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An environmental analysis of professionalization in police departments

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AN ENVIRONMENTAL ANALYSIS OF PROFESSIONALIZATION IN POLICE DEPARTMENTS

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ABSTRACT

This study attempts to develop an environmental explanation of professionalization in police organizations. Professionalization is taken as the knowledge component of organizational technology, while the environment is conceived as the sum of an organization's reciprocal relationships with the surrounding social structure. Two properties of the environment may be delineated: specific interorganizational linkages and general environmental factors such as demography and economics. Drawing upon this distinction, we have attempted to elaborate general environmental conditions conducive or antithetical to professional development. The inductive nature of this study, however, does not lead us away from interorganizational linkages. Indeed, the expanding interorganizational field of law enforcement is likely to include organizations indirectly tied to police departments on a formal basis, yet serving as sources of input. Certain general environmental factors can best be understood by the discovery of organizations that act as intermediaries to the focal organization. The saliency of the task environment must also be realized. Here we note the deflating effects on professionalization with increasing civil disturbance experience. Finally, the economic posture of the community plays an important part in the decision to professionalize. Previous studies have pointed to the multidimensionality of police professionalization and have had less success in capturing the variance in the structural and training dimensions than the general educational dimension. Findings suggest that professionalization is developing in a structurally isolated manner.

CHAPTER I

INTRODUCTION

Police organizations have attracted much attention recently from various quarters. The civil disturbances of the 1960's and rising crime rates of the 1970's have drawn attention from the media, public agencies concerned with law enforcement and the general populace, and resulting demands have been placed on police organizations for better methods of problem definition and solution design (Kreps and Weller, 1975).

Demand for better service has generally come under the rubric of the need to "professionalize" the police. The rationale for professionalization is generally expressed by stressing increased effectiveness brought about by educational upgrading of police personnel. Education is thought to increase effectiveness in three ways: 1) increasing officer motivation through improved management techniques, 2) balancing the social welfare function of the police with the traditional law enforcement function, and 3) leading to proper use of police discretionary power. The assessment of effectiveness and productivity remains problematic due to the fact that social service type tasks are typically not rewarded and are not congruent with traditional police practices (Hoover, 1975). Whatever the problems of

measuring the effectiveness of educational upgrading of the front line officer are, the move to "professionalize" the police is well underway and is receiving attention from the scientific as well as law enforcement communities.

Although much of the literature concerning police professionalization and professionalization in general has focused on the characteristics of individuals and social roles, it has become increasingly evident that professionalization has referents at the organizational level. This is especially important for police organizations because police officers perform under organizational auspices rather than as independent practitioners (Kreps and Weller, 1975; Oppenheim, 1975). In order to examine the qualitative improvement of the police, it is necessary to understand the analytic dimensions of professionalization. Although professionalization can be examined on individual and organizational levels, seven generally agreed upon dimensions of the concept capture the essentials of the professional model: 1) systematic body of theoretical knowledge, 2) specialized training, 3) autonomy, 4) public definition of the services as essential to society, 5) ideal of service, 6) code of ethics, 7) colleague associations (Oppenheim, 1975). At the

organizational level, professionalization has largely been concerned with aggregate knowledge capabilities and is therefore a logical component of technology (Kreps, 1975; Perrow, 1967). Technology, in turn, is a property of the organization (Hall, 1972), and logically implies consequences for organizational behavior.

Much research attention has focused upon the relationship between professionalization and bureaucratization. Typically the hypothesis has been that these are polar types of organizational arrangements, implying conflict in structures in which elements of each are present. However, the relationship between professionalization and bureaucratization must be viewed as uncertain. Hall (1968) states that the translation of knowledge into technical expertise is prevalent in the value systems of both professional and bureaucratic structures. Emergent structures may be developed by the organization to act as mediators between the bureaucracy and professionals (Tagiuri, 1964; LaPorte, 1965; Glaser, 1964). Additionally, professionals may actually impose structure (usually seen as a bureaucratic phenomenon) and use it for goal attainment (Montagna, 1968). Regarding police organizations, professionalization appears to develop largely inde-

pendent of the constraining effects of bureaucracy (Kreps and Weller, 1975; Oppenheim, 1975).

The fact that knowledge capabilities or technology is problematic in its relationship to organizational structure and functioning leads to the hypothesis that professionalization is indeed a multidimensional concept. As such knowledge capability and qualitative personnel characteristics must be viewed as variable and subject to impact from organizational and environmental contingencies. The essential multidimensionality of professionalization in regard to police organizations has been captured (Kreps and Weller, 1975; Oppenheim, 1975). Organizational professionalization or aggregate knowledge capabilities of the police diverge essentially along two paths. The first dimension consists of general educational elements while the second consists of knowledge development that can be subsumed under the heading of training. A third but weaker characteristic is also present whereby certain structural arrangements attempt to reconcile the two main patterns (Kreps and Weller, 1975; Oppenheim, 1975).

Recognition of professionalization modalities leads logically into the area of "explanation" of patterns. Two broad areas from which explanatory

relationships could be taken fall under the headings of organizational and environmental. Keeping in mind that time order in the collection and analysis of data is always important and often difficult to maintain, we have proceeded inductively to work out the relationships between professionalization dimensions and organizational and environmental factors. Statements and implications of causality should be questioned due to the fact that explicit time order was not a factor in the collection of much of the environmental data. However, previous authors have taken time order into account whenever possible (Kreps and Weller, 1975; Oppenheim, 1975).

The organizational links to professionalization of police organizations have been examined closely and serve as the impetus for this paper. Kreps and Weller (1975) in a report to the College of William and Mary Metropolitan Criminal Justice Center and Pamela Oppenheim (1975) in thesis work submitted to the Department of Sociology, have attempted to explain professionalization in police organizations in terms of organizational characteristics and relationships within the interorganizational field of law enforcement. The dependent variables of professionalization as well as organizational concepts and variables have been trans-

planted intact to this paper.[1] Previous research finds, remarkably, that organizational and professional elements appear to be fairly independent. This supports the contention that much of the theory concerning the conflict of supposedly antithetical bureaucratic and professional is overstated (Kreps, 1975). Size, it appears, is among the most important of the determining factors, due to the multiplicity of coordination problems inherent with large numbers of personnel and because it increases the sheer probability of relevant member skills (Kreps, 1975; Oppenheim, 1975). In addition, salary acts as a simple inducement to professionalization, although its effects are limited to the general educational dimension.

If organizational structure has little effect upon professionalization, the same cannot be said for the effects of the environment. In particular, normative and comparative references have substantial im-

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[1]Kreps and Weller (1975) and Oppenheim (1975) sampled 137 police departments of cities 50,000 population and above. Data concerning educational characteristics, educational requirements, training requirements and promotional requirements were requested and used to construct the professionalization variables in the previous studies. We have borrowed the professionalization data, as well as certain organizational data, for our analysis.

pact upon the general knowledge component of police professionalization. The interorganizational field of law enforcement serves as both a pool of knowledge resources and stimulant to professional development (Kreps and Weller, 1975). While the knowledge component of professionalization may not be translated into specific structural consequences, the environment in the form of interorganizational contacts certainly encourages knowledge development. Most important perhaps, is the saliency of the task environment. Civil disturbance experience of police departments has clear consequences in terms of the professionalization characteristics previously noted. With increasing civil disturbance experience, police departments tend to deemphasize the general educational dimension (Kreps and Weller, 1975; Oppenheim, 1975).

In the following work we have accepted the idea that organizational-environmental relationships involve the total of the reciprocal linkages between an organization and the encompassing social and physical structures (Oppenheim, 1975). Using Hall's (1972) distinction between the specific and general environment, we have inductively attempted to elaborate the relationship between the environment and police professionalization. Specifically, we have

attempted to measure characteristics of the surrounding urban environment while retaining from previous work those variables that most properly belong to the specific environmental and organizational realm (interorganizational relationships with other police organizations). The inductive approach should be carefully noted. While we have attempted to broaden our understanding of these factors, it remains possible that the variables chosen may lead to explanations that differ or transcend previous work.

CHAPTER II

ORGANIZATIONAL ENVIRONMENTS

The environments of organizations have been expressed both tacitly and explicitly in previous studies. Some researchers have emphasized the importance of contextual analysis-i.e., the origin and history of the organization, ownership and control, size, charter statements, technology and social function (Pugh, 1963; 1969). Indeed, the literature regarding technology has been considerable and useful (Perrow, 1972; Woodward, 1965; Triest et al, 1963). While technology can be conceptualized as a property of the organization (Kreps, 1975) and externally or environmentally generated (Hall, 1972), the analytical dimensions of technology are frequently not made clear. Often, technology is operationally conceived as techniques related to materials, and production (Perrow, 1972) and problematic in application to non-manufacturing organizations (Pugh et al, 1963). Increasingly, however, technology has been viewed as knowledge capability and this promises to widen the application of the concept to other types of organizations (Kreps and Dynes, 1974).

Perhaps the most useful conceptualization of the environment is Hall's distinction between the general

environment and the organization's specific environment (Hall, 1972). The specific environment has been most clearly defined in terms of interorganizational relationships. Within this framework, goal setting is seen as a continuing interactive process with the environment (Thompson and McEwen, 1958). The environment is treated as sources of information, materials, and services available to the organization, all of which is not relevant to goals or the goal setting process. Attention is then focused on those environmental inputs bearing upon goal attainment. Thus, the task environment of the organization can be seen as a potential source of external impact and be delineated as direct and indirect sources of influence (Dill, 1962). Evan (1964) has advanced the notion of organizational sets, composed of organizations interacting with a focal organization. "Sets" involve organizations that provide inputs to the focal organization and receive outputs. Organizational relationships can be mapped within the confines of the focal organization and the particular organizational set. Goals and values, comparative and normative references, overlap in membership, concentration of resources and boundary maintenance are posited as important factors in assessing organizational sets.

