discussions and debates about the move from traditional enforcement-oriented to community-oriented policing in the U.S., arguing that if we wish to change the way police operate "to serve and protect," we must make substantial changes in how they are organized to provide these services. At the same time, they must be responsive to differences in community needs, resources, and contingencies. The third premise is more implicit and less evident, but still fundamental, to this debate. There is only one Community-Oriented Policing model that is prescribed for universal application to all sizes and types of police agencies in all locales. While there may be considerable variation in the parameters of the model, they are still parameters in just one general model. Beyond its relevance for community-oriented policing implementation, the universality presumption is also fundamental to virtually all academic research on policing, which is based largely on limited convenience samples of police agencies (mostly large urban municipal agencies) from which broad general conclusions about policing in general are drawn. The validity of this generalization is clearly dependent on a presumption that policing operates pretty much the same everywhere.

A careful assessment of these three premises requires: (a) a coherent conceptual framework that indicates which variables and relationships will be analyzed, and (b) a large, comprehensive data set that includes variables on all the relevant substantive dimensions and covers the full diversity of police agency types, sizes, and locations. By drawing on the available research on police organizations accumulated over the past four decades-- summarized in extensive reviews by Sherman (1980), Riksheim and Chermak (1993), and Maguire and Uchida (2000)--we synthesized an analytical framework (depicted in Figure 1) that identifies three analytically distinct groups of variables: community context variables (reflecting the complexities, demands, resources, and instabilities of the social and physical environment in which police agencies operated), organizational structure variables (reflecting the main dimensions by which police agencies are differentiated, configured, and described as formal organizations), and community-oriented policing operations variables (reflecting the specific procedures and practices by which police agencies have implemented the community-oriented policing model).

According to this framework, the structural premise pertains to the strength of the relationships between COP implementation variables and the organizational structure variables. Greater implementation should be associated with flatter, less complex, less formalized, less centralized, less specialized organizations, according to the prevailing theory and philosophy of COP. In the conceptual framework, the contextual premise will be shown especially in the correlations between structural and community contextual variables, with more complex, unstable, dense, disadvantaged communities leading to greater organizational complexity, formalization, and bureaucratization in their police departments. It should also be evident in correlations between the community variables and implementation of community-oriented policing, which is commonly depicted as a response to environmental complexity (e.g., racial conflict and economic disadvantage), instability (e.g., transient population or population change), and demand (e.g., high crime rates). The universality premise is not expressed directly in the conceptual framework, but in the expectation that the patterns found in analyzing the first two premises will be relatively invariant across important sub-divisions or groupings of police agencies.

The second requirement of the analysis for a suitably comprehensive data set was somewat problematic, since none existed (that would be both substantively and geographically inclusive) nor had any prior research collected and used such a data set. The strategy used in this study was to synthesize a data file from the available materials--i.e., to construct a suitable data set by merging data from a separate national data sources on communities and police agencies. The base data source was the 1999 LEMAS (Law Enforcement Management and Administrative Statistics) survey carried out by the Bureau of Justice Statistics, which contained data on police organizational characteristics and on community-oriented policing practices; this was supplemented with additional organizational variables from the 1997 LEMAS survey and from the 1996 Directory of Law Enforcement Agencies census. Community context data were drawn from the 1994 County and City Data Book (distributed by the U.S. Department of Commerce), from the 1998 and 1999 Uniform Crime Reporting data (collected by the FBI), from the 1990 and 2000 U.S. Gazetteer files (published by the U.S. Census Bureau), and from Rural-Urban Community classifications (distributed by the U.S. Department of Agriculture).

The data analysis was structured by three research questions corresponding to each of the basic premises: (1) How strongly are implementations of community-oriented policing connected to the structural features of police organizations in which they occur? Are they strongly interdependent? (2) How strongly are organizational structures predicted by characteristics of the community environments in which they are located? Do complex and difficult environments seems to yield complex and formal police agencies? and (3) Are the patterns shown in answering questions (1) and (2) universally obtained? Is there consistency or divergence in these pattern across important sub-divisions or categories of U.S. policing agencies?

The general approach adopted to seek answers to these questions was multiple regression, and analysis of the data proceeded in three distinct steps. The first was a factor analysis of all the relevant variables identifiable in Figure 1. The aim was to assess the reasonableness of the conceptual groupings suggested in our analytical framework, but also to develop a more parsimonious, less redundant set of indicators for the regression analysis. Using exploratory factor analysis (after initially affirming the unusability of confirmatory factor analysis in these data), we identified four community context factors that were consistent across subsamples: economic resources, racial heterogeneity, urbanism, and population change/instability. We also identified three organizational structure factors that were consistent across sub-samples: organizational height (vertical differentiation), formalization, and concentration of services. Several of the organizational structure variables did not show consistent correlations in the factor analysis and were either dropped from the analysis (task scope, spatial differentiation) or were included as a separate item (unionization). Factor analysis of the community-oriented policing operations variables showed a clear one-dimensional structure, and these were combined into a single COP Implementation index. Standardized indexes were computed for each of the community and organizational factors identified in this step; these indexes (rather than individual items) were used in the subsequent regression analyses.

In the second step of the analysis, regressions for the structural premise and for the contextual premise were carried out on the full sample to provide a general estimate of how well these applied to police organizations of all types and sizes across the United States. The

structural premise was investigated by regressing the community-oriented index (as well as two of its components) on the organizational structure indexes, plus the block of community context variables to provide "environmental controls". These results did not confirm the structural assumptions made by exponents of community-oriented policing. In fact the only substantial effects found in this regression was a positive relationship of COP with formalization (and a slight positive relationship with organizational height). These are opposite to the expectations of community-oriented policy, which should be associated less formalized and flatter organizations, rather than the reverse. The contextual premise was investigated by regressing the organizational structure variables on the community context variables. These regressions show mixed or weak effects of community characteristics on organizational structure. The strongest, most consistent predictor of organizational structure was the urbanism index, which had positive coefficients on all the organizational indexes. That pattern does corresponds well with theoretical expectations. However, the other community variables showed weaker, more inconsistent, and less intelligible patterns of coefficients; it is difficult to draw any definite conclusions from them

In the third step of the analysis, the regression just described were repeated on selected sub-samples within the total data set and the patterns of regression coefficients were compared across contrasting or complementing sub-groups of police agencies. The specific sub-divisions used were: county versus municipal agencies; agencies in metropolitan versus non-metropolitan counties; large (with 100 or more full-time sworn employees) versus small agencies; and regional location (using the four census regions of the U.S.). The results of these sub-sample comparisons showed considerable variability across subsamples--with coefficients often noticeably larger in one group than the other, and often even having coefficients with different signs. This variability across sub-samples was especially noticeable in the contextual regression, but it showed some notable (albeit fewer) divergences in the structur al regressions as well. Overall, this part of the regression showed that the general patterns estimated in the second step did not hold consistently across different types and locations of police agencies, and that these data did not support the singular idea of a general universal model.

Discussion

The lack of clear findings is an unsatisfying, ambiguous outcome, since "accepting the null hypothesis" is a tenuous and arguable decision open to second-guessing (since failure to reject might be due to a variety of methodological factors unrelated to the substantive questions of interest). However, we emphasize that our findings actually are quite consistent with findings of other available studies related to the contextual and the structural premises, even though none of the available studies directly test how either of these premises applies to the implementation of community-oriented policing. We note that a considerable amount of related research that at least indirectly or partially examines these assumptions, including a number of very recent studies involving trend analyses (e.g., Zhao, Livrich, and Thurman, 1999; Roth, Roehl, and Johnson, 2003; Maguire, Shin, Zhao, and Hassell, 2004) and multivariate analyses of many of the elements of these premises (e.g., Hassell, Zhao, and Maguire, 2003; Maguire, 1997; Maguire, Kuhns, Uchida, and Cox, 1997; Worrall and Zhao, 2003). Yet none directly test either assumption using all three sets of variables (community context, organizational structure, and COP practices) in the same analysis or using a broadly representative sample of police

organizations. In these terms, the present study is the only one to date and there is none with which to directly compare our findings. Given the absence of comparable data, this seems to be what we know.

However, it is always possible that the lack of stronger findings may reflect data quality problems, rather than a genuine absence of systematic causal connections. The data set used in this analysis does provide the most comprehensive sample available of policing agencies in the United States covering all types, sizes, and locations (albeit still under-sampling smaller departments), so that it constitutes the premier data source on police organizations in the United States. Nonetheless, criticisms of the information included in the data set are always plausible. One is the observation that weak measurements will yield weak findings. First, the particular indicators used in this analysis may lack reliability or construct validity--a problem characteristic of virtually all organizational research on policing which lacks standard well-validated measures of concepts necessitating each study to develop its own indicators. This may be especially a concern in secondary analysis of data where the indicators were collected by others for other purposes and may not include exactly the content sought in the analysis.

The use of organizational surveys necessarily entails validity concerns where the data are provided by individuals within the organization who have been assigned the task of filling out the survey. As noted by Roth et al. (2003), the validity of such data clearly depend on getting a knowledgeable and candid individual within the organization who will be motived to respond conscientiously and is positioned to provide accurate information about the organization's activities or characteristics. However, alternatives to organizational self-reporting surveys--e.g., on-site observations--are too labor-intensive and costly to be practicable in a large, widely representative sample of organizations.

We would also prefer to have a more extensive set of indicators of organizational structure, but reliance on the LEMAS surveys (which provides the best available national sample of police agencies) limits the structural indicators available, as other researchers have noted (e.g., Davenport, 1996; Maguire, 1997; Maguire and Uchida, 2000). Our assortment of organizational structure indexes includes two key indicators of organizational complexity (i.e., organizational height or vertical differentiation) and of organizational control (i.e., formalization), along with two additional indicators: concentration of services (deployment of personnel in the organization) and unionization (management of labor relations). The latter are less conventional indicators in policing research but arguably directly relevant to the complexity and control dimensions of organizational structure. We note that the set of structural variables used here does not include any specific indicators of horizontal differentiation, functional differentiation, vertical stratification, spatial differentiation, or administrative centralization; these were not measurable from the LEMAS survey items. However, our position is that if there are substantial structural or contextual effects occurring in the adoption of COP across police departments, as argued by advocates of the COP model, then these effects should be readily observable with the indicators used in this analysis, even though these are not the full set of possible indicators.

The data analyzed in this study necessarily involve some compromises, in terms of the measured organizational variables and the reliance on organizational self-reporting surveys. Thus, we are not presenting our findings as the complete and final word. We do, however, present them as the best available information at this point and important for filling in some of

the blank pieces in the conceptual puzzle of how policing in the U.S. is organized, along with how and why it changes.

What these results seem to suggest is that the central premises or "received wisdom" of police organization have not been very fully tested and confirmed through systematic empirical research. Instead, they have been selectively documented through multiple studies using convenience samples of limited kinds of police agencies, as well as through case studies of selected departments in a few metropolitan areas. While helpful and illustrative, these are not an adequate substitute for comprehensive analysis of the full range of policing organizations and settings. At some point, adequate assessment of basic assumptions and premises requires a larger, more comprehensive, inclusive analysis, which this study has attempted to provide.

The somewhat diverse body of findings produced by the multiple regression analyses carried out for this study suggest two general inferences or conclusions regarding the research questions that framed the analyses. The first is to affirm the importance of testing our theoretical presumptions about how organizations operate, and especially how public policing agencies operate as organizations. Those presumptions are the underlying premises both for explaining police organizational behavior and for developing and implementing police organizational policy. Thus, their empirical validity is not just an academic question but a practical issue of considerable administrative concern. Policies based on faulty assumptions and models are unlikely to succeed; and even if they did, we will have no understanding of why they worked if the theory on which they are based is unfounded. Given that these presumption seem so self-evident and are so widely and strongly held, it seems unnecessary to do research to carefully test them. Yet, as the findings here show, systematic empirical research may very well disconfirm what seemed to be well known and well established. As the song lyrically puts it: "things that you're liable to read in the Bible, it ain't necessarily so." Our lack of appreciable findings on these two well accepted ideas underscores the importance of at least some basic research to verify the assumptions on which our applied research is grounded.

The second inference drawn from the results of this analysis is a strong acknowledgment of the importance of sampling variations and differences in drawing general conclusions from police organizational research as it been carried out up to this point. The pervasive reliance on local convenience samples, of selected case of a few interesting agencies, or samples of selected categories of police departments (e.g., municipal police departments with 100 or more full-time sworn employees) cannot be counted on to yield generalizable knowledge, either about the frequencies of police organizational features or about the causal patterns that tie them together. Research done on different kinds of police agencies may yield wildly divergent or contradictory findings.

For example, Worrell and Zhao (2003) in their analysis of community-oriented policing practices in large municipal police departments (100 or more FTEs) report that agencies in the South were significantly more likely to implement community-oriented policing, after controlling for other community factors, than were police departments in the West, Midwest, or Northeast. In contrast, Maguire, Kuhns, Uchida, and Cox (1997) report that in their study of non-metropolitan police agencies (mostly smaller than 100 FTEs) that agencies in the West are significantly more likely to implement COP, while agencies in the South are less likely to do so. The finding seem directly contradictory, but they refer to different types and sizes of police

agencies, so it is an uninformative "apples versus oranges" comparison. A similar pattern was noted in our sub-sample analysis between large and small agencies in which implementation of COP was negatively related to organizational height in large agencies (as the COP model predicts), but positively related to organizational height in small agencies (in contradiction to the COP model). If we looked only at a sample of large departments to draw conclusions about policing in the U.S. (as is commonly done), we would reach faulty (or at least misleading) conclusions. In sum, we simply cannot assume that policing is "all of one cloth;" we must take into account the wide diversity of organizational settings and contexts within which policing is carried out in the U.S.

