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The Primary Assignment Area:

Measuring an Aspect of Police Patrol Organization

by

Stephen Mastrofski

Center for Urban and Regional Studies

University of North Carolina

Chapel Hill, North Carolina

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The Primary Assignment Area: Measuring an Aspect of Police Patrol Organization

Recently a great deal has been written about the dearth of good productivity and performance measures in policing.[1] This problem is a pressing one, but there is another which also merits attention if the quality of police policy evaluation is to improve: the development of indicators of those very policies to be evaluated. The problems in doing this are perhaps not as awesome as those in developing productivity and performance measures, but they are greater than evaluators often allow.

This paper discusses the development and application of a measure of the scale of patrol service to residents, that is, the number of people living in the area where a patrol officer works for a year. This area is referred to as the primary assignment area (PAA). The concept, PAA, is developed out of the urban services decentralization literature generally, and the team policing literature in particular. The specification of this measure as a dimension of decentralization of police patrol is discussed in the first of four sections which comprise the paper. The second section is a discussion of problems faced in operationalizing the measure and steps taken to deal with these problems. The third section applies this process to data collected by the Police Services Study on 11 urban police departments and 42 neighborhoods served by them. The fourth section presents an example of how the measures operationalized in the previous section can be used with performance measures for policy evaluation.

Specifying a Dimension of Police Patrol Decentralization

Specifying policy variables is most difficult in issue areas that are controversial, probably because evaluators are sensitized to the complexity of the problem by the articulation of diverse viewpoints, and therefore the policy issue seems quite complex to them. However, policy analysts often characterize a loosely related set of policies or organizational features with a single conceptual reference, paying little heed to the degree and quality of interrelationships among these policies. The general term conjures up a vague organizational orientation when the linkages between the general concept and the multitude of operational definitions laying claim to it admit to a real-world variation rendering the concept nearly useless for policy evaluation. Policing is rife with such terms: professionalism preventive patrol, consolidation, citizen participation, to name a few. "Team policing" is the general term which incorporates the notion of the PAA.

Team policing has a variety of operational definitions. A truly comprehensive definition of team policing is difficult to offer, beyond saying that it represents an attempt to administratively decentralize police organization. Attempts to synthesize a single definition of team policing typically lead to a description of organization or programmatic goals rather than a description of what is different about the structure and process of police organization. An extended review of the literature on team policing attempting to deal with this problem, concluded that:

> Team policing has been defined somewhat differently in every community where it has been found. There are thus as many different "definitions" of team policing as there are programs. Because there is no single overriding definition or model, the approach followed in this review will be to look at team policing programs as combinations of various activities focused to achieve certain goals. Since each program consists of a different combination of activities, the "evaluation question" is one of determining the effects of individual or combinations of team policing activities.[2]

These reviewers find that team policing activities can be grouped into elements, or strategies, which in turn fall under two general "program aspects": (1) organization and team building, and (2) neighborhood or community relations. Organization and team building elements include team organization (stable work group membership and assignment of specialist functions to those workgroups), enlarged job role of the police officer (generalist approach and greater participation in planning/decision making for team activities), change in the lower level supervisory role (greater autonomy from headquarters, greater control over all police service to the assigned area, greater reliance on all team members for planning and decision making). Neighborhood or community relations strategies include stable geographic assignment of individual police officers, a service oriented patrol style, and increased citizen input.[3] A survey of nineteen team policing programs indicated that they varied substantially on which of the above elements or strategies were implemented and the manner and degree to which this was done.[4]

The conglomeration of policy elements that can comprise a team policing program creates a problem for cross-sectional policy evaluation. Each of the elements or strategies mentioned above really refers to a

different set of policies whose implications for police performance and productivity are also potentially various. Team policing is actually a fusion of two organizational approaches into what has been called a "structuralist" approach.[5] The structuralist approach is a synthesis of human relations and classical theories. Greater emphasis is placed upon allowing the clients and agents directly involved in the service to determine what is to be done -- without as much control from the upper echelons. This is encouraged from two angles. The first is the recognition of the contingent nature of the process: that the rightness of officer acts is determined largely by the nature of the situation, which is most heavily influenced by the environment; that the best tool a department can give its officers is knowledge/familiarity with his environment;[6] and that the only way for the officer to develop that capability is to remain in a small, homogeneous environment long enough to get to know it. This is, in effect, acceptance of the street level bureaucrat's great power of discretion through its institutionalization. There is, at the same time, an attempt to guide this exercise of discretion through enhancing the self-actualizing features of the job (enlarged officer role, officer participation in planning and decision making, and broader work responsibilities). The increased officer receptivity to citizen input is tempered by the development of a new, nonalienated police culture, nurtured by the peer group members' increased access to each other and the planning/decision process.

At the same time that team policing embraces the "reality" of police work in its human relations dimensions, it also carries strong

classical theory overtones. Michael Brown points out that the aspects giving greater decision autonomy to the team leader constitute an attempt to centralize decision making (that is, increasing accountability to some organizational authority).[7] To the extent that team leaders are able to make their officers more accountable to them, headquarters' ability to effectuate centralized control is vastly improved. The leverage headquarters has over a few team leaders is vastly greater than that it exerts over individual patrol officers, especially because it maintains control over the allocation of personnel, material, support services, promotions, transfers, and major disciplinary action to the teams, not to mention the myriad policies and standards that it still retains authority to promulgate. The most critical feature of headquarters' control over policing, however, rests in how it uses these tools to set large scale goals (e.g., reducing violent crime instead of providing more non-criminal assistance or rectifying citizen grievances). Team policing programs tend to be results-oriented. Headquarters relinquishes some responsibility for deciding how to achieve results, but it allocates rewards and punishments to its team leaders based upon their ability to produce results. The priority of these results is determined largely at the peak of the department or city hierarchy. In this regard the team leader functions within a classical organization model, resembling the captain of a naval vessel who is given considerable autonomy to produce results, but is held strictly accountable to the quality of his organization's work by staff further up the chain of command.