Warren advances the concept of an interorganizational field structure (Warren, 1967). The author sees the field structure as parties that interact in a situation of mutual influence. While organizations seek to act rationally, all values can not be maximized simultaneously. The interorganizational field seeks at best an "optimal mix" of interests and organizational relationships. The organizational set concentrates on formal relationships between organizations, while Warren notes that the interorganizational field often lacks centralized decision-making and implementation structures.

Much of the theoretical work relating to organizations and environment rests upon the properties of systems. Analytically systems are conceived as open, engaged in processes of interaction with environmental systems, yet concerned with the creation and maintenance of boundaries (Parsons, 1961). Organizations can be seen as systems and subsystems in continuous contact with their environments in the process of setting and attempting to achieve goals. Goals are problematic, in that competing values, both internal and external, are endemic in the process of goal attainment (Eisenstadt, 1959). Boundaries become important and exist to the extent that it is possible

to identify an independent set of structures and processes. Operationally, boundaries serve to distinguish members from nonmembers and control entry and exit to and from the organization (Aldrich, 1971). Potentially, boundaries serve as agents of great control to the extent that they allow or restrict inputs and outputs to and from the environment.

Seminal work on the etiology of environments is provided by Emery and Trist (1965). Arguing for the appropriateness of a systems approach to phenomena that display the nature of organization, the authors note that organizations import materials from their environments and transform them according to their own systemic needs and return the outputs to the environment. A classification of environments is offered, which parallels the economic classification of markets. The simplest environment involves a situation in which relevant elements are randomly distributed and relatively constant. More complex environments involve clustering of goals demanding a development of organizational strategy in which survival depends upon knowledge of the environment. Planning and specialized competence develop in the organization. The most complex or turbulent environments require increasing interorganizational relationships and in-

creasing knowledge of other facets of society. The authors note that turbulent environments involve a gross increase in the amount of uncertainty related to performance of organizational tasks.

That the ability to recognize environmental conditions is increasingly important both theoretically and practically is highlighted by Terreberry (1968). Turbulent environments are increasingly relevant for organizations as they increase the ratio of externally induced to internally induced change. Turbulence involves both complexity and rapidity of change determined by the causal interconnections between an organization and its environment. In addition, factors relating to change may no longer be under the direct control of the organization. Long range planning is likely to suffer under conditions of extreme uncertainty and optimizing decision models may give way to "satisficing" models. Finally, the importance of boundary personnel in the mediation of environmental relations is underscored as the degree of uncertainty rises (Perrow, 1972). "Role sets", especially at the boundary level, becomes increasingly important for strategy development in a complex network tying the fates of organizations together (Evan, 1964; Thompson and McEwen, 1958).

A recurring theme throughout the environmental literature is that of uncertainty. Duncan has distinguished uncertainty from risk situations by noting that risk entails situations in which the outcome has a known probability while uncertain situations have no known probability of outcome (Duncan, 1972). Uncertainty constitutes a "lack of information regarding environmental factors associated with a given decision situation...not knowing the outcome of a specific decision in terms of how much the organization would lose if the decisions were incorrect and inability to assign probabilities with any degree of confidence with regard to how environmental factors are going to affect the success or failure of the decision unit in performing its function" (Duncan, 1972: 318). Simpson has shown that organizations which must adapt to wide ranges of environmental pressure differ in internal structure from organizations in which pressure from the environment is lesser (Simpson, 1962). Duncan has supported the theoretical work of Terreberry (1968) and Emery and Trist (1965) by demonstrating that perceived environmental uncertainty is greater for those organizations in which the environment is classified as dynamic-complex (Duncan, 1972). In other words, the perception of un-

certainty is greatest in environments characterized by a large number of dissimilar changes. With regard to organizational structure, uncertain environmental conditions lead to greater "organizational density," decentralization, and the proliferation of interorganizational linkages. The development of communitywide health care systems has been seen as a method of dealing with uncertainty (Turk, 1973).

In keeping with Terreberry's contention that increased environmental complexity increases the likelihood of externally induced change, Zaltman et al (1973) summarize much of the literature on organizational innovation by noting that the sources for new ideas are largely externally generated. Innovation in the form of adoption of new technology in the steel industry has been shown to be largely a function of the ability of an organization to adapt and utilize technical expertise developed by the environment rather than the organization (Miller, 1971). As the environment can be seen as a source of knowledge and innovation, the structural impact upon the organization of the expansion of information may be far reaching. Such expansion restricts the range of materials that any individual can master with the result likely to be specialization and proliferation of subunits (Clark, 1968).

In a similar vein, Corwin (1972), in addressing strategies for change, has drawn upon the work of Clark (1968), March and Simon (1958), Gouldner (1954) and others by hypothesizing that change is a function of exposure to creative, unconventional outsiders and socialization agents as well as flexible, competent organizational "gatekeepers."

While organizational change is seen as increasingly induced by the environment, the magnitude and type of change is problematic. Innovation or change is radical to the extent that it involves greater costs in scarce inducements (Wilson, 1966). Environmental conditions that seem to call for change may not lead to the expected outcome (Kreps and Weller, 1975). Previous experience, aspirations, and the sense of well being and perceived success, defined as "slack," contribute to the direction and likelihood of change (Becker and Whisler, 1967). Next, the type of prevailing environmental conditions may direct the magnitude and type of change. Turbulent environments often preclude long range planning while more placid environments lead to innovative behavior concerned with strategies to influence the environment (Terrberry, 1968). In addition, a ceiling effect can be posited, for change is more difficult in a given area

when there is already a high rate of change (Corwin, 1972). Technologically, organizations which are feeling greater environmental pressure are likely to retrench into research and development patterns that are applied, short term, and dealing with primary product lines (Hall and Mansfield, 1971). Organizations with few environmental contingencies are able to emphasize education and long range strategies that are potentially more far reaching in terms of organizational structure and function (Normann, 1971). Reorientation is more likely to be related to periods of relatively placid environmental conditions, while emergency action is called for in threatening environmental situations. Finally, innovation under organizational conditions of "slack" may be characterized by a search of the environment for new methods and emphasis upon education and new knowledge and skill development (Knight, 1967).

Most of the preceding discussion has focused upon interorganizational relationships. Goal setting and other organizational activities have largely been concerned with the specific interplay between organizational structures and the interorganizational field or organizational "set." Increasingly, however, the theme is developed that organizations are impacted

by forces over which they have little or no control (Terreberry, 1968). It has been noted that civil disturbance experience, rather than organizational complexity, has a decided negative affect upon the decision to emphasize qualitative upgrading of police departments (Oppenheim, 1975; Kreps and Weller, 1975). Organizations respond and adapt structurally to information and knowledge, broadly defined as technology, generated from without (Lawrence and Lorch, 1967; Perrow, 1972). Indeed, it has been recognized that organizations create specific subunits designed to monitor the environment for relevant information. Implicit throughout the literature is the idea that organizations and their environments engage in patterns of mutual influence. While environmental inputs have consequences for organizational structure, it is axiomatic that organizational outputs have impact upon the environment to which they are returned. This appears to be more likely when the focus of study is the organization's specific environment. If the focus of study is broadened to include the organization's general environment, which includes among other things, economic and demographic conditions (Hall, 1972), the patterns of reciprocity may become more subtle.

Politics and power have drawn research attention to this area. The divergence of conceptualization and operationalization becomes problematic, due to the implication that the exercise of power involves the formation of coalitions along interorganizational lines. Aiken (1970) conceives of communities as interorganizational fields in which the actors are centers of power or potential power wielders. Innovation and policy implementation in a given issue area depends upon the number of linkages or the greater the organizational density, the greater the likelihood of organizations influencing one another or the greater the probability of a minimum coalition formation for the implementation of policy (Aiken, 1970; Turk, 1973). Variables such as educational characteristics of the community, unemployment, housing characteristics, migration, and other macro characteristics are taken to reflect community differentiation and centralization and imply the ability to form organizational power coalitions in a given policy area. While the focus is upon the interorganizational field, the operant variables reflect characteristics of an environment imposing upon the structure of decision-making. Aiken views the environment as indirectly effecting the nature of decision-making through interorganizational

linkages. Others have investigated the general environment from the standpoint of a direct effect upon particular organizations. Demographic and economic variables have been used to show that organizational structure is linked to labor supply and the demand for services. Specifically complex urban structure is associated with greater technological complexity and differentiation in organizational structure (Blau, 1974).

Environmental constraints upon the actions of the organization, in terms of the type of services offered, have shown considerable impact in a study of sheltered workshops. Time of founding and income from grants were found to influence the production or rehabilitation orientation of workshops (Kimberly, 1975). Much of the variation in structure and orientation are attributed directly to environmental constraints over which the organization has little or no control. One of the most visible examples highlighting the theme of control over environmental inputs involves school districts charged with implementing integration plans (Baldridge and Burnham, 1975; Stinchombe, 1968). Demographic and economic characteristics of school districts are important factors effecting the goal of integrated schools, however, school districts have no

direct control over these environmental inputs. Indeed, the paradoxical situation may arise in which the organization attempts to effect policy only to find that the environmental contingencies become more constraining due to organizational action. Specifically, "white-flight" may actually be increased by the implementation of integration plans, increasing the difficulty of achieving the desired goal (Coleman, 1975; Ravitch, 1978; Armor, 1978). In this case it is not the inability of the organization to impact the environment that is important, but the impact of unintended consequences in the creation of environmental uncertainty.