These two inferences then point to a third tentative conclusion--namely, that at this moment we cannot say with much confidence or certainty what the prevailing patterns and dynamics in community-oriented policing in the United States are, because we lack comprehensive empirical data from which to extract this information. The available body of knowledge about COP is at best a patchwork quilt, formed by piecing together fragments (based in selective or incomplete samples) and indirect evidence (based on studies of some of the relevant variables). As research on community-policing has proliferated in the last few years (especially with the increased federal funding associated with creation of the COPS program), more studies have sought to utilize larger, more inclusive national samples. That has resulted in a fuller picture of the prevalence of adopting (or at least reporting) different community-oriented policing practices across police departments in the U.S., but it still leaves us guessing about the correlates, causes, and consequences of adopting COP practices; and it does not allow us to assess if the adoptions are a cosmetic tactical adaptation or a systematic philosophical shift (reflected in how the agencies are organized and how they relate to their communities).

Implications

This study is most appropriately viewed as an exercise in basic science rather than applied science--i.e., of testing basic theoretical premises rather than evaluating the practical outcomes of particular policing programs or strategies. In this light, the most immediate and obvious implications of the findings presented here are research-related rather than policy-related. They suggest that several things should be done to improve the body of research-based knowledge we have about policing organizations and operations. The first has already been mentioned in the previous discussion, which is the need for policing research to use more widely representative or broadly inclusive samples of policing and to estimate the limiting effects that sampling restrictions on the validity, generalizability, and comparability of their findings. This means encouraging and supporting the use of national samples of police agencies, which the Institute of Justice has done in recent years by funding research to use Bureau of Justice Statistics-collected data sets. It also means encouraging the systematic study of policing organizations that are more broadly representative of the types of police departments and offices that actually make up the majority of agencies in the U.S.

While it may seem more interesting and more convenient (i.e., more readily available data sources) to study municipal police departments of at least 100 sworn officers in largely metropolitan jurisdictions, there are very good reasons for studying other sizes and types of police agencies as well. First of all, the vast majority of police agencies in the United States are

rather small--89% have under 50 full-time sworn personnel and 47% have under 10 (Hickman and Reaves, 2003)-- and most are located in non-metropolitan venues. As our results confirm, there may be striking differences in the organizational dynamics of small and large police organizations, sometimes displaying opposite effects. In addition, restricting research to larger agencies and larger communities often results in very restricted variance on important theoretical variables, resulting in attenuated correlations and less informative multivariate analyses. In the analysis of trends in the adoption of community-oriented policing reported by Roth, Roehl, and Johnson (2004), large agencies display a distinct "ceiling effect" over the period of observation, because they uniformly have high levels of COP adoption at the outset, leaving only a small number for additional adoptions. This is interpreted by Roth et al. as a waning of enthusiasm among larger departments, but instead it is merely a mathematical artifact of the restricted variance among the largest agencies. In such cases, studying mainly large departments would yield misleading conclusions about national trends. As already noted, the widely made presumption that samples of smaller police agencies will have limited variance on theoretically important variables is not only empirically undocumented; it is generally incorrect (with only a few exceptions) and not valid methodological ground for excluding them from analyses.

A related but slightly different implication is that more comparative research should be encouraged to explicate more systematically how categories of police organizations may different, why the differences occur, and what the differences mean for development of effective programmatic initiatives and broad-based policy reforms. This would mean actively encouraging some "differential" research on important dimensions or sources of differences among police agencies (e.g., funding initiatives for supporting comparative studies; directed research programs for studying regional differences as they affect policing organizations and services; directed research programs for elaborating the special features and problems of smaller agencies).

The second major research-related implication of this study's findings is their affirmation of the importance and centrality of the LEMAS surveys as a primary source of national information and data on policing in the United States. In applied terms, LEMAS is extremely valuable for providing an accurate and current picture of the state of policing in the U.S., comparable in this function to the National Crime Victimization Survey as an ongoing instrument for monitoring the level of ordinary crime in the U.S. In research terms, LEMAS is essential for providing an ongoing, publicly available national data source for high quality policing research that will advance the state of scholarly knowledge about policing and that will enable better informed policy decisions.

Acknowledging its considerable value to studies such as this one--especially since detailed questionnaires were extended to cover the smaller agencies in the 1997 survey, LEMAS data collection procedures can nonetheless be improved and extended in several ways. One change, noted by other researchers, is to add more items about organizational characteristics to permit better measures of organizational structures. Another would be to increase the numbers of smaller agencies included in the sample to better reflect the distribution of types of police organizations across the United States and permit better statistical estimates of organizational patterns among small agencies. A third valuable modification would be to make the LEMAS data file more compatible with other national data sets by including more data identification codes for each agency--e.g., including the agency's ORI codes to match the records with corresponding

FBI data, or providing more useful FIPS codes to match the data with census-based community data. These would greatly extend the versatility of the LEMAS data for inclusion in studies of substantively broader scope. A fourth suggestion would be to further strengthen the validity of information collected in the LEMAS survey, seeking to increase quality control procedures where practical. These might include follow-up validation telephone interviews of a randomly selected sample of responding agencies to assess the relative reliability of different items, to allow data reliability comparisons between different categories of agencies (e.g., smallest versus largest), and to identify problematic items in need of revision or recoding. In sum, the LEMAS survey is a vital information resources for policing research and policy development. It should be enhanced to ensure that it will continue to provide these resources with even greater utility.

Beyond their implications for research, the findings in this study also point to one simple but important policy recommendation. This is the obvious suggestion that we must be wary of adopting a "one size fits all" policy for changing police organizations, given the diversity of agencies and the differences in their organizational dynamics. Programs developed for large metropolitan municipal agencies will not necessarily apply to small agencies in non-metropolitan settings; programs for use in agencies in Northeastern states may not apply to agencies in other regions like the South; and they may even be counter-productive in the latter contexts. This study has shown that the links between organizational structures and operational practices are not the same across all types of public policing agencies, so that the tasks of implementing community-oriented policing may also differ widely across agency types, sizes, and locations. Given the predominant impetus of federal funding in the move to community-oriented policing, there is a natural tendency to view change-producing policies in terms of unitary, centrally administered, globally applied programs. The results from this analysis provide evidence that this approach does not match the empirical reality of policing in the United States, and for this reason is ill-advised and unlikely to be effective.

References

Blau, P.M. (1977). *Inequality and Heterogeneity: A Primitive Theory of Social Structure*. New York: Free Press.

Buerger, M.E. (1994). "The Limits of Commuity", D.P. Rosenbaum (Ed.), *The Challenge of Community Policing,* Sage, Thousand Oaks, pp. 270-273.

Bureau of Justice Assistance. (1994). *Neighborhood-Oriented Policing in Rural Communities: A Program Planning Guide*. Washington, DC: Office of Justice Programs, U.S. Department of Justice.

Bureau of Justice Statistics (BJS). (1998). *Directory of Law Enforcement Agencies, 1996*. [Computer File: ICPSR 2260]. Washington D.C.: U.S. Department of Justice. Ann Arbor, MI: Inter-University Consortium for Political and Social Research [producer and distributor].

------. (1999). *Law Enforcement Management and Administrative Statistics (LEMAS): 1997 Sample Survey of Law Enforcement Agencies.* [Computer File: ICPSR 2700]. Washington, D.C.: U.S. Department of Justice. Ann Arbor, MI: Inter-University Consortium for Political and Social Research [producer and distributor].

------. (2000). *Law Enforcement Agency Identifiers Crosswalk, 1996*. [Computer File: ICPSR 2876]. Washington, D.C.: U.S. Department of Justice. Ann Arbor, MI: Inter-University Consortium for Political and Social Research [producer and distributor].

------. (2001). *Law Enforcement Management and Administrative Statistics (LEMAS): 1999 Sample Survey of Law Enforcement Agencies.* [Computer File: ICPSR 3079]. Washington, D.C.: U.S. Department of Justice. Ann Arbor, MI: Inter-University Consortium for Political and Social Research [producer and distributor].

Burns, T. and Stalker G.M. (1961). *The Management of Innovation*. London: Tavistock.

Cordner, G.W. (1997). "Community policing: Elements and effects." In *Critical Issues in Policing, 3rd edition*, ed. R.G. Dunham and G.P. Alpert, pp. 451-468. Prospect Heights, IL: Waveland Press.

Correia, M.E. (2000). "The conceptual ambiguity of community in community policing: Filtering the muddy waters."

Crank, J.P. and Langworthy, R. (1992). "An institutional perspective of policing." *Journal of Criminal Law and Criminology* 83: 338-368.

Davenport, D.R. (1996). *Public agency performance and structure: Assessing the effects of the organizational environment (Agency performance, police departments, clearance rates).* unpublished doctoral dissertation Texas Technical University

Eck, J.D. and Rosenbaum, D.P. (1994). "The new police order: Effectiveness, equity, and efficiency in community policing." in *The Challenge of Community Policing*, D.P. Rosenbaum, ed., Thousand Oaks, CA: Sage Publications.

Economic Research Service. (1993). *1993 Urban Influence Codes*. Washington, DC: U.S.Department of Agriculture. [available online at: **www.ers.usda.gov/briefing/rurality/UrbInf/**]

-----. (1995). *1989 ERS County Continuum codes (1995 update)*. Washington, DC: U.S.Department of Agriculture. [available online at: **www.ers.usda.gov/briefing/rurality/RuralUrbCon/code93.txt**]

Emery, F. and Trist, E.L. (1965). The causal texture of organizational environments. *Human Relations* (February): 21-32.

Falcone, D.N. (1998). "The Illinois state police as an archetypal model." *Police Quarterly* 1(3): 61-83.

Falcone, D.N. (2001). "The Missouri state highway patrol as a representative model." *Policing: An International Journal of Police Strategies & Management* 24(4):585-594.

Falcone, D.N. and Smith, B.A. (2000). "The Army military police: A neglected model." *Police Quarterly* 3(3): 247-261.

Falcone, D.N., and Wells, L.E. (1995). "The county sheriff as a distinctive policing modality." *American Journal of Police* 14(3/4): 123-148.

Falcone, D.N., Wells, L.E. and Weisheit, R.A. (2002). "The small-town police department." *Policing: An International Journal of Police Strategies & Managment* 25(2): 371-384.

Federal Bureau of Investigation. (2000a). *Uniform Crime Reporting Program Data (United States): County-Level Detailed Arrest and Offense Data, 1998* [Computer File: ICPSR 2910]. Washington, D.C.: U.S. Department of Justice. Ann Arbor, MI: Inter-University Consortium for Political and Social Research [producer and distributor].

-----. (2000b). *Uniform Crime Reporting Program Data (United States): Offenses Known and Clearances by Arrest, 1998* [Computer File: ICPSR 2904]. Washington, D.C.: U.S. Department of Justice. Ann Arbor, MI: Inter-University Consortium for Political and Social Research [producer and distributor].

-----. (2001a). *Uniform Crime Reporting Program Data (United States): County-Level Detailed Arrest and Offense Data, 1999* [Computer File: ICPSR 3167]. Washington, D.C.: U.S. Department of Justice. Ann Arbor, MI: Inter-University Consortium for Political and Social Research [producer and distributor].

-----. (2001b). *Uniform Crime Reporting Program Data (United States): Offenses Known and Clearances by Arrest, 1999* [Computer File: ICPSR 3158]. Washington, D.C.: U.S.

Department of Justice. Ann Arbor, MI: Inter-University Consortium for Political and Social Research [producer and distributor].

Greene, J.R. (2004). "Community policing and organization change." In *Community Policing: Can It Work?*, ed. W. Skogan, pp. 30-53. Belmont, CA: Wadsworth.

Hassell,K.D., Zhao, J. and Maguire, E.R. (2003). "Structural arrangements in large municipal police organizations. Revisiting Wilson's theory of local political culture." *Policing: An International Journal of Police Strategies and Management, 26(2)*: 231-250.

Hickman, M.J. and Reaves, B.A. Local Police Departments (2003). *Local police departments, 2000,* Law Enforcement and Administrative Statistics, Bureau of Justice Statistics, Office of Justice Programs, U.S. Department of Justice, Washington, DC.

-------. (2001). *Community Policing in Local Police Departments, 1997 and 1999,* U.S. Department of Justice, Bureau of Justice Statistics, Washington, DC. (Report Number NCJ 184794).

Karmen, A. (1990). *Crime victims: An introduction to victimology*, 2nd ed. Pacific Grove, CA: Brooks/Cole.

Klinger, D.A. (2004). "Environment and organization: Reviving a perspective on the police." *Annals of the American Academy of Political and Social Sciences* 593(May): 119-136.

Lawrence, P.R. and Lorsch, J.W. (1967). "Differentiation and integration in complex organizations." *Administrative Science Quarterly* 12(1): 1-47.

Link, A.S. and McCormick, R.L. (1983). *Progressivism.* Wheeling, IL, Harlan Davidson.

Maguire, E.R. (1997a). *Context, Complexity and Control in Large Municipal Police Organizations*. Ph.D. Dissertations, State University of New York, Albany.

------. (1997)b. "Structural Change in Large Municipal Police Organizations During the Community Policing Era." *Justice Quarterly* Vol. 14 No. 3, 547-576.

------. (2003). *Organizational Structure in American Police Agencies: Context, Complexity, and Control*. Albany, NY: State University of New York Press.