Team policing in virtually any form, then, is really an admixture of policy dimensions whose purposes and appearances vary greatly by themselves, but which together are intended to strike a balance in the dispersal of organizational decision making. Some features attempt to harness the power of the street level bureaucrat by facilitating his discretionary power; other features attempt to rationalize decision making by increasing the accountability of the line supervisor and his team. Each of these two dimensions of team policing have many sub-dimensions, each of which pulls in slightly different directions and has slightly different implications for police behavior -- and ultimately productivity and performance.

Because of the multi-dimensional nature of team policing and its polymorphous existence in American law enforcement, researchers have had great difficulty evaluating its impact on police performance and productivity. It may be useful to conduct an experimental evaluation of a whole team policing program, but as long as we treat team policing as a unitary organizational policy intervention, we face extreme limits in our ability to understand why it has or has not had an effect upon performance and productivity. This has been referred to as the "black box" effect in some experimental designs.[8] Further, many departments that do not call their operations-team policing, do implement one or two of the features associated with it; the impact of these innovations in these strikingly different organizational contexts also needs to be considered. To understand the separate and interactive effects that these dimensions have on performance, we need to develop independent measures for each dimension.

To achieve maximum usefulness these measures must be easily replicated across a number of local police organizations.

I have chosen one element of team policing for explication: stable geographic assignment of officers. A comprehensive analysis of all team policing dimensions is desirable, but certainly beyond the scope of this paper. Geographic stability is the major organizational feature found (or strived for) in nearly all team policing programs[9] and is frequently found in non-team policing departments as well. Stable geographic assignment is the facilitative dimension of the "neighborhood" aspect of team policing, and in fact has been referred to as neighborhood, territorial, or geographical policing. One commentator considers this dimension to be a direct indicator of "...how much -- or how little -- a police department values close police-community relationships."[10]

Focusing the attention of the street level bureaucrat on a small, often homogeneous portion of the whole community is a limited attempt to bring control of police service closer to those individuals who are actually receiving it, a need noted by many critics of urban service delivery in America:

> Reducing bureaucratic scale through decentralization would presumably ameliorate this situation by enabling providers to concentrate on smaller territorial areas and more circumscribed ranges of demands. In this way, they would be in a better position to pay close attention to the concerns of their constituencies and to react responsively to them. More significantly, such a restructuring would give residents of large-city neighborhoods what Herbert Kaufman refers to as "representativeness" or client influence over the manner in which needs are defined and met.[11]

To the extent that the department continues to exert operational policies and provide incentives that run counter to these local interests, the amount of responsiveness generated by this feature will be limited principally to the range of unregulated, unmonitored discretion exercised by the patrol officers. This, however, is not an inconsequential range, so the potential impact of the policy is considerable.

Limiting the geographic scope of an officer's routine assignments is expected by its advocates to provide the officer with an opportunity to familiarize himself with the neighborhood: its residents, customs, and frequent transients. The following dynamic is expected to develop.

The officer is expected to have increased contact with the residents of his beat. Dealing with the same or similar people daily should enable the officer to see residents as individuals -- as people, instead of problems. The neighborhood should develop a unique identity for the officer assigned to it. The officer's sympathetic attitude toward the neighborhood's residents is reflected in how the officer treats them. He comes to see the neighborhood as his "turf" and the residents as his clients.[12] A much stronger emphasis on providing comprehensive service is manifested in the officer's behavior. The officer is less likely to feel the need to use strong physical or verbal coercion in enforcing laws and keeping the peace, because he is less likely to misinterpret the intention of individuals with whom he is familiar. There will be a reduction in unnecessarily abrasive actions that residents are liable to interpret as discourteous or unfair.

Citizens will reciprocate the familiarizing process. They will call on the police more frequently for assistance; they will report crimes and suspicious circumstances more frequently; they will provide more information to police, be more willing to serve as witnesses, and be more willing to sign complaints. Thus an escalatory dynamic of mutual empathy, trust, and cooperation unfolds.

To assess whether this dynamic actually occurs under a stable geographic assignment policy, one must take into account the frequency with which officers are rotated among beats and the size of those beats. Patrol beats vary considerably in size. An officer rotating monthly among three beats of 3,000 population each is certainly operating on a smaller scale than an officer who works permanently in one beat of 25,000 population. Clearly, a useful indicator of patrol scale must incorporate both the duration of an officer's work in a given beat, or group of beats, and the population of those beats. Such a measure is most useable if either the time period or the population is standardized. The serviced population can be specified (e.g., 9,000 people) and the length of time officers serve in the area can be permitted to vary, or the size of an officer's serviced population can be permitted to vary over a standard time period (e.g., one year). I have chosen the latter approach in developing an indicator of patrol scale, which reflects both the time and the population characteristics of officer assignment policies. This indicator is called the population size of the primary assignment area (PAA).