In summary, the rudimentary distinction between specific and general environments provides a dividing point for the development of environmental literature. That the organizational field and the organizational set are seen as indicative of the specific environment, organizations can be seen as a network of information generating and gathering systems. However, the interorganizational network is only part of the environment in which organizations are forced to exist. The typology of environments based upon the degrees of uncertainty and constraint, suggest that organizations are subject to many elements over which little

control may be exercised. As environments are increasingly characterized as more turbulent and increasingly uncertain, the importance of the general environment is realized in terms of direct effects upon the organization. The problem appears to be the difficulty in assessing the direct effect of interorganizational and general environmental factors. We suggest that the interorganizational field may absorb and redefine general environmental constraints, implying the importance of indirect impact of general environments through interorganizational intermediaries.

CHAPTER III

METHODOLOGY

The impetus for this study grew from work previously conducted by Gary Kreps and Jack Weller (1975) and submitted to the College of William and Mary Metropolitan Criminal Justice Center and from thesis work submitted by Pamela Oppenheim (1975) to the faculty of the Department of Sociology of the College of William and Mary.

The previous studies undertook to explain professionalization of police departments largely in terms of organizational characteristics and relationships between other police departments or closely aligned organizations. Certain community environmental characteristics were taken into account, such as the civil disturbance experience of departments. In this paper we have attempted to elaborate the community environment that leads to or impedes the process of professionalization.

The inductive inception and execution of this study should be noted from the outset. While we feel that this has no effect upon the validity of the conclusions reached from the data, we believe that the reader should be aware of methods and assumptions.

Forty-one measures of environmental character-

istics of central cities, from which police arganizations were initially sampled, were collected from the County and City Data Book and The F.B.I. Uniform Crime Reports. The environmental variables were selected without hypotheses being made as to their relationship to police professionalization. The measures of professionalization were taken directly from the works of Kreps, Weller, and Oppenheim.

Sample

The original sample was taken from cities of 50,000 and above (N = 374). A questionnaire and cover letter explaining the research was sent to the cheif of each department and a follow-up questionnaire was sent to the largest departments (cities of 100,000 or greater) with a small number of respondents gained with the second mailing. Data were requested on training, education, and organizational characteristics requiring examination of organizational records.

The resulting sample of 137 police departments of central cities generated a response rate of 37.2%, which was deemed adequate. This sample was skewed toward larger departments, with 77 of 152 or 50.6% responding and 62 of 222 or 27.4% of smaller departments responding. As Kreps, Weller, and Oppenheim

suggest, this is not surprising due to the quantity of information requested and the retrieval problems likely in smaller departments.[2] The regional representation of departments is fairly broad with 22 northeastern, 36 southern, 44 midwestern and 37 western cities included in the 137. Finally it has been noted that the sample is not random, however, it does appear to be reasonably representative of size and region with no readily discernible biases (Kreps and Weller, 1975).[3]

Measurement of Professionalization

As we have stated, the measures of professionalization were taken directly from the works of other authors and deserve a word of explanation. Eight measures were used in this study including the num-

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[2]We have not included the questionnaire or cover letter in appendices, but it is reproduced in Kreps and Weller (1975) and Oppenheim (1975).

[3]There may be a certain amount of bias in the sample which was discovered toward the end of the data analysis. We would prefer to think that the high number of California cities is merely a variable which was initially overlooked. Hopefully, the inclusion of these cities has helped make our analysis stronger. This will be mentioned further in the body of the paper.

ber of full time training personnel, number of officers who have taken college courses, number of officers enrolled in college courses, number of officers with college degrees, hours of recruit training required, an ordinal scale of minimum educational requirements, an ordinal scale of promotional evaluation procedures, and a Guttman scale of topics included in training (Oppenheim, 1975).[4]

Organizational and Environmental Variables

Our analysis also included independent variables borrowed from previous studies. Measures of interorganizational field linkage included the amount of L.E.A.A. discretionary funding and written organizational agreements for civil disturbances. Organizational size was measured by the number of sworn personnel. Organizational wealth was measured by the baseline salary of police personnel. Complexity was measured by the number of organizational subunits, the number of ranks in the chain command, the number of ranks in the chain of command divided by the num-

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[4]Construction of these scales is not included in this paper, but again may be found in Kreps and Weller (1975) and Oppenheim (1975).

ber of sworn personnel and the ratio of clerical to total personnel. Organizational outputs were measured by a Guttman scale of civil disturbance related organizational changes. The number of days of civil disturbance experience from 1965-1969 was retained as a measure of the community context. These variables were retained and incorporated into our later analysis in order to gain insight into the relative impact of organizational and community variables.

Variables measuring environmental characteristics were taken from the County and City Data Book and The F.B.I. Uniform Crime Reports. Forty-one measures thought to represent general population characteristics (size, racial and ethnic composition) educational levels, income, housing characteristics, economic characteristics, city government expenditures, and crime data were collected and later standardized to normalize distributions that were largely a function of size.

CHAPTER IV

FINDINGS

Initial data analysis consisted of eliminating certain dependent variables from consideration. Factor analysis of the remaining eight variables was then undertaken and is presented in Table 1, page 30. Two factors emerged from this analysis and can be taken to represent two professionalization dimensions. The general educational dimension includes the number of officers with college degrees, number of officers enrolled in college courses, number of officers who have taken college courses and the number of fulltime training personnel. The second dimension could be characterized as structural requirements and includes promotional evaluation procedures, topics included in training and minimum educational requirements for recruits. In contrast to other work, our analysis presents only two factors, due to the elimination of variables from the computations. However, we felt that the variables included represented the best indicants of the professionalization concept.

Work by predecessors points to the substantial impact of size on professionalization. Factor analysis by Oppenheim of the dependent variables of

TABLE 1

FACTOR ANALYSIS: PROFESSIONALIZATION IN POLICE DEPARTMENTS

	FACTOR 1	FACTOR 2	h^2
Course	.968	-.024	.937
Trpers	.962	-.153	.948
Edreq	.013	.371	.138
Retrreq	.197	.158	.063
Enrolled	.871	.013	.759
Subscal	.132	.568	.340
Promscal	.139	.301	.110
Degree	.949	.005	.902

Course - Number of officers who have taken college courses
Trpers - Number of fulltime training personnel
Edreq - Minimum educational requirements for recruits
Retrreq - Hours of recruit training required
Enrolled - Number of officers enrolled in college courses
Subscal - Guttman scale of topics included in training
Promscal - Ordinal scale of promotional evaluation procedures
Degree - Number of officers with college degrees

professionalization demonstrates three factors (Oppenheim, 1975). Factor 1 shows the general knowledge component of professionalization and includes the number of officers who have taken college courses, the number of officers with college degrees, the number of officers enrolled in college courses and the number of full time training personnel. Factor 2 is interpreted as a recruit training dimension with hours of recruit training required showing a high loading on this factor. The third factor can be seen as a structural requirements construct with minimum educational requirements for recruits, topics included in training and promotional evaluation procedures loading on this factor. Factor 1 is seen as a general knowledge component of professionalization, while Factors 2 and 3 require specific structural arrangements amenable to education and training (Oppenheim, 1975). Further analysis shows that Factor 1 scores, the general knowledge component of professionalization, are due largely to the effects of organizational size (Beta = 1.68) (Oppenheim, 1975).

In addition, the effects of size on the elements of Factor 1 can be seen in the regressions in Table 2, page 32. The effects of size range from 30% of the variance explained (number of officers enrolled in

TABLE 2

MULTIPLE REGRESSION ANALYSIS FOR ENVIRONMENTAL AND ORGANIZATIONAL VARIABLES ON PROFESSIONALIZATION MEASURES

DEGREE

Independent Variable	R Square	Beta
Size	.414	.827
Civil	.451	-.329
Poplog	.474	.275
Subunit	.497	-.209
Unemp	.514	.134

ENROLLED

Independent Variable	R Square	Beta
Poplog	.344	.439
Size	.384	.635
Civil	.427	-.349
Unemp	.466	.202
Subunit	.503	-.259
Chngscal	.519	.138

COURSE

Independent Variable	R Square	Beta
Size	.756	1.009
Civil	.772	-.216
Chngscal	.783	.105
Unemp	.794	.104

Degree - Number of officers with college degrees
Enrolled - Number of officers enrolled in college courses
Course - Number of officers who have taken college courses
Size - Total number of personnel
Civil - Number of days of civil disturbance experience
Poplog - Logarithm of central city population
Subunit - Number of organizational subunits
Unemp - Unemployment rate
Chngscal - Guttman scale of civil disturbance related organizational changes

college courses) to 75% of variance explained (number of officers having taken college courses). Size, however, does not have the impact on elements of Factors 2 and 3 that was exhibited on the general knowledge component of professionalization.

Due to the clear positive effects of size on the general knowledge component of professionalization, it was decided to control the effects of size by dividing those variables whose variance was largely a function of size by the number of sworn personnel and factor analyzing these proportions and the remaining professionalization variables. The results of this analysis are contained in Table 3, page 34, demonstrating a slightly different pattern when proportions of officers with educational and training characteristics are considered.

It is important to note that three educational dimensions of professionalization load on the same Factor 1, demonstrating that large police organizations are not disproportionately professionalized along the educational dimension. As noted by Oppenheim (1975), and Kreps and Weller (1975), education appears to be an area in which police organizations may adapt without making structural or potentially radical change. Indeed, this is also

TABLE 3

FACTOR ANALYSIS: PROFESSIONALIZATION IN POLICE DEPARTMENTS

	FACTOR 1	FACTOR 2	FACTOR 3	h^2
Degrsize	.695	.131	-.143	.520
Enrolsiz	.627	.195	.082	.438
Trpersiz	-.109	.591	.090	.369
Coursize	.877	.217	.029	.817
Edreq	.442	-.432	-.266	.452
Retrreq	.029	-.166	.273	.103
Promscal	.259	-.149	.198	.129
Subscal	.316	-.336	.288	.295

Degrsize - Ratio of officers with college degrees to personnel
Enrolsiz - Ratio of officers enrolled in college courses to total personnel
Trpersiz - Ratio of fulltime training personnel to total personnel
Coursiz - Ratio of officers who have taken college courses to total personnel
Edreq - Minimum educational requirements for recruits
Retrreq - Hours of recruit training required
Promscal - Ordinal scale of promotional evaluation procedures
Subscal - Guttman scale of topics included in training

born out in the factor analysis. When proportions are considered, elements previously interpreted as structural requirements dimensions and analytically distinct appear to coalese somewhat with general educational dimensions. Secondly, the training dimension of professionalization appears as a distinct characteristic in contrast to structural and educational requirements if the proportion of training personnel can be interpreted as indicative of this dimension. Lastly, a third but weaker dimension emerges, in which promotional evaluation procedures and topics included in training (structural requirements dimension), ally with training elements (number of hours of recruit training required) exhibiting the converse condition of professionalized departments with structural and training emphasis, but little or perhaps negative emphasis on educational attainment.