Maguire, E.R. and W.R. King. (2004). "Trends in the policing industry." *Annals of the American Academy of Political and Social Sciences* 593(May): 15-41.

Maguire, E.R., Kuhns, J.B., Uchida, C.D. Cox, S.M. (1997). "Patterns of Community Policing in nonurban America", *Journal of Research in Crime and Delinquency*, Vol. 34 No. 3, pp. 368-394.

Maguire, E.R. and Mastrofski, S.D. (2000). "Patterns of community policing in the United

States." *Police Quarterly, 3(1)*: 4-45.

Maguire, E.R., Shin, Y, Zhao, J., and Hassell, K.D. (2003). "Structural change in large police agencies during the 1990s." *Policing: An International Journal of Police Strategies and Management, 26(2)*: 251-275.

Maguire, E.R.; and Uchida, C.D. (2000). Measurement and explanation in the comparative study of American police organizations, in *Measurement and analysis of crime and justice*, Vol. 4, D. Duffee, ed. Washington, D.C.: U.S. Department of Justice, Office of Justice Programs.

Manning, P.K. (1971). "The police: mandate, strategies, and appearances." in *Crime and Justice in American Society*, Douglas, J.D., ed., New York: Bobbs-Merrill.

Moore, Mark H. (1992). "Problem-solving and community policing." in *Modern Policing*, M. Tonry and N. Morris, ed.. Chicago, IL: University of Chicago Press.

National Institute of Justice (1997). *Criminal Justice Research under Crime Act - 1995 to 1996*, US Department of Justice, Washington, DC.

"Omnibus Crime Control and Safe Streets Act of 1968." Title III, Public Law 105-251; 42 U.S.C.A. § 14601.

Riksheim, E.C., and Chermak, S.M. (1993). "Causes of police behavior revisited." *Journal of Criminal Justice* 21: 353-382.

Rosenbaum, D.P. (1998). "The changing role of the police: Assessing the current transition to community policing." In *How to Recognixe Good Policing: Problems and Issues*, ed. J.-P. Brodeur. pp. 3-29. Thousand Oaks, CA: Sage.

Roth, J.A. and Johnson, C.C. (1997). "COPS context and community policing." Paper presentation at the 1997 annual meeting of the American Society of Criminology, November, San Diego.

Roth J.A., Roehl, J., and Johnson, C.C. (2004). "Trends in the adoption of community policing." In *Community Policing: Can It Work?*, ed. W. Skogan. Belmont, CA: Wadsworth.

Roth, J.A. and Ryan, J.F. (2000). *The COPS Program After 4 Years--National Evaluation (Research in Brief)*. Washington, DC: National Institute of Justice. (Bulletin Number NCJ183644).

Sherman, L.W. (1980). "Causes of police behavior: The current state of quantitative research."

Journal of Research in Crime and Delinquency 17(1): 69-100.

Smith, D.A. (1986). "The neighborhood context of police behavior." in *Crime and justice: A review of research,* ed. A. J. Reisse, Jr. and M. Tonry. Chicago: University of Chicago Press.

_____ (1987). "Police response to interpersonal violence: Defining the parameters of legal control. *Social Forces* 65: 767-782.

Trojanowicz, R. (1994). "Community policing: A survey of police departments in the United States." Washington, DC: U.S. Department of Justice, Federal Bureau of Investigation.

U.S. Census Bureau. (1990). *U.S. Gazetteer 1990*. Washington, DC: U.S.Department of Commerce. [available online at: **www.census.gov/cgi-bin/gazetteer**]

------. (2000). *U.S. Gazetteer 2000*. Washington, DC: U.S.Department of Commerce. [available online at: **www..census.gov/geo/www/gazetteer/places2k.html**

U.S. Department of Commerce. (1995). *County and City Data Book 1994*. (CD-ROM). U.S. Census Bureau, Administrative and Customer Services Division. Washington, D.C. [CD-CCDB-94]

"Violent Crime Control and Law Enforcement Act of 1994." Public Law 103-322; 108 Stat. 1994; 09/13/94. *United States Public Laws*, Lexis Nexis Congressional (online service) Bethesda, MD: Congressional Information Service.

Walker, S. and Katz, C.M. (2002). *The police in America: An introduction*. 4th ed. Boston, McGraw Hill.

Walton, M. (1986). *The Deming management method*. New York: Perigee.

Weisheit, R.A., Falcone, D.N., and Wells, L.E. (1999). *Crime and policing in rural and small-town America.* Prospect Heights, IL: Waveland Press.

Weisheit, R.A., Wells, L.E., and Falcone, D.N. (1994-1996). National Institute of Justice Research Study (Grant No. 92-IJ-CX-K012).

Weisheit, R.A., Wells, L. E., and Falcone, D.N. (1994). "Community Policing in Small Town and Rural America. *Crime and Delinquency* 40(4): 549-567.

Wells, L.E., Falcone, D.N., & Rabe-Hemp, C. (2003). "Community Characteristics and Policing Styles in Suburban Cities." *Policing: An International Journal of Police Strategies & Management* 26(4): 566-590.

Wilson, J.M. (2001). "Organizational context and community policing: Measuring

implementation and identifying its deteminants." Paper presented at the annual meeting of the American Society of Criminology, November, Atlanta, GA.
------. (2003). "Measurement and association in the structure of municipal police organizations." *Policing: An International Journal of Police Strategies and Management, 26(2)*: 276-297.

Woodward, J. (1965). *Industrial Organization, Theory and Practice*. London: Oxford Univrsity Press.

Worrall, J.L. and Zhao, J. (2003). "The role of the COPS office in community policing." *Policing: An International Journal of Police Strategies and Management, 26(1)*: 64-87.

Wycoff, M.A. (1994). "Community policing strategies." Washington,DC: National Institute of Justice.

Zhao, J., Lovrich, N. and Thurman, Q. (1999). "The status of community-policing in American cities: Facilitators and impediments revisited." *Policing: An International Journal of Police Strategies & Management,* 22: 74-92.

Zhao, J., Thurman, W.C., & Lovrich, N.P. (1995). "Community oriented policing across the United States: Facilitators and impediments to implementation." *American Journal of Police*, 14: 11-28.

Figure 1
Conceptual Framework

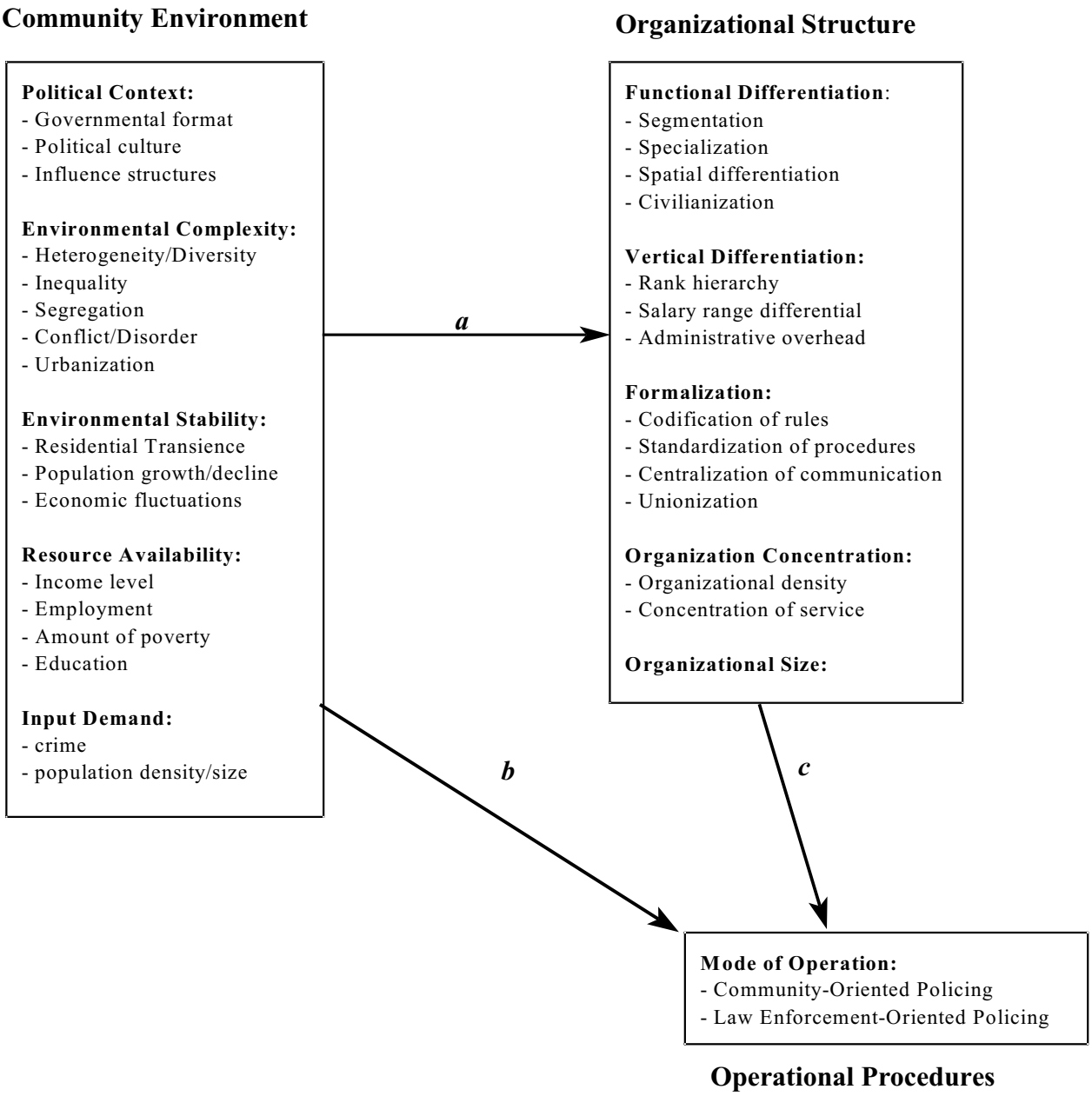

Figure 2
Data Sources Used in Creating Merged Data File

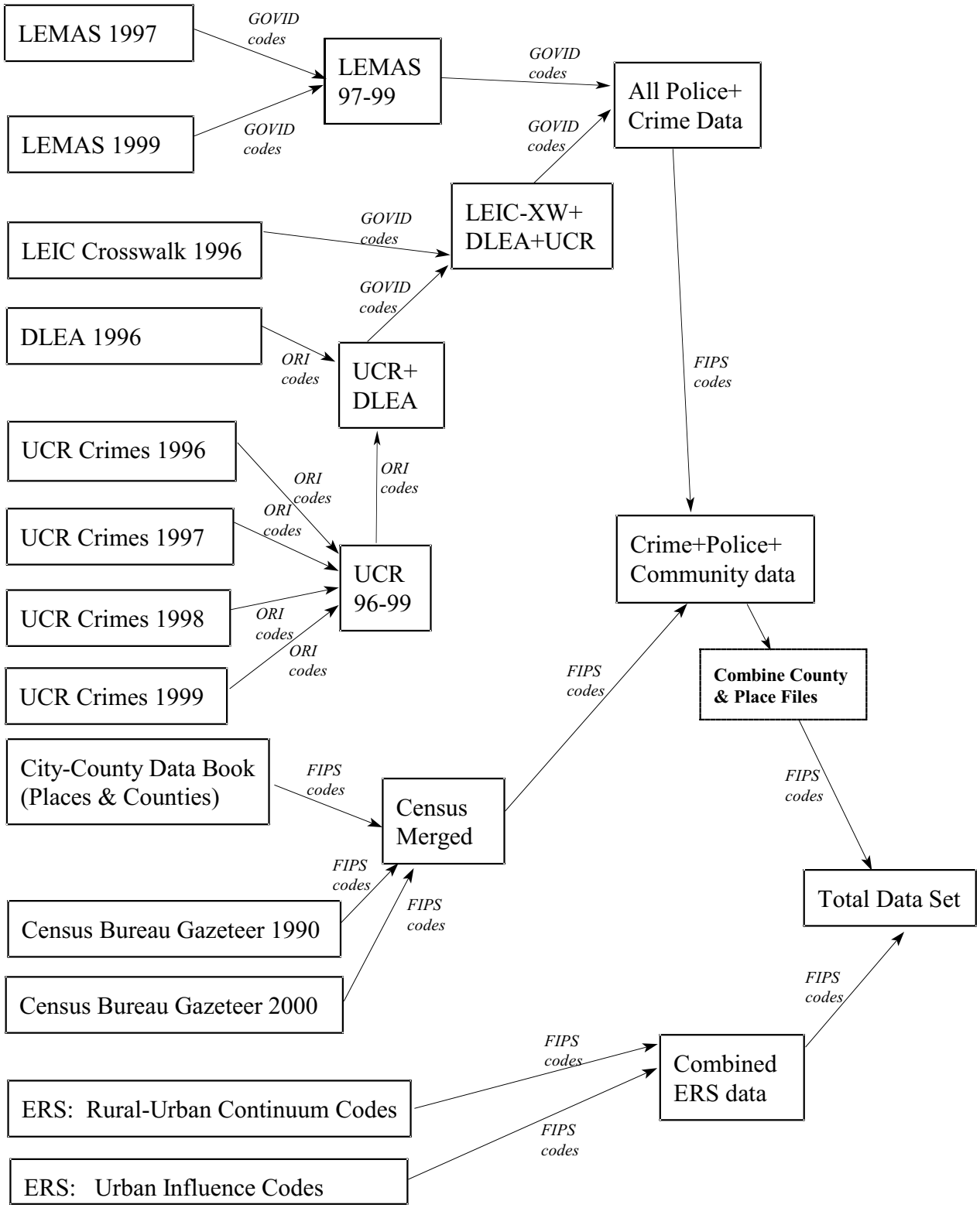

Figure 3
Listing of Relevant Variables in the Total Merged Data File

***Community Context Variables**:*

- extracted from *City-County Data Book 1994* files:
  - Population Size in 1994
  - Percent of population Non-white
  - Percent of population Black
  - Percent of population Hispanic/Latino
  - Percent of families below poverty
  - Percent of persons below poverty
  - Employment rate
  - Median Household Income
  - Per Capita Income
  - Racial Heterogeneity index (Blau-1977 formula applied to population in racial categories)
  - Percent of population 5-17 years old
  - Percent of population 65 years and older
  - Percent of adults (over 25 yrs) with High School education
  - Percent of housing that is renter-occupied
  - Percent of households that are single-occupancy (one-person households)
  - Mean number of persons per household
- extracted from *Census Gazeteer* 1990 & 2000 files:
  - Population density (persons/square mile)
  - Population Change (%) between 1990 and 2000
- extracted from *Economic Research Service* (USDA) files:
  - Rural-Urban Continuum (Beale) codes (county-level) 1995
  - Urban Influence codes (county-level) 1993 [reflecting population size and proximity to large metropolitan area]
  - Metropolitan versus Non-metropolitan classification of county (location in SMSA)
- extracted from Uniform Crime Reporting data 1996, 1997, 1998, &1999 files:
  - Total Serious (Index) Crime rate (average of four years -1996, 1997, 1998, & 1999)
  - Total Serious (Index) Crime rate (average of two years - 1998, & 1999)
  - Regional location of jurisdiction (by 4-category census classification)