Measuring the Population Size of the Primary Assignment Area

Determining the boundaries of the officer's regular, that is, long term or "primary" work area, is not an easy task, due mostly to management's constrained ability to insure that the organizational policies which explicitly or implicitly define those boundaries will be observed by patrol officers. Police management promulgates a variety of policies designed to control where a police officer spends his work time:

- The number and boundaries of patrol beats
- The frequency of officer rotation among beats
- Instructions to dispatchers and field supervisors as to when patrol officers may be sent out of their assigned beats
- Instructions to officers as to when they may leave their assigned beats without permission from dispatchers or higher authority

Variation in these policies in actual practice is a common occurrence due to fluctuations, often unpredictable, in staffing levels. Chronic understaffing is a frequent reason for rendering stable geographic assignment policies meaningless. These are circumstances, however, of which management is generally aware.

Variation in these policies also occurs that is largely beyond management's ability to monitor and control. The wide discretion exercised by patrol officers is well documented. Patrol supervisors are generally unable and often unwilling to restrict this discretion.[13] Most attempts to implement territorial stability on a small, neighborhood scale have experienced extreme difficulty in keeping

officers in areas to which they have been assigned. Dispatchers, who work under different work constraints and goals than do patrol officers, frequently send officers out of assigned beats to maintain rapid response times and avoid long queues of "stacked" calls for service. This often results in a "domino effect" in the course of a shift: officers are sent from their own beats to cover calls from other beats, where the assigned officers have already been dispatched out of those beats.[14] Even where management has exerted enough energy and resources to ensure that dispatchers can and will adhere to stable assignment policies, the patrol officers themselves frequently ignore these policies in conducting preventive patrol and initiating contacts outside their assigned beats. The Kansas City Preventive Patrol project experienced problems in this regard, despite massive attempts to control where officers conducted preventive patrol.[15] Most team policing project evaluations also report difficulties in this area, although a few have achieved substantial success in implementing this critical feature of team policing.[16]

Given the necessity of knowing beat boundaries, officer assignment patterns to the beats, and officer work patterns once on patrol, how does one operationalize the definition of the size of the primary assignment area? A multistaged process is outlined below:

1. Determine the boundaries of an officer's (or group of officers') primary assignment area
   - A. Determine the area (one or more beats) to which an officer is routinely assigned for an extended period (1 year). Because very few, if any, officers are assigned <u>solely</u> to any one beat for an extended period (due to emergencies, illness, vacations, etc.), a cutoff point for proportion of assignments to an

area must be established. I have chosen 75 percent of an officer's shift assignments. This means that the boundaries of the area so defined must account for at least 75 percent of the officer's assignments. This area is called the unadjusted PAA.

B. Determine the degree to which officers remain within the boundaries of the unadjusted PAA while actually on patrol. Groups of officers whose presence within this area falls below a specified level (70 percent of time or activity) must have their PAA boundaries enlarged. When the boundaries include territory that accounts for 70 percent of the officer's time or activity, the area so defined is called the adjusted PAA.

II. Determine the size of the population of the adjusted PAA.

Following these steps produces a population figure which reflects the scale of patrol service delivery. If a neighborhood is served by a work group of patrol officers whose PAA population is 25,000, then the scale of service delivery relevant to that part of the jurisdiction is 25,000. The citizens living in that area are served by patrol officers whose yearly responsibilities for patrol cover an area populated by 25,000 residents. Whether officers in this work group are reassigned beats within this area on a daily, weekly, monthly, or quarterly basis has no effect on the measure. What is important is that at least 75 percent of the officer's assignments are to that area during a year.

The selection of the one year criterion is based upon participant-observers' estimates of the time normally required for an officer to familiarize himself with his "turf" and its residents.[17] The selection of the 75 percent shift assignment cutoff point is somewhat arbitrary. Some researchers would want to apply a more stringent requirement; others, a lower one. The popularity of the industrial model

(interchangeable officers by territory) in urban America and the chronic variation in staffing levels faced by patrol organizations suggest that setting an extremely high cutoff point would fail to differentiate many significantly different departments. The same applies to the 70 percent cutoff point for time spent in assigned area while on patrol. With great effort some team policing departments report achieving in excess of 90 percent of patrol officer activity in assigned areas, but few of the departments studied here achieved that level of consistency.[18]

The selection of residential population as a measure of the scale of the PAA is instructed by the research hypotheses to be tested. Since the hypotheses I will test relate to the scope of humanity with whom officers must routinely deal, the number of neighborhood residents in a PAA is appropriate. Other measures of PAA size which might be used for other hypotheses are: the area (square miles); miles of road; traffic flow; transient population size; number of juveniles; number of crimes committed; number of unemployed. The specification of the indicator really depends upon the theoretical basis for positing a relationship between patrol organization and police performance.

Many departments routinely collect data which give some indication of where their officers are spending their time. Most departments record the location of every call answered by an officer. Where officers spend their time while "in service," that is, while not on a call, is more difficult to determine on a routine basis. Some departments have used self-reported absences from the assigned

beat, but the reliability of this method is questionable where departments expect officers to remain within their beat's boundaries unless ordered out by dispatchers or supervisors. The technology for a completely automated vehicle monitoring system has been developed and is being implemented in one major American city.[19] A computer controlled tracking system allows the dispatcher to know where any patrol cruiser is at any time, and conceivably could be used to cumulatively monitor officers' patrol patterns. This, however, is a very costly system which will not likely be affordable in most police departments. Most departments must rely upon spot checks, supervisor reports, and calls for service data to estimate where officers spend their time on patrol.