The standardization of variables by size creates a condition in which police organizations can be compared regardless of the number of personnel. Thus, we gain a method by which one organization can be said to be more professionalized than another along certain dimensions. In the factor analysis of standardized variables, the factors are not as "pure" as

the analysis in the Kreps and Weller or Oppenheim studies in which raw scores were examined. The general educational dimension appears to hold throughout the range of organization sizes. Beyond that, the factors do not appear to have any striking elements. While two other factors "fall out" of the analysis, dimensions are not as clear as expected from this type of analysis. In short, there appears to be a significant number of smaller police organizations in which educational attainment is the model of professional development and conversely a significant number of larger organizations in which the model for professionalization falls along the dimension of training.

As the factor analysis of the standardized measures of professionalization did not reveal dimensions that were analytically "pure", it was decided to proceed in the analysis by using the factor elements as dependent variables and selecting independent variables for regression analysis.[5] Although we could have used factor score coefficients as depend-

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[5]Environmental variables were also subjected to factor analysis, but the multitude of factors was uninterpretable and was dropped from further consideration.

ent variables, most of the variance unexplained lay in the second factor. A correlation matrix was constructed correlating the environmental variables, selected organizational variables, and the dependent variables. For purposes of regression analysis, variables correlated above .200 with the dependent variables were selected. The correlation matrix presented in Appendix A represents this step of the analysis. A step-wise multiple regression technique was utilized for culling the multitude of independent variables from the equations. The step-wise technique selects as the first variable in the equation, that variable which "explains" the greatest amount of variance. The variables then selected subsume in order lesser degrees of variance in order of partialling variables. This technique was chosen in order to maximize the amount of variance explained, since no theoretical consideration was given beforehand to the relative importance of the independent variables. The last step of the analysis involved the elimination from the regression equations those variables which contributed less than one percent of the variance to the dependent variables. Since the standardized and unstandardized measures seemed to be capturing different patterns of professionalization, it was deemed advantageous

to include both in the following analysis.

Turning first to the organizational variables in Table 4, page 39, it appears that the hypothesis of Oppenheim concerning decentralization and vertical differentiation receives support from the data (Oppenheim, 1975). The ratio of ranks to total personnel is consistently related to positive changes in the standardized measures of the general education qualifications (Betas = .236 to .142). Greater distribution of authority and decentralization of decision making appears to be at least moderately related to greater qualitative upgrading of police personnel. Since police organizations have been organized along rather rigid and traditional bureaucratic lines, this finding is somewhat surprising. However, it seems likely that structural arrangements may not be so inflexible as to prohibit at least a moderate amount of change in personnel characteristics. Time-lag data would be helpful in sorting out this relationship further.

The unstandardized measures present a different pattern. The number of subunits displays a consistently negative relationship to the general educational dimensions of professionalization, at least for the number of officers with college degrees and the num-

TABLE 4

MULTIPLE REGRESSION ANALYSIS FOR ENVIRONMENTAL AND ORGANIZATIONAL VARIABLES ON PROFESSIONALIZATION MEASURES

DEGRSIZE		
Independent Variable	R Square	Beta
Befor50	.125	-.187
Salary	.229	.286
Ranksiz	.268	.192
Profman	.306	.214
Clersiz	.317	.115
ENROLSIZ		
Independent Variable	R Square	Beta
Befor50	.073	-.353
Retest1	.192	.303
Unemp	.233	.172
Chngscal	.264	.169
Ranksiz	.283	.142
COURSIZ		
Independent Variable	R Square	Beta
Befor50	.168	-.253
Ranksiz	.269	.236
Unemp	.328	.337
Profman	.402	.225
Meded	.417	.164

Degrsiz - Proportion of officers with college degrees
Enrolsiz - Proportion of officers taking college courses
Coursize - Proportion of officers who have taken college courses
Befor50 - Proportion of housing built before 1950
Salary - Baseline salary
Unemp - Unemployment rate
Profman - Percentage of the work force professional-managerial
Meded - Median education
Retest1 - Number of retail establishments per capita
Clersiz - Ratio of clerical to total personnel
Ranksiz - Ratio of ranked to total personnel
Chngscal - Guttman scale of civil disturbance related organizational changes

ber of officers enrolled in college courses (Betas = -.209 and -.259 respectively) (Table 2, page 32). In this case, it appears to be large departments with greater civil disturbance experience de-emphasizing qualitative personnel changes. The high multicollinearity between size, population, and the number of subunits makes this relationship problematical. There may also be subtle causal relationships here that we have not uncovered. In other words, the presence or absence of college educated officers may lead to decentralized structure. But, taking the civil disturbance experience into account, this seems to be a plausible explanation.

The negative effect of civil disturbance experience on the educational quality of officers has been documented (Oppenheim, 1975; Kreps and Weller, 1975). Civil disturbance experience has been largely confined to "older", larger central cities with decaying economic bases and has had a clear negative impact on the move to qualitatively improve the police. It is not surprising that structural characteristics of police organizations that appeared conducive to professionalization in this case become antithetical. More likely, it seems that civil disturbance experience rather than organizational complexity has a deflating

effect on professionalization.

While it appears that civil disturbance experience implies a retrenchment effort by police departments to more traditional roles of social control, there is some evidence to show a move from response to preventive controls. Civil disturbance related organizational changes exhibit a low, positive relationship to the number of officers having taken college courses and the number of officers enrolled in college courses (Betas = .105 and .138 respectively) (Table 2, page 32). The Guttman scale of civil disturbance related organizational changes ranges from crowd control training, minority recruitment and civil disturbance plan on the low end to community relations subunits with three cut-off points on the high end of the scale. Though the betas are low, it seems that the response to civil disturbances in some cases involves an organizational search for solutions that emphasize preventive rather than response mechanisms. Causality is difficult in this case. Civil disturbance related organizations changes could also be a dependent variable. One could argue that higher degrees of professionalization, in terms of the general educational dimension produce preventive rather than response mechanisms regarding civil disturbances. It seems plausible that organi-

zations experiencing civil disturbances are more likely to conceive of change as an immediate response to an uncertain environment. Change, therefore, takes the form of responses to civil disturbance related threats rather than more general personnel qualifications.

That the number of civil disturbance related organizational changes should be related to the ratio of officers enrolled in college courses to size (Beta = .169) (Table 4, page 39) leads one to surmise a "trickle down" effect. Organizations envisioning an uncertain task environment or those organizations on the "fringes" of civil disturbances appear to have instituted preventive measures as well as the more traditional response measures. Again, change related to the traditional police mandate of social control should be congruent with existing structural arrangements.

A major part of the civil disturbance change scale is related to community relations, and this function has remained rather enigmatic in police organization (Kreps and Weller, 1973). Certainly large organizations have adopted such practices, but the content and the vigorousness of their pursuit are unknown. The potential for change and the expansion of the police function is far reaching for those or-

ganizations which actively pursue these changes (Kreps and Weller, 1973). The marginality of these structures may go a long way in explaining the low beta scores associated with the general educational dimension of professionalization. Size appears to be the most important factor in predicting the number of changes related to civil disturbances, and this makes the relationship with the ratio of officers enrolled in college courses to size more interesting. Though the beta is low, it appears that there is a class of organizations adopting these changes regardless of their size and consistent with the professional model subsuming educational dimensions.

While the number of civil disturbance related organizational changes is not a great inducement for change in the qualitative characteristics of police personnel, it is an important aspect of certain structural requirements of professionalization. Though little variance in the scale of promotional evaluation procedure is explained (19 %), the beta associated with the number of civil disturbance related organizational changes is moderate (Beta = .331) (Table 5, page 44). Those organizations adopting preventive measures dealing with civil disturbances are more likely to be those organizations which include formal evaluations

TABLE 5

MULTIPLE REGRESSION ANALYSIS FOR ENVIRONMENTAL AND ORGANIZATIONAL VARIABLES ON PROFESSIONALIZATION MEASURES

PROMSCAL

Independent Variable	R Square	Beta
Chngscal	.135	.331
Profman	.176	.160
Maest	.191	-.129

SUBSCAL

Independent Variable	R Square	Beta
Chngscal	.111	.257
Medrent	.159	-.216
Maest	.210	-.233
Totrank	.237	.169
Popblch	.262	.165

Promscal - Ordinal scale of promotional evaluation procedures
Subscal - Guttman scale of topics included in training
Chngscal - Guttman scale of civil disturbance related organizational changes
Profman - Percentage of the work force professional-managerial
Popblch - Black population change 1960-1970
Maest - Percentage of manufacturing establishments with 20 or more employees
Medrent - Median gross rent
Totrank - Number of ranks in the chain of command

of work performance and education in their procedures for promotion. Regarding the topics included in training, organizations stressing preventive civil disturbance measures are also emphasizing family crisis intervention and the role of police in modern society (Beta = .257) (Table 5, page 44).