***Police Organizational Structure Variables**:*

- extracted from *LEMAS* 1999 file:
  - Governmental unit type (county/municipal/township)
  - Agency type (sheriff; county police; municipal police)
  - Total number of employees (full and part-time)
  - Total number of sworn full-time officers
  - Total number of nonsworn (civilian) employees
  - Total number of administrative employees (sworn and nonsworn)

Total number of sworn employees in Field Operations
Total number of employees (sworn and nonsworn) in technical support units
Total number of employees (sworn and nonsworn) in other non-field units
Total number of full-time sworn employees in Community Policing
Total number of full-time sworn employees who respond to calls for service
Percent of full-time employees in field operations
Percent of full-time personnel in Administration
Percent of full-time personnel in Technical Support activities
Percent of full-time sworn employees who respond to calls for service
Number of Facilities or Sites (substations) operated by Agency
Task Scope index (# of tasks for which agency has primary responsibility)
Patrol Types index (# of different types of patrols used routinely by agency)
Computerization Index (# of Tasks/functions for which computers are used
Codification Index (# of topics for which agency has formal written policies/procedures)
Police Density Index (ration of full-time sworn employees to community population)
Civilianization Index (civilian percentage of all full-time employees)
Administrative Intensity Index (ratio of administrative to all sworn personnel)
Internal Concentration Index (ration of sworn FTE in field operations to all personnel)
Specialization Index (heterogeneity of sworn personnel across job assignment categories)
Department Size Classification (five-categories based on sworn full-time employees)

- extracted from *LEMAS 1997* file:

Drug Testing Index (extent of drug testing of new applicants, field and nonsworn empoyees)
Selection/Screening Index (number of selection screen devices used for new officer recruits)
Educational Requirements Index (education requirements for new officer recruits)
Training Index (number of training hours required for new officer recruits)
Standardization Index (combination of drug-testing, selection, and education indexes)
Union Membership (type of union membership of sworn employees)
Collective Bargaining (whether agency has collective for sworn and nonsworn employees)
Unionization Index (combination of union membership & collective bargaining items)
Organizational Height Index (% salary differential between chief and patrol levels)

***Community-Oriented Policing (COP) Variables**:*

- extracted from *LEMAS 1999* file (from *Section V* of 1999 questionnaire):

Percent of full-time sworn employees assigned to COPolice positions [Section III/Q#4]
Commuity-Oriented Policing Plan [Q #1] (formally written; informal; or no COP plan)
COP Training index [Q #2] (proportions of new, in-service, and civilian personnel receiving at least 8 hours of COP-related training)
COP Procedures Index [Q #3] (# of specific COP-related operations that agency does)
COP Meetings Index [Q #4] (# of groups with which agency has regular meetings)
COP Surveys Index [Q #5] (uses of community surveys in planning and evaluation)

Total COP Index (computed from additive combination of prior 6 items)

Table 1
Summary of Final Merged Sample of Police Agencies
(Compared with DLEA 1996 figures)

Total number of Agencies in Merged Sample: N=3005.

Type of Government (Census categorized):

	N	%	[*DLEA*]*
County	971	32.3%	[*18.7%*]
City	1757	58.5%	[*70.4%*]
Township	277	9.2%	[*10.9%*]
Total N	3005		

Type of Agencies (DLEA categorized):

	N	%	[*DLEA*]
Sheriff	964	32.1%	[*18.7%*]
County Police	37	1.2%	[*0.3%*]
Municipal	1998	66.5%	[*81.0%*]
Special	6	.2%	
Total N	3005		

Location: Metropolitan/Non-metropolitan area:

	N	%	[*DLEA*]
Non-metro area	1007	37.6%	[*52.7%*]
Metro area	1668	62.4%	[*47.3%*]
missing cases	(330)		
Valid N	2675		

Location: Regional Classification (UCR)

	N	%	[*DLEA*]
South	906	37.0%	[*29.7%*]
Northeast	524	21.4%	[*18.8%*]
Midwest	637	26.0%	[*26.6%*]
West	381	15.6%	[*24.9%*]
missing	(557)		
Valid N	2448		

Location: Population Size of Jurisdiction

	N	%	[DLEA]
less than 2500	280	10.4%	[*37.8%*]
2500-9,999	557	20.7%	[*29.2%*]
10,000-24,999	559	20.8%	[*16.2%*]
25,000-49,999	393	14.6%	[*8.0%*]
50,000-99,000	402	15.0%	[*4.6%*]
100,000-999,999	463	17.2%	[*4.0%*]
1,000,000 or more	33	1.2%	[*0.2%*]
Missing	(318)		
Valid N	2687		

Agency Sizes (Full-time Sworn Officers)

	N	%	[*DLEA*]
0-9 FT Sworn	800	26.5%	[*56.9%*]
10-24	540	18.0%	[*21.3%*]
25-49	456	15.2%	[*11.0%*]
50-99	377	12.5%	[*5.9%*]
100-more	832	27.7%	[*0.2%*]
Total N	3005		

* Using corresponding statistics extracted from the Directory of Law Enforcement Agencies 1996 (Reaves and Goldberg, 1998)

Table 2
Factor Analysis of Variables

Part (a): Community Environment Variables

Community Environment Items	**Factors**			
	I	**II**	**III**	**IV**
% high school graduates	**.850**	-.098	.093	-.023
% families below poverty level	**-.899**	.181	.038	.092
per capita income (logged)	**.801**	.106	.093	-.098
employment rate	**.751**	-.226	-.054	.052
population change	.116	-.030	.363	**.809**
% one-person households	.008	.021	.119	**-.750**
% renter-occupied housing	-.083	.235	**.825**	.295
racial heterogeneity index	-.146	**.931**	.169	.017
% Black (logged)	-.148	**.936**	.150	.045
% Hispanic (logged)	-.067	-.031	**.739**	-.470
Population Density (logged)	.323	.265	**.676**	.129

Part (b): Organizational Structure Variables

Organizational Structure Items	**Factors**		
	I	**II**	**III**
Codification	**.567**	-.009	-.122
Standardization	**.721**	. 017	-.022
Unionization	**.507**	-.019	-.019
Computerization of tasks/files	**.784**	.054	-.249
% Respond to Calls	-.175	-.095	**.830**
Police/1000 population (logged)	.317	**-.474**	.392
% personnel in technical support	.273	**.721**	.219
% personnel civilian (nonsworn)	.040	**.885**	-.077
% personnel in field operations	.315	**-.682**	.468
Salary Differential	.305	-.034	**-.677**

TABLE 3
Regressions: Total Samples
Community-Oriented Policing on Organizational and Community Variables

Dependent Variables

Independent Variables	COP Total Index			COP Community Meeting index			COP Problem-Solving index		
Formalization	**.417**		**.338**	**.440**		**.378**	**.425**		**.336**
Unionism	-.007		-.031	.071		.062	.037		.016
Concentration	.060		-.014	.056		-.011	.052		-.041
Height	.092		.049	**.182**		**.127**	**.178**		**.112**
Economic Resources		**.150**	.064		**.160**	.042		**.155**	.053
Racial Diversity		**.148**	.080		**.223**	.082		**.172**	.085
Urbanism		.090	.042		**.152**	.091		**.149**	.078
Population Change		.085	.050		.078	.040		.086	.048
Crime Rate		**.165**	**.112**		**.101**	.052		**.167**	**.131**
Percent Hispanic		.068	.046		.076	.020		**.108**	.065
(adjusted) R^2 =	**.210**	**.152**	**.237**	**.304**	**.196**	**.320**	**.271**	**.208**	**.315**
N =	**1685**	**1812**	**1685**	**1675**	**1803**	**1675**	**1675**	**1803**	**1675**

Table 4
Regressions: Total Sample
Organizational Indexes on Community Variables

	Organizational Dependent Variables			
Community Independent Variables	**Formalization Index**	**Concentration Index**	**Unionization Index**	**Height Index**
Economic Resources	.249	-.059	.124	.090
Urbanism	.301	.424	.370	.100
Racial Diversity	.067	-.061	-.203	.402
Population Change	.088	-.029	-.141	.104
Crime Rate (1998-99)	.157	.228	-.020	-.100
Percent Hispanic	.057	-.187	.151	.141
R^2 =	.296	.262	.226	.198
N =	1719	1803	1719	1675

Table 5
Regressions: by Sub-Samples
Community-Oriented Policing on Organization and Community Variables

(5a) **Dependent Variable = COP Total Index**

Independent Variables	Municipal Agencies			County Agencies		
Formalization	**.387**		**.355**	**.368**		**.270**
Concentration	-.029		-.048	.030		.038
Unionization	-.027		-.027	-.023		-.027
Height	**.130**		.065	**.121**		.015
Economic Resources		**.174**	.052		.063	.046
Urbanism		**.106**	.068		**.210**	**.101**
Racial Diversity		.092	.041		.009	.018
Population Change		.074	.045		**.104**	.090
Crime Rate		**.179**	.089		**.147**	.086
Percent Hispanic		.068	.000		.053	.071
(adjusted) R^2 =	**.198**	**.090**	**.209**	**.127**	**.154**	**.179**
N =	**1034**	**1034**	**1034**	**640**	**640**	**640**

(5b) **Dependent Variable = COP Total Index**

Independent Variables	Metro Areas			Non-Metro Areas		
Formalization	**.431**		**.377**	**.272**		**.222**
Concentration	.009		-.048	**.137**		.067
Unionization	-.013		-.020	-.035		-.052
Height	.040		.004	.071		.072
Economic Resources		**.103**	.063		.058	.027
Urbanism		.077	.054		**.119**	.044
Racial Diversity		.000	.065		.011	-.037
Population Change		.037	.053		.072	.056
Crime Rate		**.157**	**.107**		**.169**	**.127**
Percent Hispanic		-.024	.037		-.003	.022
(adjusted) R^2 =	**.191**	**.031**	**.212**	**.113**	**.074**	**.124**
N =	**1105**	**1105**	**1105**	**569**	**569**	**569**

Table 5 (continued)
Regressions: by Sub-Samples
Community-Oriented Policing on Organizational and Community Variables

(5c) **Dependent Variable = COP Total Index**

Independent Variables	Large Agencies (100-more)			Small Agencies (<100)		
Formalization	**.358**		**.336**	**.327**		**.274**
Concentration	-.012		-.074	.088		.031
Unionization	-.087		**-.101**	-.004		-.010
Height	**-.130**		**-.101**	.051		.020
Economic Resources		**.103**	.027		**.120**	.057
Urbanism		.077	.099		.097	.029
Racial Diversity		.000	-.010		.031	.030
Population Change		.037	-.015		.098	.077
Crime Rate		**.157**	.085		**.158**	.097
Percent Hispanic		-.024	-.032		.053	.058
(adjusted) R^2 =	**.145**	**.031**	**.152**	**.127**	**.087**	**.148**
N =	**624**	**624**	**624**	**1049**	**1049**	**1049**

Table 6
Regressions: by Regions
Community-Oriented Policing on Organization and Community Variables

Dependent Variable = COP Total Index

Independent Variables	(a) South Region			(b) Northeast Region		
Formalization	.484		.404	.386		.335
Concentration	.121		.047	.123		-.059
Unionization	-.032		-.059	.194		.142
Height.	.094		.086	.048		-.036
Economic Resources		.178	.085		-.036	-.035
Urbanism		.222	.065		.233	.234
Racial Diversity		.081	.020		.050	.027
Population Change		.035	.009		.019	.032
Crime Rate		.127	.093		.109	.078
Percent Hispanic		-.021	-.025		.002	.051
(adjusted) R^2 =	**.256**	**.173**	**.269**	**.106**	**.142**	**.154**
N =	**725**	**725**	**725**	**225**	**225**	**225**