The Police Services Study Data

A variety of data sources were used for research reported in this paper, some of which are not routinely available to most police departments. I used interviews with police administrators and patrol personnel, department records, and independent observation by a staff of trained project researchers from the Police Services Study.[20] The availability of department-generated data varied considerably among departments, the smaller departments typically recording less and the larger departments, more. Consequently the determination of PAA boundaries generally relied more heavily upon police administrators' accounts in small departments, and more heavily upon agency records in larger departments. Whenever possible, agency records were used to confirm police administrators' accounts of policies and practices pertinent to beat assignment patterns (Step I-A). The congruence

between police administrator accounts and agency records was typically greater in small departments than in large ones, although there were significant exceptions.[21] Project staff observation of police officers on patrol was used to estimate the degree to which officers remained within assigned beats once on patrol (Step I-B). Since police departments seldom practice PAA-related policies on an individual basis, PAA boundaries were defined for groups of patrol officers serving designated study neighborhoods for which patrol service was being evaluated. Once the boundaries of the PAA were identified, its residential population was estimated from the most recent available sources. What follows is a detailed account of how these data were collected and used to designate PAAs and their populations.

The Police Services Study conducted on-site research in the summer of 1977 in three metropolitan areas: Rochester, NY; St. Louis, MO; and Tampa-St. Petersburg, FL. The study focused on patrol services to 60 neighborhoods served by 24 police departments in these areas. The departments were selected to represent a variety of organizational styles and differences in service scale. Neighborhoods served by each department were selected to reflect the various residential service conditions with which each department had to deal. The number of neighborhoods selected per department varied from one to eight. All neighborhoods were predominantly residential, although public, commercial and industrial presence varied somewhat. Ethnicity and family income of residents served as the principal selection criteria. Most neighborhoods were either predominantly minority (black) or nonminority (white). A few were mixed (25-75 percent

minority). Neighborhood income levels ranged from heavily low income to predominantly upper-middle income. There was considerably greater within-neighborhood heterogeneity in income than ethnicity. Because neighborhoods were not selected randomly, generalizations about police service cannot be made to the jurisdiction, but rather to the type of neighborhood.

Data reported in this paper are for medium and large-size departments in the Police Services Study sample: 11 departments and 42 neighborhoods. Jurisdiction populations range from 46,950 (University City, MO) to 498,706 (St. Louis, MO). Department size varies from 53 sworn (Largo, FL) to 2,050 (St. Louis, MO). Eight of the departments are municipal law enforcement agencies, and three are county sheriff's departments. Although the latter patrol mostly unincorporated parts of the county, their study neighborhoods are suburban housing developments near or contiguous to municipalities. By restricting focus to medium and large jurisdictions, the potentially confounding effects of quite small jurisdiction size on PAA size are avoided. Including the really small departments -- the "Lilliputs" of urban policing[20] -- would confound political and administrative decentralization, since these jurisdictions are typically the size of a neighborhood in larger jurisdictions. Neighborhood boundaries corresponded to patrol beat boundaries for about half of the sample. Boundaries for the other neighborhoods were modified from beats to maintain greater ethnic/income homogeneity or to deal with beat boundaries that change with the shift. Neighborhood population varied from 2,900 - 22,000, two thirds of the neighborhoods being in the 5,000 - 15,000 range.

The first step (1-A) in constructing the PAA population variable was to identify the PAA boundaries relevant to each of the 42 study neighborhoods. Department policy regarding beat boundaries and the frequency officers rotated among beats or groups of beats was obtained by interviewing department administrators and obtaining beat maps of the jurisdictions. Most departments maintained the same policy throughout their jurisdiction, but several varied rotation policy according to parts of the jurisdiction. From administrator comments I determined the boundaries of the territory to which officers serving each study neighborhood would normally be assigned over the course of a year. In some instances this corresponded precisely to the beat that formed the neighborhood boundaries. In other instances it comprised all beats in the jurisdiction.

Police administrators provided annotated officer assignment rosters, which I used to verify their comments and help clarify any uncertainties they expressed as to how policies were implemented. Most assignment rosters covered one to three months during the study period, although in two cases, rosters covering a six month period were required.[23] In several instances the rosters indicated that stated beat assignment policies were substantially different from practices reflected in the rosters. In most of these cases agency records indicated that officer assignments were less stable than indicated by the administrator. I discussed each discrepancy with the relevant administrator or with the Police Services Study site director who had been the liaison with the department (who checked his/her own notes or contacted the agency). The reason usually given

for this difference was summer vacations. Where the reason was chronic personnel shortage, I adjusted the boundaries of the PAA to follow practice reflected in the assignment rosters. PAA boundaries were considered "large enough" when all or most of the patrol service to the study neighborhood within them came from officers who received 75 percent of their shift assignments within those boundaries. Assignment records spanning a one year period were unavailable for most neighborhoods, and the coding task would have been prohibitively immense in any event. To verify actual assignment practices (to determine the boundaries of the adjusted PAA), I relied upon 1) spot checks available through agency records which in most cases covered a limited part of the year, and 2) clarification offered by department and Police Services Study staff.

The second step (I-B) was to adjust the PAA boundaries delineated in the first step, if patrol officers conducted less than 70 percent of their encounter activity or time on their assigned beats. Where the unadjusted PAA for a neighborhood was larger than one beat, no adjustments were deemed necessary. In these cases either the single beat already met the cutoff criterion or the additional beats in the unadjusted PAA were more than adequate to include 70 percent of the activity and time. In single beat PAAs that did not meet the 70 percent cutoff criterion the boundaries of the PAA were readjusted until this criterion was met. In most instances this involved expanding PAA boundaries from the individual beat to the next larger administrative unit. I had to rely upon nonquantitative reports from patrol observers and comments by department managers and supervisors

as to whether these areas were thus adequately expanded to account for 70 percent of officer time and activity. Their estimations seemed reasonable, given the data available on beats in which systematic patrol observation was conducted.