Structural aspects of professionalization do not seem to develop in isolation from other structural arrangements-at least those dealing with civil disturbance related changes. Given the potential for expanding the police mandate in the adoption of community relations programs and subunits, the addition of organizational structures dealing with more professionalized training and promotion procedures suggests that professionalization and new roles for police officers may be expanding together. Noting the marginality of community relations subunits (Kreps and Weller, 1973), the possibility exists that more professionalized promotional procedures and training topics may also be organizationally weak and isolated. Intensive case studies could go far in explaining this relationship.

In the case of training topics and promotional procedures, it appears that change is not related to the direct effects of environmental uncertainty. Here

we note that size and civil disturbance experience do not enter into the regression analysis of the dependent variables. The zero-order correlations between size, civil disturbance experience and civil disturbance related organizational changes are low, suggesting that problems of multicollinearity do not exist in this case. Structural change, in terms of greater professionalization, seems to be less problematic for those organizations in which environmental uncertainty is less of a behavioral reality. Organizations that perceive uncertainty in more generalized terms appear to be more able to adopt innovation as a means of dealing with their perceptions. Conversely, organizations existing in environments in which uncertainty is translated into threat to the stability of that organization seem to be more likely to retrench along traditional lines.

Regarding the number of hours of recruit training required, little variance was explained (12%) (Table 6, page 47). Although the beta is low (Beta = .184), the positive effects of civil disturbance experience are demonstrated. Increase in number of days of civil disturbance appears to require an increase in hours of recruit training required rather than increasing educational requirements.

TABLE 6

MULTIPLE REGRESSION ANALYSIS FOR ENVIRONMENTAL VARIABLES ON PROFESSIONALIZATION MEASURES

EDREQ

Independent Variable	R Square	Beta
Meded	.067	.297
Unemp	.145	.261
Debt1	.186	-.204

RETRREQ

Independent Variable	R Square	Beta
Poplog	.096	.207
Civil	.119	.184

Edreq - Minimum educational requirements
Retrreq - Recruit training required
Meded - Median education
Unemp - Unemployment rate
Civil - Civil disturbance experience
Poplog - Logarithm of central city population
Debt1 - Per capita city debt

The effects of the contextual variables on the measures of professionalization ranged from low to moderate with respect to the amount of variance subsumed. In general, the educational dimensions of professionalization were more easily captured than the structural aspects. The unstandardized measures of the general educational dimension of professionalization was largely a function of three variables with high degrees of multicollinearity (size, civil disturbance experience and city population) with other contextual variables explaining little residual variance. Greater success was gained with the standardized measures.

Cutting across the measures of general educational qualifications, we find that the percentage of housing built before 1950 was a clear negative effect on the standardized dependent variables. The Betas range from low (Beta = -.187) to moderate (Beta = -.353). (Table 4, page 39). Older housing could be interpreted as indicative of central cities with problems perceived as more serious than the educational qualifications of police officers. We hesitate to call this simple fiscal disability due to the more direct measures of taxation and expenditures that did not make the regression analysis. However,

older housing could be indicative of a declining tax base and a relative inability to absorb the increased costs of qualitative police upgrading due to more vexing social problems.

That older housing is associated with an increase in the number of days of civil disturbance experience (Beta = .211) (Table 7, page 50), indicates an indirect link between the environmental threat of civil disturbance and its deflating effect upon professionalization. The negative effect of civil disturbance experience upon the educational dimensions of professionalization "washes out" when these variables are standardized by size, leading one to the conclusion that the effect of older housing on standardized measures is genuine. That these departments are relatively underprofessionalized indicates marginal uncertainty in environmental relationships. Finally, the zero order correlation between civil disturbance experience and the percentage of housing built before 1950 is rather low (.275), it is unlikely that the Beta scores are entirely a function of civil disturbances.

Due to the high multicollinearity between the percentage of the population classified as professional-managerial and the median education level (.643), these two variables can be considered to form a normative

TABLE 7

MULTIPLE REGRESSION ANALYSIS FOR ENVIRONMENTAL VARIABLES ON CIVIL DISTURBANCE EXPERIENCE

CIVIL

Independent Variable	R Square	Beta
Poplog	.310	.551
Singun	.358	-.072
Befor50	.371	.211
Retcha1	.388	.189
Payrol1	.399	.142

Civil - Number of days of civil disturbance experience
Poplog - Logarithm of central city population
Singun - Percentage of housing that is single family units
Befor50 - Percentage of housing built before 1950
Retcha1 - Ratio of change in retail establishments 1963-1967 to population
Payrol1 - Ratio of city payroll to population

link with the community environment. While the Betas are not particularly high, one or both of the measures appear consistently related to positive changes in the dependent variables.

The standardized measures of general educational dimension of professionalization show the impact of the community most clearly. The number of officers having taken college courses was the most affected variable. While the Betas are not particularly high (Betas = .225 and .164) (Table 4, page 39), this was the variable among the standardized measures of qualitative characteristics in which the most variance was explained (Variance = 41.7%). For the standardized measure of officers with college degrees, the Beta again was not particularly high (Beta = .214) (Table 4, page 39), but it was the second highest for the variables included in the regression equation.

Minimum educational requirements for recruits showed the highest Beta score (Beta for median education = .297), though the variance accounted for in this variable was only 18.6% for the three variables in the equation (Table 6, page 47). Minimum educational requirements for recruits are partly a function of the median educational level of the

community.[6]

Finally, more professionalized promotional evaluation procedures are affected by a higher percentage of professional-managerial in the general population (Beta = .160) (Table 5, page 44), suggesting normative links to the community environment.

Taken together, the relationship between these variables and professionalization suggest an economic link between organization and environment. Those organizations that are more professionalized along general educational dimensions relative to overall size are those that are able to take advantage of pools of better educated populations. That these pools are the immediate community, the costs of recruitment per individual should be lessened.

The impact of a better educated populace is also translated into structural requirements for professionalization. As the median education of the population increases, police organizations are able to raise minimum educational standards without creating

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[6]Hoover (1975) notes that minimum educational requirements tend to attract large numbers of those who barely meet the requirement. Also, raising the requirement tends to raise agency prestige and attract college graduates. The possibility of a prestige hierarchy in police departments has implications in terms of professionalization.

potential manpower shortages. Finally, the demand for more professional promotional structures is enhanced by a greater pool of professional-managerial personnel in the community.

The number of manufacturing establishments has a consistently negative relationship to the structural requirements dimension of professionalization. Promotional evaluational procedures and topics included in training exhibit lower scores as the number of manufacturing establishments increases (Betas = -.129 and -.233) (Table 5, page 44). Since median education levels and the percentage of the population classified as professional-managerial display a moderately negative relationship to the number of manufacturing establishments, the pools of better educated population do not exist in cities with great numbers of manufacturing establishments. In cities where manufacturing is the primary activity, the ratio of management to labor is probably much lower relative to other cities in which manufacturing is less of an employer. The supply of professional-managerial individuals is therefore low, hampering efforts of police organizations to professionalize.

Again we emphasize a normative link to the community. That educational requirements and educational

characteristics of officers is enhanced by a supportive community value system has been shown. In addition, it seems that the structural dimension of professionalization is not supported in communities with greater numbers of manufacturing establishments. Therefore, it appears that professionalization is more likely in communities in which skill development through education is generalized.

Per capita city debt also has a deflating effect upon minimum educational requirements (Table 6, page 47). Again, fiscal inability seems to be the explanation. Cities with problems of monetary nature are unwilling or unable to rank professionalization of the police department high on the list of expenditures.

Two variables in the regression equation of topics included in training are more difficult. That lower median rent should reflect higher scores on the topics in training scale is surprising due to the multicollinearity of median rent with other independent variables predicting higher professionalization. Similarly, the change in the black population bears almost no relationship to other independent variables, yet enters into the training topics regression. However, the factor analysis does not show clearly the relationship between training topics and other indicants of

professionalization. In addition, the ability of the scale to discriminate between degrees of professionalization because of the assumption of cumulativeness and the relatively low Beta scores (Betas = -.216 and -.165) (Table 5, page 44), may indicate an alternative path to professionalization in the form of training structures.

The number of retail establishments per capita presents more of a dilemma. Although it is not a consistent predictor of professionalization, it does function well on the standardized measure of officers enrolled in college courses (Beta = .303) (Table 4, page 39). The zero-order correlations with other predictors of professionalization cause us to expect an inverse relationship between this variable and the dependent variable. For example, the relationship between the percentage of housing built before 1950 and the number of retail establishments per capita is .312 at the zero-order level. Classification of cities by economic function might be helpful. There may be a certain class of city experiencing professionalization that is not being tapped by regression analysis.

The effects of the unemployment rate had surprisingly consistent effects on the educational di-

mension of professionalization for both standardized and unstandardized variables. Unexpectedly, the higher the rate of unemployment, the higher the value of the dependent variable. The value of the Betas range from low to moderate. The number of officers having taken college courses exhibits the lowest value (Beta = .104) (Table 2, page 32), while the standardized measure of the same variable records the highest value (Beta = .337) (Table 4, page 39).

The effects of the unemployment rate on professionalization indicate that the demand for police officers is relatively fixed. As the unemployment rate goes up, police organizations are able to raise the educational standards because of a surplus of the supply of labor.[7] Note that the minimum educational requirements of officers increases as median education and the unemployment rate each increase (Table 6, page 47).

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[7]Hoover (1975) noted that the number of police recruits with college educations increased during the Great Depression. In June of 1940, half of the 300 recruits in the New York City department had college degrees. This percentage fell off with increasingly better general economic conditions.

The relationship between high unemployment rates and higher scores of professionalization implied a relationship untapped by the regression analysis. Perhaps a class of cities was the underlying cause of the results of the regression analysis, and further work was undertaken to expand this relationship.