Dependent Variable = COP Total Index

Independent Variables	(c) Midwest Region			(d) West Regioin		
Formalization	.456		.325	.470		.340
Concentration	.128		.053	.013		-.120
Unionization	.054		.046	-.006		-.042
Height	.103		-.012	.096		.006
Economic Resources		.109	.065		.186	.133
Urbanism		.132	.059		.190	.139
Racial Diversity		.096	.104		.070	-.005
Population Change		.252	.254		.025	.011
Crime Rate		.199	.121		.112	.122
Percent Hispanic		.143	.101		.114	.144
(adjusted) R^2 =	**.186**	**.173**	**.186**	**.151**	**.142**	**.190**
N =	**381**	**381**	**381**	**352**	**352**	**352**

Table 7
Regressions by Sub-Samples
Police Organizational Indexes on Community Variables

Dependent Variable = *Formalization* Index

Community Independent Variables	City vs. County: City	City vs. County: County	Metro vs. Non-metro: Metro	Metro vs. Non-metro: Non-metro	Large vs. Small Agencies: Large	Large vs. Small Agencies: Small
	SUB-SAMPLES					
Economic Resources	.296	.134	.267	.204	.232	.213
Urbanism	**.146**	**.420**	**.034**	**.328**	**.044**	**.243**
Racial Diversity	**.082**	**-.065**	**.143**	**.001**	**.086**	**-.053**
Population Change	.056	.092	.062	.093	.052	.085
Crime 1998-99	.200	.189	.191	.128	.140	.167
Percent Hispanic	**.118**	**-.018**	**.138**	**.012**	**.072**	**.013**
R^2 =	**.154**	**.359**	**.118**	**.225**	**.061**	**.237**
N =	**1046**	**673**	**1116**	**603**	**626**	**1093**

Dependent Variable = *Concentration* Index

Community Independent Variables	City vs. County: City	City vs. County: County	Metro vs. Non-metro: Metro	Metro vs. Non-metro: Non-metro	Large vs. Small Agencies: Large	Large vs. Small Agencies: Small
	SUB-SAMPLES					
Economic Resources	-.084	-.025	-.027	-.058	**-.146**	**.016**
Urbanism	**.134**	**-.082**	.401	.335	.326	.422
Racial Diversity	**.035**	**.140**	-.087	-.018	-.005	-.015
Population Change	-.033	.045	-.020	.007	-.058	-.013
Crime 1998-99	.023	.176	.174	.274	.239	.215
Percent Hispanic	**-.318**	**-.071**	**-.262**	**-.070**	**-.235**	**-.108**
(adjusted) R^2 =	**.096**	**.056**	**.208**	**.291**	**.274**	**.290**
N =	**724**	**1078**	**1161**	**641**	**661**	**1141**

Table 7 (continued)
Regressions by Sub-Samples
Police Organizational Indexes on Community Variables

Dependent Variable = *Unionization* Index
SUB-SAMPLES

Community Independent Variables	City vs. County		Metro vs. Non-metro		Large vs. Small Agencies	
	City	County	Metro	Non-metro	Large	Small
Economic Resources	.158	.102	.134	.099	.075	.139
Urbanism	.309	.332	.239	.254	.274	.335
Racial Diversity	**-.160**	**-.286**	-.180	-.290	-.224	-.211
Population Change	-.148	-.117	**-.204**	**.045**	-.216	-.102
Crime 1998-99	-.007	-.038	.004	-.042	-.024	-.022
Percent Hispanic	**.183**	**.079**	**.203**	**.025**	**.206**	**.086**
R^2 =	**.201**	**.171**	**.175**	**.143**	**.235**	**.192**
N =	**1046**	**673**	**1116**	**603**	**626**	**1093**

Dependent Variable = *Organizational Height* Index
SUB-SAMPLES

Community Independent Variables	City vs. County		Metro vs. Non-metro		Large vs. Small Agencies	
	City	County	Metro	Non-metro	Large	Small
Economic Resources	**.193**	**-.216**	.066	-.092	-.130	.045
Urbanism	**.241**	**.590**	**-.194**	**.009**	**-.228**	**.026**
Racial Diversity	**.297**	**.078**	.443	.272	.290	.302
Population Change	.044	.069	**.006**	**.238**	-.019	.133
Crime 1998-99	.142	.168	-.061	-.041	**-.325**	**-.028**
Percent Hispanic	**.232**	**-.029**	**.225**	**.015**	.080	.088
R^2 =	**.339**	**.451**	**.174**	**.149**	**.179**	**.104**
N =	**1035**	**640**	**1106**	**569**	**625**	**1050**

Table 8
Regressions by Regions
Police Organizational Indexes on Community Variables

Dependent Variable = *Formalization* Index

	REGIONS			
	South	**Northeast**	**Midwest**	**West**
Economic Resources	.261	-.033	.221	.160
Urbanism	.358	.142	.295	.247
Racial Diversity	.069	.057	.092	.132
Population Change	.040	-.057	.125	.046
Crime 1998-99	.096	.031	.137	.079
Percent Hispanic	.022	-.106	.076	-.009
R^2 =	**.328**	**.023**	**.355**	**.286**
N =	**743**	**228**	**400**	**358**

Dependent Variable = *Concentration* Index

	REGIONS			
	South	**Northeast**	**Midwest**	**West**
Economic Resources	-.052	.187	-.094	.016
Urbanism	.275	.396	.429	.187
Racial Diversity	-.026	-.108	-.349	-.220
Population Change	.017	-.032	-.154	.025
Crime 1998-99	.244	.221	.489	.301
Percent Hispanic	-.202	.017	.022	-.001
R^2 =	**.261**	**.189**	**.334**	**.191**
N =	**790**	**241**	**414**	**366**

Table 8 (continued)
Regressions by Regions
Police Organizational Indexes on Community Variables

Dependent Variable = *Unionization* Index

	REGIONS			
	South	**Northeast**	**Midwest**	**West**
Economic Resources	.086	-.086	.052	-.009
Urbanism	.159	-.072	.222	.275
Racial Diversity	-.027	.055	-.079	.168
Population Change	-.037	.079	-.010	-.054
Crime 1998-99	.112	.014	.015	-.057
Percent Hispanic	.187	.052	.307	-.048
R^2 =	**.165**	**.014**	**.084**	**.144**
N =	**743**	**228**	**400**	**358**

Dependent Variable = *Organizational Height* Index

	REGIONS			
	South	**Northeast**	**Midwest**	**West**
Economic Resources	.045	.041	.079	.142
Urbanism	.220	-.129	.185	.123
Racial Diversity	.294	.188	.371	.272
Population Change	.091	.082	.194	.023
Crime 1998-99	-.152	-.115	-.108	-.109
Percent Hispanic	.074	.087	.109	.128
R^2 =	**.101**	**.239**	**.240**	**.214**
N =	**725**	**225**	**382**	**352**

SUMMARY STATISTICS FOR VARIABLES
DATAFILE = 'NIJ-Policing-Datafile.sav'

Frequency Tables for Categoric/Discrete Variables

GOVTYPE: Type of Government (from DLEA)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	County government	971	32.3	32.3	32.3
	Municipal government	1757	58.5	58.5	90.8
	Township	277	9.2	9.2	100.0
	Total	3005	100.0	100.0	

AGCYTYPE: Type of Agency (from DLEA)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Sheriff	964	32.1	32.1	32.1
	County police	37	1.2	1.2	33.3
	Municipal police	1998	66.5	66.5	99.8
	Special police	6	.2	.2	100.0
	Total	3005	100.0	100.0	

CICOFLAG: City-County Flag (1=County/2=City)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	county	971	32.3	32.3	32.3
	city/township	2034	67.7	67.7	100.0
	Total	3005	100.0	100.0	

GRPCODE: FBI Geographic Group Code (F2)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	All cities 250,000 or over (1)	1	.0	.0	.0
	Cities 1,000,000 or over (1A)	9	.3	.3	.4
	Cities from 500,000 thru 999,999 (1B)	17	.6	.6	1.0
	Cities from 250,000 thru 249,999 (1C)	35	1.2	1.3	2.3
	Cities from 100,000 thru 249,999 (2)	147	4.9	5.5	7.8
	Cities 50,000 thru 99,999 (3)	277	9.2	10.3	18.1
	Cities 25,000 thru 49,999 (4)	255	8.5	9.5	27.6
	Cities 10,000 thru 24,999 (5)	338	11.2	12.6	40.2
	Cities 2,500 thru 9,999 (6)	415	13.8	15.4	55.6
	Cities under 2,500 (7)	255	8.5	9.5	65.1
	Non-MSA counties 100,000 or over (8A)	3	.1	.1	65.2
	Non-MSA counties from 25,000 thru 99,999 (8B)	80	2.7	3.0	68.2
	Non-MSA counties from 10,000 thru 24,999 (8C)	189	6.3	7.0	75.2
	Non-MSA counties under 10,000 (8D)	262	8.7	9.8	85.0
	MSA counties 100,000 or over (9A)	129	4.3	4.8	89.8
	MSA counties from 25,000 thru 99,999 (9B)	155	5.2	5.8	95.5
	MSA counties from 10,000 thru 24,999 (9C)	53	1.8	2.0	97.5
	MSA counties under 10,000 (9D)	67	2.2	2.5	100.0
	Total	2687	89.4	100.0	
Missing	System	318	10.6		
Total		3005	100.0		

AGNCYTYP: Type of agency (from LEAI Crosswalk)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	sheriff's dept	908	30.2	33.8	33.8
	gen purpose county police dept	31	1.0	1.2	34.9
	municipal police dept.	1748	58.2	65.1	100.0
	Total	2687	89.4	100.0	
Missing	System	318	10.6		
Total		3005	100.0		

REGION: UCR Regions of U.S. (from State FIPS codes)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	South	1095	36.4	36.4	36.4
	Northeast	592	19.7	19.7	56.1
	Midwest	883	29.4	29.4	85.5
	West	435	14.5	14.5	100.0
	Total	3005	100.0	100.0	

NFACILIT: Number of Facilities or sites operated by Agency (LEMAS99)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1604	53.4	53.4	53.4
	1	563	18.7	18.7	72.1
	2	224	7.5	7.5	79.6
	3	154	5.1	5.1	84.7
	4	104	3.5	3.5	88.2
	5	69	2.3	2.3	90.4
	6	57	1.9	1.9	92.3
	7	38	1.3	1.3	93.6
	8	37	1.2	1.2	94.8
	9	30	1.0	1.0	95.8
	10	23	.8	.8	96.6
	11	18	.6	.6	97.2
	12	15	.5	.5	97.7
	13	10	.3	.3	98.0
	14	7	.2	.2	98.3
	15	5	.2	.2	98.4
	16	7	.2	.2	98.7
	17	2	.1	.1	98.7
	18	1	.0	.0	98.8
	19	4	.1	.1	98.9
	20	33	1.1	1.1	100.0
	Total	3005	100.0	100.0	

STATION2: Number of stations & fixed substations (LEMAS99)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1636	54.4	54.5	54.5
	2	573	19.1	19.1	73.6
	3	212	7.1	7.1	80.6
	4	146	4.9	4.9	85.5
	5	95	3.2	3.2	88.6
	6	64	2.1	2.1	90.8
	7	60	2.0	2.0	92.8
	8	41	1.4	1.4	94.1
	9	34	1.1	1.1	95.3
	10	25	.8	.8	96.1
	11	21	.7	.7	96.8
	12	17	.6	.6	97.4
	13	14	.5	.5	97.8
	14	8	.3	.3	98.1
	15	7	.2	.2	98.3
	16	8	.3	.3	98.6
	17	5	.2	.2	98.8
	18	1	.0	.0	98.8
	19	2	.1	.1	98.9
	20	3	.1	.1	99.0
	21	2	.1	.1	99.0
	22	2	.1	.1	99.1
	23	2	.1	.1	99.2
	24	2	.1	.1	99.2
	26	4	.1	.1	99.4
	27	3	.1	.1	99.5
	28	1	.0	.0	99.5
	29	2	.1	.1	99.6
	31	2	.1	.1	99.6
	35	3	.1	.1	99.7
	41	1	.0	.0	99.8
	44	1	.0	.0	99.8
	45	1	.0	.0	99.8
	48	1	.0	.0	99.9
	52	1	.0	.0	99.9
	55	1	.0	.0	99.9
	61	1	.0	.0	100.0
	99	1	.0	.0	100.0
	Total	3003	99.9	100.0	
Missing	System	2	.1		
Total		3005	100.0		

PATROLX: Diversity of patrol types used (# of different types)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	23	.8	.8	.8
	1	5	.2	.2	.9
	2	264	8.8	8.8	9.7
	3	337	11.2	11.2	20.9
	4	395	13.1	13.2	34.1
	5	231	7.7	7.7	41.8
	6	413	13.7	13.8	55.5
	7	226	7.5	7.5	63.1
	8	196	6.5	6.5	69.6
	9	316	10.5	10.5	80.1
	10	163	5.4	5.4	85.5
	11	62	2.1	2.1	87.6
	12	197	6.6	6.6	94.2
	13	46	1.5	1.5	95.7
	14	18	.6	.6	96.3
	15	60	2.0	2.0	98.3
	16	14	.5	.5	98.8
	17	2	.1	.1	98.8
	18	35	1.2	1.2	100.0
	Total	3003	99.9	100.0	
Missing	System	2	.1		
Total		3005	100.0		

COMPTASK: # Tasks for which computers used

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	484	16.1	16.1	16.1
	1	318	10.6	10.6	26.7
	2	371	12.3	12.3	39.0
	3	410	13.6	13.6	52.7
	4	448	14.9	14.9	67.6
	5	466	15.5	15.5	83.1
	6	320	10.6	10.6	93.7
	7	188	6.3	6.3	100.0
	Total	3005	100.0	100.0	