The extent to which patrol officers remained within their assigned beats was determined by patrol observers, who accompanied a sample of officers assigned to patrol study neighborhoods on 15 full shifts per neighborhood. Shifts were selected on a stratified sample by time of day and day of the week, so that observations in each beat were for matched time periods and reflected comparable fluctuations in workload levels due to time period. The patrol observers accompanied sampled patrol officers for the entire shift. Observers took notes on officer behavior and later transcribed them onto coding forms. Observers noted whether encounters with citizens occurred within or outside the assigned beat. They also estimated the amount of routine patrol time (exclusive of encounter time) spent in the assigned beat.[24] The proportion of encounter activity within the assigned beat was computed for each study neighborhood for all 15 shifts. The average proportion of routine patrol time in the neighborhood was computed for the 15 shifts. If either the proportion of activity or the average proportion of patrol time per shift conducted in the assigned neighborhood fell below 70 percent, the unadjusted PAA was expanded. The boundaries of the adjusted PAA were thus determined.

The final step in operationalizing PAA size was to determine the residential population of the PAA for each neighborhood. Sources varied: U.S. Census documents (1970), state and local planning documents, local censuses, and advice from local officials.

The PAA population for each of the 42 study neighborhoods is given in Table 1. The PAA size ranges from 10,700 in University City, MO to 209,710 in Pinellas County, FL.

The above paragraphs illustrate the many difficulties policy analysts face in trying to accurately represent complex police policies for evaluation purposes. Police departments seldom collect ideal data for monitoring such organizational features as those involved in team policing. The cost of doing so on a routine basis would be prohibitively high. Even the data that are available to police administrators are of questionable reliability because of management's limited ability to control and monitor the patrol officers and supervisors as they collect it.

Nonetheless, it is important for administrators and policy evaluators to have the most accurate possible indicators of their organization's status. This operationalization of the population size of the primary assignment area shows that it is possible to construct such a measure, relying upon informed sources, agency records, and independent spot checks of officer behavior. The last data category is an extraordinary observational technique, not financially or administratively feasible for police departments. Other means of independently checking officer behavior on patrol -- less precise, but less expensive -- might be devised.

Using the Primary Assignment Area Population in Policy Analysis--An Example

Police administrators who implement a small PAA anticipate that their patrol officers will experience more service contacts with the people in their beat -- that is more contacts where the officer is doing something <u>for</u> the citizen instead of <u>to</u> him or her. When coercion may be called for, officers are expected to rely less frequently upon harsh physical and verbal forms. Systematically coded observations by patrol observers of the Police Services Study permit an empirical test of these expectations.

The population size of the PAA is the independent, or policy variable, and the observed officer activity within the study neighborhood is the dependent variable. Three neighborhood characteristics serve as control variables: the severity of the crime problem (annual neighborhood victimization rate), ethnic profile (proportion of minority residents), and income level (mean family income). The unit of analysis is the study neighborhood (N = 42).

The hypotheses to be tested are: that the PAA population relevant to a neighborhood is inversely related to each of the following:

(1) the frequency of officer contact with citizens identified as service recipients (regardless of who initiates it)

(2) the frequency of officer-initiated contact with service recipients

and directly related to

(3) the frequency of officer use of strong physical and verbal coercion in nonviolent or apparently nondangerous situations.

Neighborhood figures on these variables are based on 3,666 officer-citizen encounters observed during 5,175 hours of observation in the 42 study neighborhoods. Simple and partial correlation statistics are used to test the hypotheses.

Operational Definitions

Three dependent variables, each pertinent to one of the above hypotheses, were constructed from observers' systematic coding of patrol officer activity while on patrol.[25] A detailed coded account of officer behavior, especially in encounters with citizens, was obtained. In each encounter the observed officer interacted with one or more citizens. The way each observed officer dealt with each citizen in the encounter is the basis for aggregating all observed officer activity in each of the study neighborhoods. Only those citizen encounters occurring within the boundaries of the study neighborhood are included. Because the total number of hours observed in each neighborhood varies somewhat (100-165), the frequency of occurrence for each variable is standardized per 100 hours of observed time.

The first variable, HELP, is the number of encountered citizens per 100 hours who were in one of the following service recipient categories: victim or complainant, sick or injured person, or citizen requesting or receiving assistance when not injured or victimized. (See Table 2-A). This variable includes citizens who initiated requests for service as well as those receiving it at the

officers' initiative. Values for this variable range from 5 to 54, the average number encountered in a neighborhood being 32 per 100 hours. Neighborhood policing advocates expect officers in small PAAs to have more of these contacts because their lengthy presence in the neighborhood encourages them to identify the residents as <u>their</u> clientele -- people whose welfare is their direct concern. They also expect citizens to develop a reciprocal attitude toward the officers, therefore summoning them for assistance more often.

The second dependent variable, INITHELP, was identical to the first, except that <u>only</u> citizen service recipients subject to <u>officer-initiated</u> encounters were counted (See Table 2-B). In one neighborhood, no such citizens were encountered during the observed period; the greatest number of such citizens encountered during the observation period was 9. The average for this variable was 4 per 100 hours. This variable helps us determine the extent to which officer discretion accounts for the relationship between PAA size and service contacts.