California Cities

The sample of 137 police organizations and central cities includes twenty-three cities from the state of California. The California cities represent 16.8% of the sample and it was hypothesized that the link between unemployment rates and qualitative characteristics of police officers could be found in this subset of central cities. For any statement to be made, comparison of the California cities with the remaining 114 cities would have to demonstrate considerable variation on scores of officer education. If variation could be determined, examination of the mean differences in unemployment rates between California and non California might help to explain the seemingly anomalous correlations between high unemployment rates and the educational dimensions of professionalization.

The California-non California dichotomy is justified for two reasons. The percentage of cities

located in the state seems to "bias" the sample somewhat and conceptually states could be treated as distinct units of analysis in establishing organizational or institutional links between the environment and the organization.

The previous factor analysis showed three variables loading on the same factor, indicating a general educational dimension of professionalization. The number of officers with college degrees, the number of officers having taken college courses, and the number of officers enrolled in college courses all standardized by size load on this aspect of professionalization. Since the unemployment rate did not make the regression equation of officers with college degrees, it was decided to bias the null hypothesis of no difference in favor of acceptance. Although the Beta score of unemployment was higher with the standardized measure of officers having taken college courses, we felt that rejection of the null hypothesis using the college degrees variable would strengthen our analysis.

Following the procedure outlined by Blalock (Blalock, 1972: 317-329), the one way analysis of variance presented in Table 6, page 47, demonstrates the differences between California and non California cities on the standardized measure of officers holding

degrees. Noting the relationship between the t and f distributions in a one way analysis of variance test (Blalock, 1972), a check was performed on this procedure utilizing a difference of means test.[8]

The analysis of variance (Table 8, page 60) and difference of means tests (Tables 10 and 11, page 61) demonstrate the differences in the distributions of scores on educational attainment for police officers in California vs. non California cities. The analysis of variance utilizing the f distribution shows differences between the two categories of cities well beyond the .01 level of significance for a one-tailed test. The difference of means test (Table 10, page 61) serves as a check upon the aforementioned analysis of

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[8]Difficulty may arise, however, in both the analysis of variance and the aforementioned t test. It seems that each test assumes equal population standard deviations or involve pooled estimates of the standard deviations. If both standard deviations cannot be assumed equal, we can estimate them separately, a less efficient method, and adjust the degrees of freedom accordingly. The problem arises in the discrepancy of sample sizes and forming estimates of the standard deviations because the denominator (N - 1) will largely determine the size of the estimate (Blalock, 1972). Blalock offers an expression to be used to estimate the appropriate degrees of freedom for the t test in which the standard deviations are estimated separately and this has been utilized in a further test of the hypothesis and presented in Table 8, page 60.

TABLE 8

ANALYSIS OF VARIANCE

CALIFORNIA AND NON CALIFORNIA CITIES BY THE NUMBER OF POLICE OFFICERS WITH COLLEGE DEGREES PER THOUSAND OFFICERS

	Sum of Squares	Degrees of Freedom	Estimate of Variance
Total	4,516,920	136	
Between	1,353,876	1	1,353,876
Within	3,163,044	135	23,429.95

f = 57.78
p = .01

TABLE 9

DIFFERENCE OF MEANS TEST

CALIFORNIA AND NON CALIFORNIA CITIES BY MEAN UNEMPLOYMENT RATES

	California	Non California
Means	5.860	4.129
Ns	23	114

t = 5.337
Degrees of Freedom = 135
p = .01 two tailed test

TABLE 10

DIFFERENCE OF MEANS TEST

CALIFORNIA AND NON CALIFORNIA CITIES BY MEAN NUMBER OF POLICE OFFICERS WITH COLLEGE DEGREES PER THOUSAND OFFICERS

	California	Non California
Means	239.37	168.52
Ns	23	114

t = 6.493
Degrees of Freedom = 135
p = .01 two-tailed test

TABLE 11

DIFFERENCE OF MEANS TEST

CALIFORNIA AND NON CALIFORNIA CITIES BY MEAN NUMBER OF POLICE OFFICERS WITH COLLEGE DEGREES PER THOUSAND OFFICERS

	California	Non California
Means	239.37	168.52
Ns	23	114
S^2	57298	28399

t = 4.975
Degrees of Freedom = 8
p = .01
p = .001 two-tailed test

variance and demonstrates differences in mean scores beyond the .01 level of significance for a two-tailed test under the t distribution. The results summarized in Table 10 assume equal population distributions and involve pooled estimates of variance used in computing t. The results summarized in Table 11, page 61, however, ignore the assumption of equal standard deviations, but involve less efficient estimates due to the discrepancy in sample sizes. The degrees of freedom have, therefore, been estimated and t significant beyond the .01 level has been obtained. Table 11 also shows p to be greater than .001. Given the fact that discrepancies in standard deviations render tests of significance problematical, we nonetheless feel safe in rejecting the null hypothesis of no difference, noting that only one case in the California distribution falls below the non California mean, while five California cases are greater than two standard deviations above the non California mean and an additional eight California cases are greater than one standard deviation above the non California mean.

Table 9, page 60, summarizes the results of a difference of means test between California and non California cities on rates of unemployment. We have hypothesized that the higher rates of unemployment

associated with higher proportions of officers with college degrees is at least partially a function of the scores of California cities, which have been shown to deviate considerably from non California cities on scores of professionalization. The difference in mean scores for California vs. non California cities is significant beyond the .01 level for a two-tailed test under the t distribution.

We have been able to show that California cities exhibit considerable differences in mean educational scores for police officers and considerably higher rates of unemployment for the population at large. If unemployment serves as any indication of general economic well being, the argument that increased professionalization is a function of general fiscal ability cannot be accepted without revision. We know that professionalization is not purely a function of pure monetary inducement (Kreps and Weller, 1975; Oppenheim, 1975). We suspect that unemployment is more accurately seen as geographic immobility rather than simple economic deprivation. In addition, crude unemployment figures do not discriminate between skill levels of the work force and may not represent the employment patterns of the professional-managerial sector in general and police officers in particular.

Finally, unemployment rates probably have little to do with the fiscal ability of particular community service organizations to raise educational levels of their members.

More important are the figures concerning the educational characteristics of the California vs. non California officers. While there has been much concern with the educational characteristics of police officers in recent years, the value of college educated officers has been stressed by some law enforcement practitioners as early as the beginning of this century. Interestingly, the first to stress the value of college education was August Vollmer of the Berkeley, California, Police Department in 1909 (Eldefonso, 1974). As early as 1918 Vollmer actively recruited students from the University of California and helped establish police science courses at Berkeley and San Jose State College as early as 1916. Under his guidance and the guidance of those trained in his style, a Bachelor of Science degree in Police Science and Criminology was established at the University of California in 1931. (Eldefonso, 1974). The importance of the California system of junior and senior colleges was also acknowledged by Hoover (1975) in a study of the educational characteristics of police recruits. This study in-

cluded California, Michigan, New Jersey, and Texas in a survey of police recruits, and while it was noted that California represented a special case due to the fact that criminal justice education developed earlier there, it was deemed useful to include data from this state for the comparative value that could be gained.

CHAPTER V

DISCUSSION AND CONCLUSION

While the interorganizational field of law enforcement has concerned our discussion of police professionalization, the impact of educational assistance provided by the Law Enforcement Assistance Administration has not been a direct consideration in our analysis. A few figures concerning the extent of this program are appropriate. In the academic year 1974-75, approximately one hundred thousand students at 1068 institutions received aid through the Law Enforcement Educational Program (LEEP), while in the period from 1966 through 1975, criminal justice programs at colleges and universities increased from 184 to 664. A survey of police recruits in four states notes that about half of all collegiate police recruits have majored in the criminal justice field (Hoover, 1975). Although most of these programs are terminal at the associate degree level, the potential impact upon police departments is great.

In terms of our research, the additional data concerning the extent of LEEP may help to further explain our findings. At the outset, it should be noted that these funds allocated for education are paid

directly to students for tuition costs and the primary beneficiaries are in-service police personnel (84% of participants during the 1974-75 academic year). The impact of this appears to be that professionalization, in terms of a general educational dimension, is a tacit rather than explicit decision made at the community level. We have seen that organizational wealth, as measured by budget expenditures exhibits rather high negative association with measures of general educational factors. This has been partially attributed to the high multicollinearity between size and civil disturbance experience (Kreps and Weller, 1975; Oppenheim, 1975). In addition, salary as expected exhibited a positive, but not overwhelming association with the same educational factors. It appears, however, that educational upgrading is only marginally an organizational cost, due to the direct payments of tuition costs to individual officers. This would seem to help account for the effects of salary and wealth. Again we note that large departments are not disproportionately professionalized (Kreps, 1975; Hoover, 1975). While size probably does exert pressures to professionalize because of inherent coordination problems and hypothetically has consequences for marshalling resour-

ces, grantmanship is perhaps more important in the overall process of professionalization.

We must take note of the rather large number of departments that are marginal in terms of educational upgrading. We have stated that professionalization, in terms of a general educational dimension, appears to be a tacit rather than explicit and only marginally related to fiscal abilities. While this may generally be the case, there are a significant class of organizations for which the added expense is not worth the cost. The clear deflating effects of civil disturbance experience has been well documented (Kreps and Weller, 1975; Oppenheim, 1975), but the decision to professionalize involves factors other than the task environment. Cities experiencing greater numbers of civil disorders are also behest with other problems, cheif among them is fiscal. Declining tax bases from the loss of retail establishments and decaying housing coupled with already high expenditures for municipal payroll make the added costs for professionalization of police departments difficult. Although the great monetary burden for officer education is born by non community funding agencies, a marginal cost is born by the community, some of which can not or will not pay.