COMPFILE: # files which are computerized

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	308	10.2	10.2	10.2
	1	29	1.0	1.0	11.2
	2	39	1.3	1.3	12.5
	3	52	1.7	1.7	14.2
	4	51	1.7	1.7	15.9
	5	52	1.7	1.7	17.7
	6	42	1.4	1.4	19.1
	7	68	2.3	2.3	21.3
	8	67	2.2	2.2	23.6
	9	69	2.3	2.3	25.9
	10	86	2.9	2.9	28.7
	11	91	3.0	3.0	31.7
	12	102	3.4	3.4	35.1
	13	124	4.1	4.1	39.3
	14	140	4.7	4.7	43.9
	15	146	4.9	4.9	48.8
	16	157	5.2	5.2	54.0
	17	197	6.6	6.6	60.6
	18	202	6.7	6.7	67.3
	19	199	6.6	6.6	73.9
	20	177	5.9	5.9	79.8
	21	188	6.3	6.3	86.1
	22	157	5.2	5.2	91.3
	23	137	4.6	4.6	95.8
	24	125	4.2	4.2	100.0
	Total	3005	100.0	100.0	

WEBPAGE: Departmental WWW Home Page

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	1057	35.2	35.2	35.2
	No	1888	62.8	62.8	98.0
	Unreported data	60	2.0	2.0	100.0
	Total	3005	100.0	100.0	

FORM97: Form Code for 1997 LEMAS survey

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	CJ-44	775	25.8	27.2	27.2
	CJ-44A	2064	68.7	72.5	99.8
	CJ-44B	7	.2	.2	100.0
	Total	2846	94.7	100.0	
Missing	System	159	5.3		
Total		3005	100.0		

EDREQUIR: Educational requirements for new officers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	2808	93.4	98.7	98.7
	1	38	1.3	1.3	100.0
	Total	2846	94.7	100.0	
Missing	System	159	5.3		
Total		3005	100.0		

DEPTSIZ5: Department Size - # of FT Sworn (5-category)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-9 FT sworn	800	26.6	26.6	26.6
	10-24	540	18.0	18.0	44.6
	25-49	456	15.2	15.2	59.8
	50-99	377	12.5	12.5	72.3
	100&more	832	27.7	27.7	100.0
	Total	3005	100.0	100.0	

DEPTSIZ2: Department Size (2-category)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-99 FTS	2173	72.3	72.3	72.3
	100-more FTS	832	27.7	27.7	100.0
	Total	3005	100.0	100.0	

COPPLAN: Department has a COP Plan

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	none	768	25.6	25.6	25.6
	Yes, not formally written	1416	47.1	47.1	72.7
	Yes, formally written	821	27.3	27.3	100.0
	Total	3005	100.0	100.0	

JURSIZE7: Pop size of jurisdiction (7-categories) (from DLEA)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<2500	280	9.3	10.4	10.4
	2500-9,999	557	18.5	20.7	31.1
	10,000-24,999	559	18.6	20.8	52.0
	25,000-49,999	393	13.1	14.6	66.6
	50,000-99,999	402	13.4	15.0	81.5
	100,000-999,999	463	15.4	17.2	98.8
	1 million or more	33	1.1	1.2	100.0
	Total	2687	89.4	100.0	
Missing	System	318	10.6		
Total		3005	100.0		

BEALE93: Beale classification (1993) Codes for County

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Metro-Large	827	27.5	27.8	27.8
	Metro-fringe	133	4.4	4.5	32.2
	Metro-Medium	607	20.2	20.4	52.6
	Metro-Small	251	8.4	8.4	61.0
	Nonmetro-City >20K-Adjacent	139	4.6	4.7	65.7
	Nonmetro-City > 20K -Nonadjacent	83	2.8	2.8	68.5
	Nonmetro-Town < 20K-Adjacent	367	12.2	12.3	80.8
	Nonmetro-Town < 20K -Nonadjacent	308	10.2	10.3	91.1
	Nonmetro- Rural - Adjacent	79	2.6	2.7	93.8
	Nonmetro - Rural -Nonadjacent	186	6.2	6.2	100.0
	Total	2980	99.2	100.0	
Missing	System	25	.8		
Total		3005	100.0		

URBINFLU: Urban Influence codes for county

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	metro-large	989	32.9	32.9	32.9
	metro-small	848	28.2	28.2	61.1
	nonmetro-adjacentlarge-city	63	2.1	2.1	63.2
	nonmetro-adjacentlarge-nocity	59	2.0	2.0	65.2
	nonmetro-adjacentsmall-city	158	5.3	5.3	70.4
	nonmetro-adjacentsmall-nocity	307	10.2	10.2	80.7
	nonmetro-nonadjacent-city	150	5.0	5.0	85.7
	nonmetro-nonadjacent-town	248	8.3	8.3	93.9
	nonmetro-nonadjacent-rural	183	6.1	6.1	100.0
	Total	3005	100.0	100.0	

METRO: Metropolitan (vs. non-metro) County

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	non-metro	1162	38.7	39.0	39.0
	metro	1818	60.5	61.0	100.0
	Total	2980	99.2	100.0	
Missing	System	25	.8		
Total		3005	100.0		

Descriptive Statistics for Numeric Variables

Descriptive Statistics

	N	Min Value	Max Value	Mean	Std. Dev.
AGCYNMBR: Agency Identifier (F16)	3005	1E+014	5E+015	3E+015	1.4E+015
FIPS: FIPS code for State+County (DLEA)	3005	1001	56041	29325.3	14966.284
POP: Population of Jurisdiction (DLEA)	3005	77	9127751	103785	398206.17
UPOPCOV: Population covered by UCR data	2671	0	7339594	56569.4	200905.23
CGOVIDNU: Government ID-number (F9)	3005	11001001	5E+008	3E+008	1.4E+008
FSTATE: FIPS code for state	3005	1	56	29.24	14.947
FCOUNTY: FIPS code for county	3005	1	830	88.25	100.410
FPLACE: FIPS code for place	2687	0	99505	61764.4	33394.528
FIPSCODE: State+County FIPS Code (LEAIC)	3005	1001	56041	29325.2	14966.284
CGOVCNTY: Numeric FBI State+County Code	2687	1001	51021	25473.0	14007.426
CGOVCITY: Numeric FBI City code	2687	1	903	46.36	125.845
WT!: Base Sample weight factor (before adjustments)	3005	1	16	5.32	4.740
WTFINAL: Final Adjusted Sample weighting factor	3004	1.0000	17.4316	5.50539	4.9409754
TASKSCOP: Task Scope index	3005	0	25	12.84	4.279
FTSWORN: Total FT (full-time) Sworn officers	2952	1	39099	145.16	859.124
FTTOTAL: Total FT Employees (Swrn+Nonsworn)	2949	1	51348	199.80	1134.277
FTNSWRN: Total FT Non-Sworn (Civilian) Employees	3003	0	12249	53.39	287.846
PCCIVILN: % of full-time employees = civilian (non-sworn)	3001	.00	89.61	21.9814	17.63047
PCFIELD: % of employees in Field Operations	2884	.32	100.00	61.2659	19.75408
PCADMIN: % of employees in Administration	2939	.00	83.33	10.5545	9.86645
PCTECH: % of employees in tech support	2977	.00	76.92	15.2200	11.61270
PCRESPND: % of FT Sworn resond to calls	3003	.00	100.00	67.0622	25.71908
PCCOMMUN: % of FT Sworn assigned to COP	3003	.00	100.00	21.7614	33.16258
POLDENS: FTS per 1000 population	2950	.00	58.82	2.0399	2.09012
SPECIAL: Functional Heterogeneity index (all assgnments)	2884	.00	.91	.3465	.21589
ADMINTNS: Admiinistrative Intensity (100 = max	2941	.00	100.00	16.9104	20.56023
FORMAL99: Formalization Index (# formal writte policies) 1999 LEMAS	3005	0	11	8.02	2.566
FORMAL97: Formalization Index (# formal writte policies) 1997 LEMAS	2846	0	15	10.38	3.480
DRUGTEST: Coverage of Drug-testing Index	2846	0	11	2.95	.938
SSCREEN: Selection screening techniques	2846	0	10	6.97	1.877
EDREQUIR: Hours of required training for new recruits	2846	0	1	.00	.042
COLLBARG: Collective Bargaining for employees	2846	0	2	.82	.906
UNION: Union membership for sworn officers	2846	0	3	1.66	1.031
EXTRAPAY: Extra pay for special duty	2846	0	4	1.03	1.010
HEIGHT: Organization Height - Salary Diff'l	2618	77.45	600.00	195.117	60.98090
STANDARD: Standardization Index	2846	.00	19.00	9.9171	2.11949
BUREAUCR: Bureaucratization Index	2846	.00	5.00	2.4835	1.64586
COPTRAIN: Amount of COP Training index	3003	1	7	4.21	2.261
COPRPCS: Extent of COP Procedures index	3003	0	6	2.20	1.821
COPMEETS: COP Community Meetings index	3003	0	10	4.68	3.235

Descriptive Statistics

	N	Min Value	Max Value	Mean	Std. Dev.
COPTOT: COP Total Index Score	2947	-6.89	9.40	.0431	2.91767
CRIME6_9: Index crime rate (average) 1996-99	2281	.00	52083.33	5080.15	3923.7157
CRIME6_8: Index crime rate (average) 1996-98	2242	.00	54637.68	5232.50	4028.9297
CRIME8_9: Index crime rate (average) 1998-99	2242	.00	53360.51	5178.76	3976.3171
POPTOT90: Total Population of jurisdiction 199	2449	107	8863164	106781	341759.99
PC5_17: % of population = 5 to 17 yrs old 1990	2449	2.8	32.2	18.180	3.3486
PC65OVR: % of population = 65 years & older 1990	2449	2.1	59.2	14.193	5.4144
PC1PHSHD: % 1-person households in 1990	2449	4.6	56.0	24.956	5.9194
PCHS25: % High School graduates, persons 25 & older 1990	2449	17.2	98.5	73.884	11.3047
HSDINCOM: Median Household Income 1989	2449	9544	130720	29415.3	12033.495
PERINCOM: Per Capita Income in 1989	2449	3423	71106	13799.0	5792.414
PCFAMPOV: % families below poverty in 1989	2449	.0	59.8	10.787	7.3947
PCPERPOV: % persons below poverty in 1989	2449	.0	64.0	13.987	8.5734
PCPOPCH: % Population change 1990-2000 (Gazeteer)	2198	-41.60	333.14	13.2373	23.33964
EMPLRT90: Employment Rate (% 18-64 yr. olds) in 1990	2449	29.22	99.61	75.4018	8.63811
HETEROGX: Racial Heterogeneity Index (Blau/Rushing) 1990	2449	.00	.88	.2478	.21953
PCNONWHT: % Population = Non-White in 1990	2449	.00	97.31	13.4422	16.09630
PCBLK: % Population = Black in 1990	2449	.00	96.75	10.6009	15.56289
PCHISP: % Population = Hispanic in 1990	2449	.00	99.62	6.6997	13.60310
PCRENTER: % Households = Renter-occupied	2449	1.08	82.47	33.9631	12.51776
POPDENS: Population density of jurisdiction	2208	.07	45804.53	1936.25	2962.7498
Valid N (listwise)	1679				

Policing in the United States: Developing a Comprehensive Empirical Model
[Grant #2002-IJ-CX-0016]
DATAFILE = 'NIJ-policing-datafile.sav'
CODEBOOK

Variable NAME — **VARIABLE LABEL AND DESCRIPTION (data format and value labels)**

[missing data coded as 'system missing' (SYSMIS) unless otherwise indicated]

GOVTYPE TYPE OF GOVERNMENT (obtained from DLEA 1996)[1]
(F1.0)

Value	Label
0	State government
1	County government
2	Municipal government
3	Township
4	Special district
5	School district
7	Tribal government

AGENCYID AGENCY IDENTIFIER (string/alphanumeric variable)
16digit-Census Bureau Governments Division code denoting the specific policing agency (extracted from DLEA 1996)
(A16)

AGCYNMBR AGENCY IDENTIFIER (numeric variable) (identical to AGENCYID but converted to a 16-digit numeric variable) (obtained from DLEA 1996)
(F16.0)

FIPS FIPS code for State+County of Agency (extracted from DLEA 1996)
(F5.0)

POP POPULATION of jurisdiction (extracted from DLEA 1996)
(F8.0)
Missing Values: 0

AGCYTYPE TYPE OF AGENCY (extracted from DLEA 1996)
(F1.0)

Value	Label
1	Sheriff
2	County police
3	Municipal police
5	Primary state law enforcement
6	Special police
7	Constable
8	Tribal police
9	Regional police

CICOFLAG City-County Indicator for Agency (1=County/2=City) [recoded from GOVTYPE variable (obtained from DLEA 1996)]
(F1.0)

Value	Label
1	county
2	city/township

UORI Agency's UORI Code from FBI (string variable) (obtained from LEAI Crosswalk file)[3]
(A7)
Missing Values: """"