The third variable, COERCE, was constructed by counting the number of citizens subject to officer coercion in nonviolent or apparently nondangerous situations. Coercion included any of the following: thorough search or frisk, physical restraint or taking into custody, physical force to make person go where officer desired, any other physical force without weapon, striking with weapon, threatening with weapon, threatening with arrest, or shouting at person. Nonviolent, nondangerous situations were defined as any in which <u>none</u> of the following were characteristic of the citizen: posession or use of a weapon or violent behavior toward the officer,

other citizens, or self. If the officer indicated to the observer that he anticipated danger, or that one or more of the participants might have a weapon, the citizen was considered to be in a dangerous situation and therefore was not coded as nonviolent/nondangerous.

The COERCE variable does not represent an attempt to judge the correctness of an officer's action in any given situation. A coded form cannot capture all of the elements of an officer-citizen relationship, or how it develops in the encounter. In this regard the COERCE measure is admittedly insensitive to the important nuances of each encounter's dynamics. However, this variable is intended to reflect in the aggregate the degree to which officers rely upon behaviors likely to be abrasive to citizen participants. If the neighborhood policing dynamic really works, in the aggregate, officers should rely less frequently on these actions to maintain order and enforce laws. They should find persuasion and less threatening forms of coercion useful alternatives in non-dangerous circumstances. The value of this variable ranged from nearly 1 to 23 for the study neighborhoods. The average number of citizens per 100 hours subject to coercion in nondangerous/unthreatening situations was 6 (See Table 2-C).

The three control variables characterizing the neighborhood provide a general indication of the environment in which officer actions occur. All three variables are based upon a random sample of approximately 200 household interviews of residents per neighborhood. These were conducted within three months of the observations of patrol activities in that neighborhood.

Standard questions were asked about victimizations experienced by members of the household in the previous 12 months. Victimizations occurring within the 2-3 block area of the residence were aggregated to the neighborhood level. This score was standardized per 100 households. Neighborhood rates varied from 17 to 65 victimizations per 100 households occurring within the previous year. The average rate was 37 (See Table 3-A).

Questions about household ethnicity and family income were also asked. Responses to each of these items were aggregated to create a neighborhood ethnicity variable (percent minority residents) and a family income variable (mean family income). The percent of minority residents (predominantly black) varied from 0 to 99 percent. See Table 3-B. Mean family income was measured on a 7 point scale, starting at $0 and increasing at $5,000 intervals. The highest category included any households with family income above $30,000 (accounting for only 4 percent of all respondents). Mean family income for neighborhoods ranged from 1.7 to 5.1 on this scale. The average for this sample was 2.9 (See Table 3-C).

These three control variables by no means incorporate all of a neighborhood's service conditions, but they do control for features which have long been thought to influence police activity. Using more control variables with a limited number of cases would reduce the degrees of freedom to an unsatisfactory level.

Data Analysis

Table 4 shows the simple and third order partial correlation coefficients for the relationship between the PAA population and each of the dependent variables. The control variables have little influence on the strength of the relationships except in the case of officer use of coercion in nondangerous situations, where a weak relationship with PAA population disappears.

The correlation coefficient for HELP is the largest reported and is in the hypothesized direction (both simple and partial $r = -.43$). Officers working in small population PAAs tend to have more contact with citizens who are in service recipient roles than do officers in large population PAAs. The population size of the PAA accounts for 18 percent of the variation in the dependent variable. The best estimate of the difference in contact rates between a neighborhood with a PAA of 10,000 population and one of 110,000 is 8 citizen contacts per 100 hours.[26] If the strength and sign of this relationship are due to the way that officers exercise their discretion in initiating contacts, then the relationship should hold for INITHELP. The table shows that this is not the case. The simple correlation coefficient is .05; the partial coefficient is -.02. Police officers in small population PAAs are not significantly more inclined to initiate contact with citizens in service recipient roles than officers in large population PAAs.

Even if the tendency to <u>initiate</u> contact with citizens is not related to the scale of patrol service, it is possible that the

nature of officer activity is related. The correlation coefficients for COERCE do not offer support for the hypothesis: the sign is not in the expected direction. The simple correlation coefficient is -.12; the partial correlation coefficient is nearly 0 (-.02), however. In neighborhoods with similar characteristics, officers working in small population PAAs are not significantly less likely than officers working in large PAAs to engage in coercive activity under immediate circumstances that manifest little threat to the physical well-being of the officer or other participants to the encounters.

This data analysis example does not offer a conclusive finding about the value of changing the scale of police patrol to influence officer behavior. A variety of other service conditions and department policies should be controlled in addition to those used. There are many other aspects of patrol officer behavior which merit consideration as well. The measures used provide only rough indicators of behavior quality.

This example does have some implications for the expectations of those advocating stable officer assignment to a small territory. Reducing the scale of police organization in this manner does not appear likely to result in more officer-initiated contacts with citizens requiring service. Officers experience most service contacts at the citizen's initiation: only 6 percent of the service recipient citizen encounters were at the officers' initiation. This does not necessarily mean that small scale policing does not improve community relations in this sample, however. It is possible that the moderate relationship (with HELP) supporting the first hypothesis is due to a feedback dynamic between some feature of officer behavior and the

willingness of citizens needing service to call the police for help. Perhaps neighborhoods served by small PAAs make more service demands on their police because they anticipate or have previously received more responsive service from them, and the police, in turn, spend more of their time responding to these calls for service. Police thus have less opportunity to initiate service activity of their own, accounting for the extremely low coefficient for officer-initiated encounters. Officer use of coercion in nonviolent/nondangerous situations would not appear to be a factor in citizens' decisions to call the police for service if this process is at work in these neighborhoods, but other, more subtle characteristics of officer-citizen interaction may show a stronger relationship. Obviously much additional research is required before judgment is passed on the impact of PAA size.