The general point to be made here is that innovation in a given organization is radical to the extent that it involves greater costs in scarce inducements (Wilson, 1966) and depends upon the degree of organizational "slack" (Becker and Whisler, 1967). The task environment and direct behavioral experience certainly bear upon the decision not to emphasize general educational qualifications or to retrench into more traditional methods to insure charter maintenance; however, the environment is also important in providing necessary resources. In addition, the environment may be classified as to the extent of uncertainty or turbulence. Given the fact that the move to professionalize is largely a matter of external pressure from the expanding network of law enforcement, environmental conditions at the community level are likely to dictate the commitment to educational upgrading. Indeed, those organizations functioning in the most turbulent environments are likely to retrench into primary functions and deemphasize long range strategies and reorientation (Hall and Mansfield, 1971; Normann, 1971; Terreberry, 1968). Finally it could be posited that organizations are increasingly affected by environmental conditions over which they have little or no control (Baldridge and Burham, 1975). The preceding

pictures organizations as being rather "passive" in relationship to their environments (Warren, 1967; Aiken, 1970), therefore, the ability of organizations to control environmental contingencies is problematic.

If organizations operating under conditions of extreme environmental uncertainty are impacted in such a way that decisions are only tacitly a function of organizational deliberation, what can be said of organizations operating in conditions of lesser uncertainty and turbulence? Specifically, is the decision to professionalize, in terms of the educational upgrading of front line police officers, a matter of deliberate organizational action or environmental contingencies that organizations can not or do not affect? Some attention has been focused on this question. Organizational resources have not been noticeably diverted to expand aggregate knowledge capabilities, suggesting that professionalization, in terms of a general educational dimension, is an adoptive rather than an innovative process (Kreps and Weller, 1975). In addition, it has been suggested that innovation is largely a function of an organization's ability to adopt and utilize expertise externally generated (Miller, 1971; Zaltman et al, 1973). Generally, we have been more successful in capturing

variance in the educational dimension of professionalization rather than the structural which appear to fuse bureaucratic and professional models of organization. That minimum educational requirements for recruits and promotional evaluational procedures have not kept pace with the infusion of college educated personnel suggests a lack of interest in professional organizational structure. However, the positive association of the ratio of ranked to total personnel with measures of the generalist dimension points to the fact that traditionally "tall" bureaucratic structures are accepting the professional theme.

Finally, it should be stated that education is not a function of police organizations. The point to be made here is that education of police officers, especially in service officers depends upon the availability of responsive educational structures within the community. The case of California cities is exemplary and, although good comparative data are lacking, we may offer some tentative conclusions. Although our analysis has been concerned with the interorganizational field of law enforcement, the focus has been upon similar organizations (Kreps and Weller, 1975; Oppenheim, 1975). While these contacts within the network of law enforcement undoubtedly have consequences

for police professionalization, contracts, either direct or indirect with dissimilar organizations are increasingly relevant to the professionalization process. We previously mentioned that California was included in a recent study of the educational characteristics of police recruits, although it was known that California traditionally presented a much different profile than other states (Hoover, 1975). California has long been the leader in advancing the notion of public higher education through a decentralized system of junior and four year colleges. It also appears to be true that the idea of college educated front line police officers was advanced in California before it became a generalized proposition. Professionalization scores of California vs. non California police officers seem to bear out the fact that a responsive system of readily available educational structures is important in advancing the generalist trend of police professionalization.

Perhaps the most important question concerns the relationship between institutions contributing to the socialization of police officers and the police organizations receiving these outputs. Implications in terms of organizational autonomy and the preservation of policy space come immediately to mind, but unfor-

tunately our data are not able to address these areas. Curricular control is certainly an area in which both parties have a vested interest. Socialization of organizational members could have far reaching consequences in terms of the structure and functioning of police organizations.

Finally, we have attempted to advance the theme that in order to understand organizational behavior, it is important to look to the environment. The impact of the task environment has been stated here and in other works (Kreps and Weller, 1975; Oppenheim, 1975). Similarly, it is important to note the impact of economic factors, employment patterns, value systems and other organizations as they provide inputs. While it has been axiomatic in organizational literature that organizations and their environments engage in patterns of mutual influence, this hypothesis seems questionable when dealing with specific organizational characteristics.

APPENDIX A

CORRELATION MATRIX

	Promscal	Ressiz	Subscal	Edreq	Degrsize
Promscal	1.000				
Ressiz	.136	1.000			
Subscal	.187	.119	1.000		
Edreq	.109	-.142	.210	1.000	
Degrsize	.152	.153	.129	.307	1.000
Degree	.123	-.009	.113	.051	.227
Coursize	.203	.234	.224	.255	.634
Course	.126	-.039	.116	.001	.028
Enrolsiz	.135	.190	.143	.197	.432
Enrolled	.138	-.017	.111	.038	.100
Retrreq	.089	-.041	.147	.026	-.034
Trpers	.087	-.046	.059	-.091	-.009
Civil	-.037	-.077	.121	-.039	-.117
Chngscal	.367	.154	.333	.093	.116
Profman	.253	.223	.007	.156	.334
Medfain	.171	-.201	-.190	.199	.245
Medrent	.124	-.156	-.216	.208	.269
Totrank	-.025	.048	.263	.068	-.039
Popblch	-.127	-.059	-.234	.022	.086
Amtgrant	.007	-.051	-.179	-.005	-.085

CORRELATION MATRIX
(Continued)

	Promscal	Ressiz	Subscal	Edreq	Degrsize
Meded	.263	-.007	.006	.258	.332
Unemp	-.036	.018	.158	.224	.191
Debt1	-.019	.139	.041	-.250	-.072
Befor50	-.174	-.264	.045	-.129	-.354
Salary	.078	-.069	-.023	.159	.341
Ranksiz	.162	.157	.115	.088	.237
Clersiz	.213	.183	.139	.198	.313
Size	.055	-.082	.089	-.033	-.086
Civil	-.037	-.077	.121	-.039	-.117
Poplog	.033	-.090	.205	.032	-.091
Subunit	.138	-.083	.077	-.072	-.121
Retest1	-.077	-.001	.097	-.035	-.011
Retcha1	.091	.127	-.101	.071	.189
Payrol1	-.134	-.124	-.025	-.151	-.104
Maest	-.224	-.109	-.201	-.207	-.316
Govt1	.146	.381	.042	-.068	.108
Singun	.088	.212	.075	.063	.060
Crempsiz	.096	.229	-.032	-.122	-.048
Popchan	.125	.212	-.042	.141	.253

CORRELATION MATRIX
(Continued)

	Degree	Coursize	Course	Enrolsiz	Enrolled
Degree	1.000				
Coursize	.140	1.000			
Course	.894	.097	1.000		
Enrolsiz	.115	.605	.054	1.000	
Enrolled	.869	.139	.843	.178	1.000
Retrreq	.165	-.039	.211	.043	.108
Trpers	.907	.015	.954	.006	.807
Civil	.386	-.059	.604	.011	.309
Chngscal	.232	.123	.238	.231	.288
Profman	.036	.358	-.046	.169	-.039
Medfain	.037	.112	-.010	.016	-.050
Medrent	.024	.196	-.026	.067	-.073
Totrank	.251	.055	.277	.054	.210
Popblch	.036	.042	-.015	.005	-.005
Amtgrant	.247	-.137	.212	-.133	.251
Meded	.063	.362	-.005	.136	.000
Unemp	.213	.279	.206	.249	.277
Debt1	.129	.018	.098	.027	.175
Befor50	-.014	-.410	.075	-.270	.046
Salary	.181	.216	.163	.103	.141

CORRELATION MATRIX
(Continued)

	Degree	Coursize	Course	Enrolsiz	Enrolled
Ranksiz	.085	.335	.054	.223	.057
Clersiz	.111	.351	.032	.262	.043
Size	.644	-.069	.868	-.031	.548
Civil	.386	-.059	.604	.011	.309
Poplog	.546	-.046	.661	.001	.586
Subunit	.332	-.013	.500	-.059	.283
Retest1	-.027	.078	-.021	.243	.018
Retcha1	-.122	.268	-.153	.086	-.162
Payrol1	.089	-.168	.099	-.094	.105
Maest	-.098	-.354	-.064	-.197	-.083
Govt1	-.049	.122	-.062	.092	-.026
Singun	-.129	.166	-.175	.202	-.076
Crempsiz	-.052	-.094	-.043	-.084	-.061
Popchan	.029	.151	-.059	.176	-.021

CORRELATION MATRIX
(Continued)

	Retrreq	Trpers	Civil	Chngscal	Profman
Retrreq	1.000				
Trpers	.216	1.000			
Civil	.299	.560	1.000		
Chngscal	.185	.207	.127	1.000	
Profman	.002	-.055	-.187	.139	1.000
Medfain	-.018	-.016	-.099	.066	.473
Medrent	.018	-.027	-.037	.014	.397
Totrank	.119	.256	.353	.179	-.039
Popblch	-.037	-.034	-.053	-.139	-.076
Amtgrant	.066	.220	.171	-.014	-.115
Meded	.091	-.023	-.156	.210	.643
Unemp	.048	.194	.143	.025	-.271
Debt1	.085	.133	.098	.158	.022
Befor50	.091	.095	.275	-.106	-.472
Salary	.030	.133	.116	.079	.029
Ranksiz	-.056	.033	-.009	.078	-.003

CORRELATION MATRIX
(Continued)

	Retrreq	Trpers	Civil	Chngscal	Profman
Clersiz	.197	.034	.011	.305	.204
Size	.299	.816	.785	.157	-.140
Poplog	.309	.593	.557	.290	-.119
Subunit	.246	.449	.505	.144	-.120
Retest1	.067	-.027	.146	.029	-.201
Retcha1	-.076	-.159	-.203	-.103	.287
Payrol1	.120	.153	.337	-.033	-.216
Maest	.039	-.026	.064	-.108	-.365
Govt1	-.055	-.034	-.009	.140	.277
Singun	-.125	-.189	-.351	.060	.111
Crempsiz	.110	-.024	-.056	.130	.021
Popchan	-.006	-.072	-.057	.065	.220

CORRELATION MATRIX
(Continued)