GRPCODE FBI Geographic Group Code (F2) [recoded to numeric format -new values shown below] (obtained from LEAI Crosswalk file)
0 Possessions
10 All cities 250,000 or over (old code = 1)
11 Cities 1,000,000,or over (old code = 1A)
12 Cities from 500,000 thru 999,000 (old code = 1B)
13 Cities from 250,000 thru 449.999 (old code = 1C)
20 Cities from 100,000 thru 249,999 (old code = 2)
30 Cities 50,000 thru 99,999 (old code = 3)
40 Cities 25,000 thru 49,999 (old code = 4)
50 Cities 10,000 thru 24,999 (old code = 5)
60 Cities 2,500 thru 9,999 (old code = 6)
70 Cities under 2,500 (old code = 7)
80 Non-MSA counties (old code = 8)
81 Non-MSA counties 100,000 or over (old code = 8A)
82 Non-MSA counties from 25,000 thru 99,999 (old code = 8B)
83 Non-MSA counties from 10,000 thru 24,999 (old code = 8C)
84 Non-MSA counties under 10,000 (old code = 8D)
85 Non-MSA State Police (old code = 8E)
90 MSA counties (old code = 9)
91 MSA counties 100,000 or over (old code = 9A)
92 MSA counties from 25,000 thru 99,999 (old code = 9B)
93 MSA counties from 10,000 thru 24,999 (old code = 9C)
94 MSA counties under 10,000 (old code = 9D)
95 MSA State Police (old code = 9E)
(F2.0)

UPOPCOV UCR: POPULATION COVERED by agency jurisdiction (obtained from LEAI Crosswalk file)
(F9.0)
Missing Values: 9999999

CGOVIDNU GOVERNMENT ID Number (9-digit Census Bureau Governments Division code denoting the parent government of the police agency) (obtained from LEAI Crosswalk file)
[Note: this number corresponds to the left-most 9 places in the AGENCYID number it identifies the governmental unit under which the police agency is authorized. The right-most 7 places in the AGENCYID number (which are absent from CGOVIDNU) would denote the specific agency within the governmental unit.]
(F9.0)
Missing Values: 999999999

FSTATE FIPS: STATE CODE (obtained from LEAI Crosswalk file)
(F2.0)
Missing Values: 99

Value	Label
1	Alabama
2	Alaska
4	Arizona
5	Arkansas
6	California
8	Colorado
9	Connecticut
10	Delaware

11 District of Columbia
12 Florida
13 Georgia
15 Hawaii
16 Idaho
17 Illinois
18 Indiana
19 Iowa
20 Kansas
21 Kentucky
22 Louisiana
23 Maine
24 Maryland
25 Massachusetts
26 Michigan
27 Minnesota
28 Mississippi
29 Missouri
30 Montana
31 Nebraska
32 Nevada
33 New Hampshire
34 New Jersey
35 New Mexico
36 New York
37 North Carolina
38 North Dakota
39 Ohio
40 Oklahoma
41 Oregon
42 Pennsylvania
44 Rhode Island
45 South Carolina
46 South Dakota
47 Tennessee
48 Texas
49 Utah
50 Vermont
51 Virginia
53 Washington
54 West Virginia
55 Wisconsin
56 Wyoming
66 Guam
72 Puerto Rico
99 Unknown (missing)

FCOUNTY FIPS: COUNTY CODE (obtained from LEAI Crosswalk file)
(F3.0)
Missing Values: 999

FPLACE FIPS: PLACE CODE (obtained from LEAI Crosswalk file)
(F5.0)
Missing Values: *****

FIPSCODE State+County FIPS Code (F5) (obtained from LEAI Crosswalk file)

[computed as the concatenation of FSTATE & FCOUNTY variables]
(F5.0)

CGOVCNTY numeric county code (FBI-codes, not FIPS) (State+County) (obtained from LEAI Crosswalk file)
(F5.0)

CGOVCITY numeric city code (FBI-codes, not FIPS) (obtained from LEAI Crosswalk file)
(F3.0)

AGNCYNAM name of agency (obtained from LEAI Crosswalk file)
(A47)

AGNCYTYP Type of policing agency (obtained from LEAI Crosswalk file)
(F1.0)

Value	Label
1	sheriff's dept
2	gen purpose county police dept
3	municipal police dept.
5	primary state police agency
6	special police
7	Texas constable
8	tribal police
9	regional police

REGION Census/UCR Regions of U.S. -- recoded from FSTATE (State FIPS code) variable
(F1.0)

Value	Label
1	South
2	Northeast
3	Midwest
4	West

WT1 Base Sampling weight factor (before adujustments) (obtained from LEMAS 1999)[2]
(F2.0)

WTFINAL Final Adjusted Sample Weighting factor (obtained from LEMAS 1999)
[computed from the formula: Final Weight = Base Weight + 1997 weight factor + 1999 weight factor + Non-response weight factor; (see pages 7-10 in LEMAS 1999 codebook for sample weighting description)]
(F8.4)

TASKSCOP Task Scope index: Indicates number of functions checked as "functions for which your agency has PRIMARY responsibility" (obtained from Section 1 / Question 1 in LEMAS1999 Survey:[4] (Note: Court-related functions & Detention operations are not included)
[computed as total number of items checked from the following list of items:

022	Accident investigations
023	Parking enforcement
024	School crossing services
025	Traffic direction and control
026	Enforcement of traffic laws
027	Commercial vehicle enforcement
032	Ballistics testing
033	Crime lab services
034	Fingerprint processing
035	Homicide investigation

036 Other violent crimes investigation
037 Arson investigation
038 Other property crimes investigation
039 Environmental crimes investigation
040 Computer crimes investigation
044 Bomb disposal
045 Search and rescue
046 Tactical operations (SWAT)
047 Underwater recovery
051 Drug enforcement
052 Vice enforcement
053 Dispatching calls for service
054 Training academy operation]
(F2.0)

NFACILIT Number of Additional Facilities or Sites operated by Agency "which are SEPARATE FROM HEADQUARTERS" (obtained from Section I / Question 2 on LEMAS1999 survey)
[computed as sum of numbers entered on items 055, 056, & 057]
055 District/Precinct stations
056 Fixed neighborhood/community substations
057 Mobile neighborhood/community substations
(F4.0)

STATION2 Number of Separate Stations and Fixed Substations in jurisdiction "which are SEPARATE FROM HEADQUARTERS" (obtained from Section I / Question 2 on LEMAS1999 Survey)
[computed as sum of items 055 and 056 (Note: excludes mobile substations)]
(F4.0)

PATROLX Diversity of Patrol Types Index computed from LEMAS 1999 - Section I / Question 3 ("Which of the following types of patrol units did your agency use?"
[Computed as sum of scores on 6 types of patrols (Automobile; Motocycle; Foot; Horse; Bicycle; Marine) with each type scored as: 2=Routine Patrol, 1=Special events, 0=Not use]
(F4.0)

COMPTASK Number of Functions or Tasks for which agency indicated that computers were used, reported in LEMAS1999 Survey: Section II / Question 3
[includes responses to items 125 to 131]
125 Crime analysis
126 Crime mapping
127 Criminal investigations (exclude word processing)
128 Dispatch (CAD)
129 In-field communications
130 In-field report writing
131 Internal access
(F3.0)

COMPFILE Number of types of information for which computerized files are maintained in agency, reported in LEMAS1999 Survey: Section II / Question 4
[includes responses to items 132 to 155]
132 Alarms
133 Arrests
134 Calls for service
135 Criminal histories
136 Department inventory
137 Driver's license information
138 Evidence

139 Field interview information
140 Incident-based crime data
141 Incident reports
142 Incident report narratives
143 Linked files for crime analysis
144 Payroll
145 Personnel
146 Stolen vehicles
147 Stolen property - other than vehicles
148 Summonses
149 Traffic accidents
150 Traffic citations
151 Traffic stops
152 Uniform Crime Reports - Summary
153 Uniform Crime Reports - NIBRS
154 Vehicle registration
155 Warrants
(F3.0)

WEBPAGE Does agency maintains an official Internet site? ("Home Page"), reported in LEMAS1999 Survey: Section II / Question 6) [item 163]

Value	Label
1	Yes
2	No
9	Unreported data/missing data

(F1.0)

FTSWORN Total Full-Time Sworn Personnel, reported in LEMAS1999 Survey: Section III / Question 2 [number reported in item 171])
(F5.0)
Missing Values: 99999, 0

FTTOTAL Total Full-Time Employees (Sworn + NonSworn), reported in LEMAS1999 Survey: Section III / Question 2
[Computed as the sum of items 171 + 173]
(F8.0)
Missing Values: 0

FTNSWRN Total Full-time Non-Sworn Employees (reported in LEMAS1999 Survey: Section III / Question 2 [number reported in item 173)
(F8.0)

PCCIVILN Percent of Total Full-Time Nonsworn (civilian) employees, computed using personnel figures reported in LEMAS1999 Survey: Section III / Question 2
[computed by formula: pcciviln = (ftnswrn/fttotal)*100]
(F8.2)

PCFIELD Percemt of employees who are assigned in Field Operations, computed using personnel figures reported in LEMAS1999 Survey: Section III / Question 2, items #
[computed by formula: pcfield = (item 175/item171)*100]
(F8.2)

PCADMIN Percent of employees in Administration, (computed using personnel figures obtained from LEMAS1999 Survey: Section III / Question 2, items #175 & #171)
[computed by formula: pcadmin = (item 175/item171)*100]
(F8.2)

PCTECH Percent of employees in technical support positions, computed using personnel figures obtained from LEMAS1999 Survey: Section III / Question 2
[computed by formula: pctech = (item 179/item 171)*100]
(F8.2)

PCRESPND Percent of Full-Time Sworn Personnel whose REGULARLY ASSIGNED duties include responding to Calls-for-Service, computed using personnel figures obtained from LEMAS1999 Survey: Section III / Questions 2&3
[computed by formula: pcrespnd = (item 188/item 171)*100]
(F8.2)

PCCOMMUN Percent of Full-Time Sworn Personnel Assigned to Community Oriented Policing (COP), computed using personnel figures from LEMAS1999 Survey: Section III / Questions 2 & 4
[computed by formula: pccommun = (item 189/item 171)*100]
(F8.2)

POLDENS Number of Full-Time Sworn Officers per 1000 population in jurisdiction, (computed using personnel and population figures obtained from LEMAS1999 Survey):
[computed by formula: poldens2 = (ftnswrn/pop)*1000])
(F8.2)
Missing Values: .00

SPECIAL Functional Heterogeneity of Sworn Personnel index, (computed using personnel figures obtained from LEMAS 1999 survey: Section III / Question #2)
[Blau/Rushing Diversity index computed over proportions of sworn employees assigned in all personnel categories, except "Other" (obtained from items 175, 177, 179, 181, and 183)]
(F8.2)

ADMINTNS Administrative Intensity Index, (computed using personnel figures obtained from LEMAS 1999 survey: Section III / Question #2 (items 175 and 177)
[computed as the ration of sworn administrative personnel to sworn field personnel times 100 -- i.e., (175 / 177) * 100 -- with maximum value of 100]
(F8.2)

FORMAL99 Formalization Index 1999: Total number of topics covered by formal written policies, (obtained from LEMAS1999 Survey: Section IV / Questions 1a -1j). Topics include:

1a Code of conduct and appearance
1b Citizen complaints
1c Use of deadly force/firearm discharge
1d Discretionary arrest powers
1e Handling domestic disputes
1f Responding to the homeless
1g Working with juveniles
1h Use of less-than-lethal force
1i Responding to people with mental illness
1j Maximum work hours allowed for officers)

[computed by: formal99 = sum of 1a through 1j (items recoded 1=yes, 0=no)]
(f3.0)

FORMAL97 Formalization Index 1997: Total number of topics covered by formal written policies, (obtained from LEMAS1997 Survey:[5] Section IV/Question2a-2o) which include:

2a Use of deadly force/firearm discharge
2b Handling the mentally ill
2c Handling the homeless
2d Handling domestic disputes
2e Handling juveniles

2f Use of less-than-lethal force
2g Relationships with private security firms
2h Off-duty employment of sworn personnel
2i Strip searches
2j Code of conduct and appearance
2k Use of confidential funds
2l Employee counseling assistance
2m Citizen complaints
2n Maximum hours worked by officers
2o Discretionary arrest power
[computed by: formal97 = sum of 1a through 1o (items recoded as 1=yes; 0=no)]
(F3.0)

FORM97 FORM CODE for 1997 LEMAS Survey (indicates which version of questionnaire was used by the agency for 1997 survey) (obtained from LEMAS1997 Survey)
(F1.0)

Value	Label
1	CJ-44
2	CJ-44A
3	CJ-44B

DRUGTEST Coverage of Drug testing Index (Total number of items checked related to drug testing), (obtained from LEMAS1997 Survey: Section IV / Question 5)
[computed by a count of items 324 through 337 that were checked as applicable]
(F3.0)

SSCREEN Selection screening techniques used by Agency in selecting new officer recruits (obtained from LEMAS1997 Survey: Section IV / Question 6)
[computed by a count of items 339 through 348 that were checked, from the following list:]
339 Personal interview
340 Psychological screening
341 Polygraph exam
342 Voice stress analyzer
343 Physical agility test
344 Written aptitude test
345 Criminal record check
346 Background investigation
347 Medical exam
348 Driving record check
(F3.0)

EDREQUIR Education requirements for new officers (obtained from LEMAS1997 survey - Section IV / Question 8) [item 352]
1 Four-year college degree required
2 Two-year college degree required
3 Some college but no degree required
4 High school diploma or equivalent required
5 No formal education requirement
(F4.0)

HRTRAIN Hours of required training for new recruits (obtained from LEMAS1997 survey - Section IV / Question 8a)
[Computed as sum of items 354 (classroom training hours) and 355 (field training hours)]
(F4.0)