Conclusion

In this paper I have shown how a specific feature (PAA population) of a general policy orientation (team policing) can be operationalized and applied in policy analysis. I have stressed the need to specify such a measure in the context of a policy innovation as eclectic as team policing. The problems in obtaining and using data to create this indicator have been discussed. Even with expensive, extraordinary data collection techniques not usually available to a police department, (e.g., independent, systematic observation) the resulting indicator is far from ideal. It still relies in part upon the ability of police managers to know what is actually going on in their departments -- how they are organized. In this respect, police administrators still remain

largely at the perimeter of their organizations. Their ability to monitor the behavior of their street level bureaucrats is quite constrained and perhaps always will be, unless the very police role is fundamentally altered. Given this limitation, any data which give a police administrator a more complete and accurate picture of his department's actual organization is helpful. The population of the patrol officers' primary assignment area is such a measure and, in the data analysis example given, has shown potential for developing and testing hypotheses about the effects that scale of police patrol organization has on officer behavior.

Table 1

PAA Population for the 42 Study Neighborhoods

	Population of PAA in which Study Neighborhood is Located
CLEARWATER, FL	
North Greenwood	76,980
Patrol Zone 8	76,980
Patrol Zones 12 & 13	76,980
GREECE, NY	
District 5	63,794
HILLSBOROUGH CO., FL	
Clairmel City	56,889
Town and Country	74,627
Carrollwood	74,627
LARGO, FL	
Patrol Zone 3	54,900
Patrol Zone 1	54,900
MONROE CO., NY	
Henrietta	68,449
Perinton/Pittsford	127,689
PINELLAS CO., FL	
Ridgecrest	209,710
Starkey Road	209,710
Safety Harbor	209,710
Harbor Hills	209,710
ROCHESTER, NY	
Beat 237	31,629
Beat 246	40,288
Beat 231	49,530
Beat 262	20,066
Beat 243	42,768
Beat 266	40,288
Beat 271	11,707

Table 2

Distribution of the Dependent Variables in the 42 Neighborhood Sample

A. HELP
citizens in service-recipient roles encountered by officers (both officer and citizen initiated)/100 hours

Mean: 31.7 Standard Deviation: 11.5

Range: 5.2 - 53.8 Median: 31.0

B. INITHELP
citizens in service recipient roles encountered in officer-initiated contacts/100 hours

Mean: 4.0 Standard Deviation: 2.3

Range: 0 - 8.9 Median: 4.0

C. COERCE
citizens subjected to strong coercion in nonviolent or nondangerous situations (both officer and citizen-initiated)/100 hours

Mean: 6.4 Standard Deviation: 5.2

Range: .8 - 22.5 Median: 5.7

Table 3

Distribution of Control Variables in the 42 Neighborhood Sample

A. Neighborhood victimization rate
victimizations occurring in the neighborhood/100 households within the previous 12 months

Mean: 36.5 Standard Deviation: 12.5

Range: 17.3 - 65.2 Median: 32.5

B. Percent of minority residents in the neighborhood

Mean: 34.4 Standard Deviation: 37.1

Range: 0 - 99.0 Median: 9.0

C. Mean family income in neighborhood (7 point scale)

Mean: 2.9 Standard Deviation: .8

Range: 1.7 - 5.1 Median: 2.7

	Population of PAA in which Study Neighborhood is Located
ST. LOUIS, MO	
Team Area 2, West	14,383
Team Area 2, East	14,383
Soulard	23,215
Shaw	21,703
Buder	17,228
Baden	13,293
Walnut Park	23,874
Florissant	23,874
ST. PETERSBURG, FL	
The Deuces	28,472
Patrol Zone 6	20,210
Disston Heights	38,360
Pinellas Point	33,901
TAMPA, FL	
Ponce de Leon	150,695
Drew Park	145,694
40th St. & the River	150,695
Patrol Area Q	150,695
Westshore	145,694
UNIVERSITY CITY, MO	
Heman Park	10,700
Ruth Park	10,700
Flynn Park	10,700

Summary Statistics:

Mean: 69,771 Standard Deviation: 62,774

Range: 10,700 - 209,710 Median: 46,149

FOOTNOTES

1. The National Institute of Law Enforcement and Criminal Justice (NILECJ) of the Law Enforcement Assistance Administration has funded a project to develop police program performance measures conducted by the American Justice Institute. It is currently a consortium of projects to develop and validate performance funding measures for the criminal justice system, including the police. This has been identified by NILECJ as one of its long term research priorities. For additional details, see the NILECJ Program Plan, Fiscal Year 1979. See also Gerald E. Caiden, Police Revitalization (Lexington, MA: Lexington Books, 1977), pp. 335-338. Caiden lists several other projects developing measures on police productivity conducted by the Urban Institute, the National Science Foundation, the Rand Corporation, and the International City Management Association. Two treatises taking diverging perspectives on general problems in performance measurement are: Michael Lipsky, "The Assault on Human Services: Street-Level Bureaucrats, Accountability, and the Fiscal Crisis," in eds., Scott Greer, Ronald D. Hedlund, and James L. Gibson, Accountability in Urban Society, Volume 15, Urban Affairs Annual Reviews (Beverly Hills: Sage Publications, 1978), pp. 15-38; and Elinor Ostrom, "Purposes, Performance Measurement, and Policing," working paper, Workshop in Political Theory and Policy Analysis, Indiana University, 1979.