	Medfain	Medrent	Totrank	Popblch	Amtgrant
Medfain	1.000				
Medrent	.881	1.000			
Totrank	-.136	-.136	1.000		
Popblch	.095	.179	-.049	1.000	
Amtgrant	-.100	-.061	.148	-.052	1.000
Meded	.611	.518	.111	.014	-.095
Unemp	-.302	-.202	.043	.048	.130
Debt1	-.258	-.227	.279	-.143	.127
Befor50	-.309	-.442	.140	-.103	.154
Salary	.476	.536	.012	.156	.136
Ranksiz	-.020	-.063	.386	.021	-.014
Clersiz	.083	.173	.018	.172	.036
Size	-.037	-.025	.308	-.031	.191

CORRELATION MATRIX
(Continued)

	Medfain	Medrent	Totrank	Popblch	Amtgrant
Poplog	-.145	-.140	.519	-.067	.368
Subunit	-.084	-.009	.249	.018	.265
Retest1	-.331	-.307	.025	-.023	.006
Retcha1	.317	.422	-.312	.049	-.189
Payrol1	-.104	.006	.258	.051	.229
Maest	-.203	-.235	-.011	-.062	-.007
Govt1	-.211	-.135	.082	-.061	-.054
Singun	-.126	-.187	-.188	-.200	-.264
Crempsiz	-.026	-.048	-.159	.089	.000
Popchan	.255	.382	-.084	.217	-.165

CORRELATION MATRIX
(Continued)

	Meded	Unemp	Debt1	Befor50	Salary
Meded	1.000				
Unemp	-.196	1.000			
Debt1	-.062	-.107	1.000		
Befor50	-.391	.069	.045	1.000	
Salary	.271	.283	-.266	-.057	1.000
Ranksiz	.084	.225	.029	-.057	.075
Clersiz	.313	.269	.059	-.359	.208
Size	-.087	.129	.045	.175	.158
Poplog	.006	.152	.241	.131	.191
Subunit	.012	.105	.094	.045	.188
Retest1	-.218	.219	.146	.312	-.074
Retcha1	.195	-.085	-.155	-.533	.032
Payrol1	-.235	.012	.391	.408	.131
Maest	-.355	-.250	.050	.323	-.277
Govt1	.124	-.059	.249	-.128	-.174
Singun	.050	.053	-.053	-.477	-.343
Crempsiz	.041	-.040	-.059	-.041	-.038
Popchan	.233	-.069	-.044	-.603	.109

CORRELATION MATRIX
(Continued)

	Ranksiz	Clersiz	Size	Poplog	Subunit
Ranksiz	1.000				
Clersiz	.144	1.000			
Size	-.013	-.043	1.000		
Poplog	-.033	.041	.687	1.000	
Subunit	-.094	.096	.626	.639	1.000
Retest1	.049	.019	-.032	-.096	-.075
Retcha1	-.035	.143	-.180	-.391	-.215
Payrol1	-.066	-.117	.182	.237	.181
Maest	-.084	-.317	-.009	-.049	-.043
Govt1	-.046	.132	-.062	.012	-.042
Singun	.121	.087	-.315	-.260	-.292
Crempsiz	-.054	.255	-.048	-.109	-.033
Popchan	-.051	.247	-.093	-.073	.027

CORRELATION MATRIX
(Continued)

	Retest1	Retcha1	Payrol1	Maest	Govt1
Retest1	1.000				
Retcha1	-.128	1.000			
Payrol1	.204	-.337	1.000		
Maest	.082	-.115	.170	1.000	
Govt1	-.083	.046	.093	-.118	1.000
Singun	-.014	.230	-.595	-.004	-.045
Crempsiz	.027	.054	-.006	.120	.113
Popchan	-.212	.473	-.195	-.106	.071

	Singun	Crempsiz	Popchan
Singun	1.000		
Crempsiz	.054	1.000	
Popchan	.221	.112	1.000

APPENDIX B

Variable Labels

Pop	Population
Popchan	Population Change 1960-1970
Popblac	Black Population
Popblch	Black Population change 1960-1970
Medage	Median Age
Forstoc	% of Pop. of Foreign Stock
Meded	Median Education
Unemp	% Unemployed
Manuf	% of Work Force Employed in Manufacturing
Govt1	% of Work Force Employed in Government
Profman	% of Work Force Professional-Managerial
Medfain	Median Family Income
Faloin	% of Families Below Low Income Level
Singun	% Units - Single Unit Structures
Befor50	% Units - Built Before 1950
Perunit	Average Number of Persons/Unit
Medval	Median Value - Owner Occupied, Single Family
Medrent	Median Gross Rent
Genrev	Total General Revenue

Variable Labels (Continued)

Ingovre	% Revenue - Intergovernmental Sources
Taxes	Total Taxes
Proptax	% Taxes - Property Taxes
Expend	Total City Expenditures
Educa	% Expenditures for Education
High	% Expenditures for Highways
Welfare	% Expenditures for Public Welfare
Polfire	% Expenditures for Police and Fire
Sanita	% Expenditures for Sanitation and Sewerage
Debt	Total Debt Outstanding (mil)
Employ	Number of Full-time City Employees (thou)
Payroll	City Payroll (mil)
Maest	% Manufacturing Establishments with 20 or more Employees
Retest	Total Retail Establishments
Retcha	Change in Total Retail Establishments (1963-1967)
Propri	Number of Proprietors
Sales	Total Retail Sales
Salcha	Total Sales Change (1963-1967)

Variable Labels (Continued)

Wholest	Number of Wholesale Establishments
Crim66	F.B.I. "Crime Index" - 1966
Crim69	F.B.I. "Crime Index" - 1969
Crim73	F.B.I. "Crime Index" - 1973
Poplog	Logarithm of Population
Blpoplog	Logarithm of Black Population
Crimt	F.B.I. "Crime Index" + 1966 + 1969 + 1973
Crima	"Crime Index" - 1969-1966
Crimb	"Crime Index" - 1973-1969
Crimc	"Crime Index" - 1973-1966

Poblac1, Rev1, Taxes1, Expend1,

Debt1, Employ1, Payrol1, Retest1, Variables/Population

Retcha1, Propri1, Sales1, Wholes1,

Crim661, Crim691, Crim731

Data Source: County and City Data Book, 1972 edition

APPENDIX C

Means and Standard Deviations

Variable	Mean	Std Dev
Trpersiz	0.0125	0.0139
Size	568.9050	1397.3250
Civil	5.0146	11.7967
Salary	9944.5703	1692.8403
Amtgrant	579.1472	1348.0398
Confer	60.7272	78.5672
Site	12.8000	13.8683
Subunit	20.2000	20.1325
Ranksiz	0.2759	0.0807
Reclrec	0.0946	0.1006
Totrank	6.5448	1.1981
Pop1	234109.2500	408770.9370
Popchan	25.0910	35.1127
Popblac	45949.9414	122775.1870
Popblch	58.8613	142.0014
Medage	28.5160	3.6050
Forstoc	17.6160	11.5285
Meded	11.9489	0.8468
Unemp	4.4202	1.4344
Manuf	23.2387	11.2566
Govt1	17.8015	7.6632

Means and Standard Deviations (cont.)

Variable	Mean	Std Dev
Profman	24.8985	6.4957
Medfain	10080.8516	1799.3994
Sales	463144.3750	771199.3750
Salcha	32.7537	25.2067
Wholest	533.9778	1014.6255
Crim66	6726.1289	15973.1133
Crim69	10359.7422	21605.1328
Crim73	16113.5156	28928.0469
Poblac1	16349.2148	34512.1914
Rev1	209.5076	184.8330
Taxes1	99.0062	66.9883
Expend1	193.7800	116.6595
Debt1	304.6633	190.4593
Employ1	1412.0981	877.9338
Payrol1	9.8929	6.5217
Retest1	919.6179	423.9175
Retcha1	15.7926	24.5039
Propri1	786.5967	217.3525
Sales1	210613.5620	65486.6875
Wholes1	199.4585	99.5345
Crim661	2206.8650	984.5244

Means and Standard Deviations (cont.)

Variable	Mean	Std Dev
Crim691	3525.7004	1548.2053
Crim731	6284.1914	1928.3750
Crima	3701.8896	6430.5937
Crimb	5620.8789	9160.0273
Faloin	9.7949	5.7335
Singun	62.9722	17.0306
Befor50	53.3255	21.0123
Perunit	3.0956	0.3208
Medval	18402.9922	6158.3750
Medrent	115.4453	27.1699
Genrev	47.3744	79.0099
Ingovre	21.6124	10.6829
Taxes	26.4132	52.8093
Proptax	65.9507	21.9459
Expend	49.8445	91.4588
Educa	8.7277	17.7614
High	12.5533	7.1266
Welfare	1.3095	3.9208
Polfire	23.0838	8.0788
Sanita	11.6846	6.8104

Means and Standard Deviations (cont.)

Variable	Mean	Std Dev
Debt	77.6350	148.1566
Employ	3529.2480	6379.9609
Payroll	2.6920	5.6945
Maest	36.8552	9.0912
Retest	2048.5911	3425.5764
Retcha	15.4860	17.7467
Propri	1791.7793	3168.4990
Crimc	9401.5352	13686.6562
Poplog	5.1481	0.3717
Degrsize	0.1859	0.1804
Enrolsiz	0.2754	0.1591
Coursize	0.5418	0.2848
Ressiz	0.0480	0.0612
Subscal	7.0000	1.6891
Promscal	5.9259	2.8917
Chngscal	9.5213	3.1239
Crempsiz	0.0143	0.0149
Clersiz	0.1796	0.0976
Blpoplog	3.5824	1.6470
Crimt	120.7766	39.7267
Crima1	0.0137	0.0092

Means and Standard Deviations (cont.)

Variable	Mean	Std Dev
Crimb1	0.0275	0.0144
Crimc1	0.0409	0.0156

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