COLLBARG Collective Bargaining for employees? (obtained from LEMAS1997 survey - Section IV /

Question 10)
[computed as the sum of items 359 (Sworn employees) and 360 (nonsworn employees); (computation after items recoded: 1=yes; 0=no)]
(F2.0)

UNION Union membership for sworn officers? (obtained from LEMAS1997 - Section IV / Question 11)
[sum of items 361, 362, & 363 (after items recoded: 1=yes; 0=no)]
361 Police union
362 Nonpolice union
363 Police association
(F2.0)

EXTRAPAY Agency provides extra pay for special duty? (obtained from LEMAS1997 - Section IV / Question 12)
[sum of items 364, 365, 366, & 367 (after items recoded: 1=yes; 0=no)]
364 Hazardous duty pay
365 Shift differential pay
366 Education incentive pay
367 Merit pay
(F2.0)

HEIGHT Organization Height - computed as the Salary Differential between Chief/Sheriff and Entry-level officer, (using data obtained from LEMAS1997 - Section V / Question 3)
[computed as the ratio: height = ((item 376+item 377)/(item 382 + item 383))*100]
(F8.2)

STANDARD Standardization Index (computed as sum of DRUGTEST + SSCREEN + HRTRAIN variables) [computed from data obtained from LEMAS1997 survey]
(F8.2)

BUREAUCR Bureaucratization Index (computed as sum of COLLBARG + UNION variables)
[computed from data obtained from LEMAS1997 survey]
(F8.2)

DEPTSIZ5 Full-Time Sworn (5-category classification of Department size)
(recoded from FTSWORN [which was obtained from LEMAS 1999 survey)

Value	Label
1	0-9 FT sworn
2	10-24
3	25-49
4	50-99
5	100&more

(F2.0)

DEPTSIZ2 Full-Time Sworn (2-category classification of Department size)
(recoded from FTSWORN [obtained from LEMAS 1999 survey)

Value	Label
1	0-99 FT sworn (Small)
2	100 & more (Large)

(F2.0)

COPPLAN Does agency has Community Policing Plan? (obtained from LEMAS1999 survey - Section V / Question #1) (recoded from original LEMAS codes, item 207)

Value	Label
1	none

2 Yes, not formally written
3 Yes, formally written
9 Missing (Unreported data)
(F1.0)

COPTRAIN Community-Oriented Policing Training index (obtained from LEMAS 1999 survey - Section V / Question #2)
[computed as the sum of scores on items 208 (New officer recruits), 209 (In-service sworn personnel), and 210 (Civilian personnel)]
(F2.0)

COPROCS Community-Oriented Policing Procedures index (obtained from LEMAS 1999 survey - Section V / Question #3)
[computed as the sum of items 212, 213, 214, 215, and 217 (after items recoded as: 1=yes/0=no)]
212 Gave patrol officers responsibility for specific geographic areas/beats
213 Assigned detectives to cases based on geographic areas/beats
214 Actively encouraged patrol officers to engage in SARA-type problem-solving
215 Included collaborative problem-solving projects in evaluation criteria of officers
216 Formed problem-solving partnerships with community groups or others
(F2.0)

COPMEETS Community-Oriented Policing Meetings index (obtained from LEMAS 1999 survey - Section V / Question #4)
[computed as the sum of items 218, 219, 220, 221, 222, 223, 224, 225, 226 , 227 (after items coded as: 1=yes/0=no)]
218 Advocacy groups
219 Business groups
220 Domestic violence groups
221 Local public agencies (e.g., sanitation, parks)
222 Neighborhood associations
223 Religious groups
224 School groups
225 Tenants' associations
226 Youth service organizations
227 Senior citizen groups
(F2.0)

COPSURVY Community-Oriented Policing Survey Use index (obtained from LEMAS 1999 survey - Section V / Question #5a)
[computed as the sum of items 231, 232, 233, and 234 (after items recoded: 1=yes/0=no)]
231 Public satisfaction with police services
232 Public perceptions of crime/disorder problems
233 Personal crime experiences
234 Other
(F2.0)

COPTOT Total Community-Oriented Policing Index
[computed as the sum of the COPPLAN, COPTRAIN, COPROCS, COPMEETS, AND COPSURVY variables -- with component index items standardized before summing)
(F2.0)

CRIME6_9 Index crime rate (annual average for 4-year period 1996-1999)
(computed from UCR Offenses Known files for 1996, 1997, 1998, 1999)[6]
(F8.2)

CRIME6_8 Index crime rate (annual average for 3-year period) 1996-1998)
(computed from UCR Offenses Known files for 1996, 1997, 1998)
(F8.2)

CRIME8_9 Index Crime Rate (annual average for 2-year period: 1998-99)
(computed from UCR Offenses Known files for 1998 & 1999)
(F8.2)

JURSIZE7 Population size of jurisdiction (recoded from POP into 7 categories) (POP data obtained from DLEA 1996)

Value	Label
1	<2500
2	2500-9,999
3	10,000-24,999
4	25,000-49,999
5	50,000-99,999
6	100,000-999,999
7	1 million or more
0 M	Missing value

(F1.0)

BEALE93 Beale County Classification Codes - 1993 version (Rural-Urban Continuum Codes) (obtained from USDA-ERS-1995)[6]

Value	Label
0	Metro - large city (1million or more)
1	Metro - fringe county of CMSA
2	Metro - medium city (250,000-999,999)
3	Metro - smaller city (50,00-249,999)
4	Nonmetro - City >20K - Adjacent
5	Nonmetro - City >20K - Nonadjacent
6	Nonmetro - Town <20K - Adjacent
7	Nonmetro - Town <20K - Nonadjacent
8	Nonmetro - Rural - Adjacent
9	Nonmetro - Rural - Nonadjacent

(F1.0)

URBINFLU Urban Influence codes (obtained from USDA-ERS-1993)[9]

Value	Label
1	large metro
2	small metro
3	nonmetro-adjacent to large metro - city
4	nonmetro-adjacent to large metro -no city
5	nonmetro-adjacent to small metro - city
6	nonmetro-adjacent to small metro - no city
7	nonmetro-not adjacent to metro area - city
8	nonmetro-not adjacent to metro area - town (2500-
9	nonmetro-not adjacent to metro area - rural only

(F2.0)

METRO Metropolitan (vs. Non-metropolitan) county location of agency, coded from USDA-ERS 1995 file)[6]
Recoding of the Rural-Urban Continuum categories (Beale codes) - 1995 version

Value	Label
1	Non-metro (Beale codes 0, 1, 2, & 3)
2	Metro (Beale codes 4, 5, 6, 7, 8 & 9)

(F1.0)

POPTOT90 Total Population 1990 of jurisdiction (Place or County) (obtained from County-City Data Book 1994)[7]
Missing Values: 0 (M)
(F8.0)

PC5_17 Percent of population of jurisdiction (Place or County) aged 5 to 17 years old in 1990 (obtained from County-City Data Book 1994)
(F4.1)

PC65OVR Percent of population of jurisdiction (Place or County) aged 65 years & older in 1990 (obtained from County-City Data Book 1994)
(F4.1)

PC1PHSHD Percent of households in jurisdiction (Place or County) that are one-person households, 1990 (obtained from County-City Data Book 1994)
(F4.1)

PCHS25 Percent of Adults (25 and older) in jurisdiction (Place or County) who are High School graduates, 1990
(obtained from County-City Data Book 1994)
Format: F4.1

HSDINCOM Median Household Income in jurisdiction (Place or County) in 1989
(obtained from County-City Data Book 1994)
(F6.0)

PERINCOM Per Capita Income in jurisdiction (Place or County) in 1989
(obtained from County-City Data Book 1994)
(F5.0)

PCFAMPOV Percent of families in jurisdiction (Place or County) below poverty level in 1989
(obtained from County-City Data Book 1994)
(F4.1)

PCPERPOV Percent of persons below poverty level in jurisdiction (Place or County) in 1989
(obtained from County-City Data Book 1994)
(F4.1)

PCPOPCH Percent population change in jurisdiction (Place or County) between 1990 & 2000
(obtained from Census Gazeteer 1990 and 2000 datafiles)[8]
(F8.2)

EMPLRT90 Employment Rate in jurisdiction (Place or County) (percent of persons 18 to 64 yrs. old who are employed) in 1990
[rate computed by (# persons employed / # persons aged 18-64) * 100]
(obtained from County-City Data Book 1994)
(F8.2)

HETEROGX Racial Heterogeneity Index in jurisdiction (Place or County) computed using Blau/Rushing Heterogeneity Index on populations reported in all racial categories, 1990
(obtained from County-City Data Book 1994)
(F6.2)

PCNONWHT Pecent of Population in jurisdiction (Place or County) classified ' Non-White' in 1990
(obtained from County-City Data Book 1994)

(F6.2)

PCBLK Percent of population in jurisdiction (Place or County) classified as Black, 1990 (obtained from County-City Data Book 1994) (F6.2)

PCHISP Percent of population in jurisdiction (Place or County) classified as Hispanic (obtained from City-County Data Book 1994) (F8.2)

PCRENTER Percent of housing units in jurisdiction (Place or County) that are renter-occupied (obtained from City-County Data Book 1994) (F8.2)

POPDENS Population Density in jurisdiction (Place or County) in persons per square miles (obtained from Census Gazeteer 1990 data) [computed as the ratio of population of jurisdiction to geographic area of jurisdiction] (F8.2)

[Note: missing data are coded as 'system missing' (SYSMIS) unless otherwise indicated]

References for Original Data Sources:

[1] DLEA U.S. Department of Justice. Bureau of Justice Statistics. Directory of Law Enforcment Agencies, 1996: [United States] [Computer file]. Conducted by U.S. Dept. of Commerce, Bureau of the Census. ICPSR ed. Ann Arbor, MI: Inter-University Consortium for Political and Social Research [producer and distributor]. 1998. [ICPSR 2260]

[2] LEAI Crosswalk U.S. Department of Justice. Bureau of Justice Statistics. Law Enforcment Agency Identifiers Crosswalk [United States], 1996. [Computer file]. ICPSR ed. Ann Arbor, MI: Inter-University Consortium for Political and Social Research [producer and distributor]. 2000. [ICPSR 2876]

[3] LEMAS 1999 U.S. Department of Justice. Bureau of Justice Statistics. Law Enforcment Management and Administrative Statistics (LEMAS): 1999 Sample Survey of Law Enforcement Agencies [Computer file]. ICPSR version. U.S. Dept. of Commerce, Bureau of the Census [producer]. 2000. Ann Arbor, MI: Inter-University Consortium for Political and Social Research [distributor]. 2001. [ICPSR 3079]

[4] LEMAS 1997 U.S. Department of Justice. Bureau of Justice Statistics. Law Enforcment Management and Administrative Statistics (LEMAS): 1997 Sample Survey of Law Enforcement Agencies [Computer file]. ICPSR version. U.S. Dept. of Commerce, Bureau of the Census [producer]. 1998. Ann Arbor, MI: Inter-University Consortium for Political and Social Research [distributor]. 1999. [ICPSR 2700]

[5] UCR — U.S. Department of Justice. Federal Bureau of Investigation. Uniform Crime Reporting Program Data. [United States]: Offenses Known and Clearances by Arrest, 1999 [Computer file]. Compiled by U.S. Dept. of Justice, Federal Bureau of Investigation. 2nd ICPSR ed. Ann Arbor, MI: Inter-University Consortium for Political and Social Research [producer and distributor]. 2001. [ICPSR 3158]
Uniform Crime Reporting Program Data [United States]: Offenses Known and Clearances by Arrest, 1998 [Computer file]. Compiled by U.S. Dept. of Justice, Federal Bureau of Investigation. 2nd ICPSR ed. Ann Arbor, MI: Inter-University Consortium for Political and Social Research [producer and distributor]. 2000. [ICPSR 2904]
Uniform Crime Reporting Program Data. [United States]: Offenses Known and Clearances by Arrest, 1997 [Computer file]. Compiled by U.S. Dept. of Justice, Federal Bureau of Investigation. 2nd ICPSR ed. Ann Arbor, MI: Inter-University Consortium for Political and Social Research [producer and distributor]. 1999. [ICPSR 9028]
Uniform Crime Reporting Program Data. [United States]: Offenses Known and Clearances by Arrest, 1996 [Computer file]. Compiled by U.S. Dept. of Justice, Federal Bureau of Investigation. 2nd ICPSR ed. Ann Arbor, MI: Inter-University Consortium for Political and Social Research [producer and distributor]. 1998. [ICPSR 9028]

[6] ERS-Beale — U.S. Department of Agriculture, Economic Research Service. ERS County Continuum codes (1995 update) [data file]. [available online at: **www.ers.usda.gov/briefing/rurality/RuralUrbCon/code93.txt**]

[7] City-County94 — U.S. Department of Commerce, U.S. Census Bureau. County and City Data Book 1994. [CD-ROM]. distributed by U.S. Census Bureau, Administrative and Customer Services Division. Washington, D.C. 1995.
[item number CD-CCDB-94]

[8] Gazeteer — U.S. Department of Commerce, U.S. Census Bureau. Census Gazeteer 1990 [data file].
[available online at:
www.census.gov/geo/www/gazeteer/gazette.html]
U.S. Department of Commerce, U.S. Census Bureau. Census Gazateer 2000 [data file].
[available online at:
www.census.gov/geo/www/gazeteer/gazette.html]

[9] ERS-Urban — U.S. Department of Agriculture, Economic Research Service. Urban Influence Codes [data file].
[available online at:
www.ers.usda.gov/briefing/rurality/RuralUrbInf/]