2. William G. Gay, Jane P. Woodward, H. Talmadge Day, James P. O'Neil, Carl J. Tucker, Issues in Team Policing: A Review of the Literature, National Institute of Law Enforcement and Criminal Justice, Law Enforcement Assistance Administration (Washington, D.C.: U.S. Government Printing Office, 1977), p. 3.

3. Ibid., p. 4.

4. William G. Gay, H. Talmadge Day, and Jane P. Woodward, Neighborhood Team Policing, National Institute of Law Enforcement and Criminal Justice, Law Enforcement Assistance Administration (Washington, D.C.: U.S. Government Printing Office, 1977), pp. 8-13.

5. John Peterson and Mark Pogrebin, "Team Policing: A Modern Approach to Decentralization of Police Decision-Making," Abstracts of Police Science, vol. 5, no. 1 (January/February 1977), p. 3.

6. See Jonathan Rubinstein, City Police (New York: Ballantine Books, 1973), pp. 129-217; John Van Maanen, "Working the Street: A Developmental View of Police Behavior," in Herbert Jacob, ed., The Potential for Reform of Criminal Justice (Beverly Hills: Sage, 1974), pp. 83-130.

7. Michael K. Brown, Working the Street: Police Discretion and the Dilemmas of Reform (forthcoming, 1979), p. 254.

Table 4

Simple and Partial Correlation Coefficients* for PAA Population With Aggregated Officer Behavior in 42 Study Neighborhoods

Dependent Variable Name	Dependent Variable Description	Simple Correlation	3rd Order Partial Correlation
HELP	# citizens in service-recipient roles encountered (both officer and citizen-initiated)/100 hours	-.43	-.43
INITHELP	# citizens in service recipient roles encountered in officer-initiated contacts/100 hours	.05	-.02
COERCE	# citizens subjected to strong coercion in nonviolent or nondangerous situations (both officer and citizen-initiated)/ 100 hours	-.12	-.02

*Control variables: # victimizations/100 households in previous 12 months
proportion of neighborhood residents of minority ethnicity
mean family income (7 point scale)

8. Stephen E. Fienberg, Kinley Larntz, and Albert J. Reiss, Jr., "Redesigning the Kansas City Preventive Patrol Experiment," Evaluation, Vol 3, Nos. 1 & 2, 1976, pp. 124-131. The authors refer to the Kansas City Preventive Patrol Experiment's treatment of "routine preventive patrol" as a "black box." That is, the various dimensions of preventive patrol were not specified in the design.

9. Peterson and Pogrebin, p. 8; Gay, et al, Issues in Team Policing..., p. 16.

10. Charles E. Silberman, Criminal Violence, Criminal Justice (New York: Random House, 1978), p. 208.

11. Henry J. Schmandt, "Municipal Decentralization: An Overview," Public Administration Review (October 1972), p. 576.

12. Edward M. Davis, Staff One: A Perspective on Effective Police Management (Englewood Cliffs, NJ: Prentice-Hall, Inc., 1978), pp. 134-138.

13. See Van Maanen, pp. 106-108; Jeffrey Manditch Prottas, "The Power of the Street-Level Bureaucrat in Public Service Bureaucracies," Urban Affairs Quarterly, Vol 13, No. 3, March 1978, pp. 285-312; Lipsky, pp. 20-22.

14. Albert J. Reiss, Jr., The Police and the Public (New Haven: Yale University Press, 1971), pp. 97-100.

15. Richard C. Larson, "What Happened to Patrol Operations in Kansas City?" Evaluation, Vol. 3, Nos. 1-2, 1976, p. 120.

16. Gay, et al, Neighborhood Team Policing, pp. 18-19.

17. Van Maanen, p. 113; Rubinstein, chs. 4-5.

18. Gay, et al, Neighborhood Team Policing, pp. 18-19; Alfred I. Schwartz and Sumner N. Clarren, The Cincinnati Team Policing Experiment: A Technical Report, Vol. I (Washington, D.C.: Police Foundation, 1978), pp. V-39 - 43.

19. The St. Louis Police Department is implementing its Fleet Location and Information Reporting (FLAIR) system on a city-wide basis.

20. The Police Services Study was conducted jointly by Indiana University and the University of North Carolina and was funded by the National Science Foundation. The principal co-investigators were Elinor Ostrom, Roger B. Parks, and Gordon P. Whitaker. Numerous "Methods Reports" detailing the data collection instruments and procedures are available through the Workshop in Political Theory and Policy Analysis at Indiana University or the Center for Urban and Regional Studies at the University of North Carolina-Chapel Hill.

21. For example, in one suburban department with fewer than 40 sworn (not included in sample reported in this paper) the chief reported that beat boundaries changed for the evening shift. Patrol management, supervisors, and officers reported that beat boundaries remained the same for all shifts, however, and this was confirmed by project patrol observers.

22. Elinor Ostrom and Dennis Smith, "On the Fate of 'Lilliputs' in Metropolitan Policing," Public Administration Review 36, No. 2 (March/April 1976), pp. 192-200.

23. In the cases of St. Petersburg and Pinellas County, where complex assignment policies extended regular rotation periods beyond the field site study period, I reviewed assignment records spanning six months to insure adequate verification of policies.

24. For a detailed account of patrol observation and coding procedures see Eddie Caldwell, "Patrol Observation: The Patrol Encounter, Patrol Narrative, and General Shift Information Forms," Police Services Study Methods Report MR-2 (Bloomington, Indiana: Workshop in Political Theory and Policy Analysis, 1978).

25. See Caldwell, "Patrol Observation..." for details.

26. The regression coefficient is .8 when PAA population is measured in units of 10,000.

END