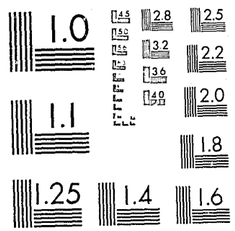

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Understanding Police Agency Performance

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James K. Stewart
Director

Understanding Police Agency Performance

edited by
Gordon P. Whitaker

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CHAPTER 1. INTRODUCTION

Gordon P. Whitaker

Models of police service production can improve understanding of police performance in two ways. Models can help clarify how police transform their resources into service activities, and models can help identify the effects those activities have on the communities in which they are carried out.

Much interest in police performance measurement arises from a concern that police agencies be effective and efficient in transforming their resources into services. This is the aspect of police performance over which police themselves have most direct control. It is therefore of particular concern to those whose major interest is the management of police operations. This important set of performance questions includes which forms of agency organization, police officer training, operating procedures, and other management tools are most conducive to getting more patrol units on the street, answering more calls for assistance, reducing police response time, or producing other valued police service activities. Those seeking to measure these aspects of policing need models of what police do.

But police performance measurement is seriously incomplete if it examines only the production of service activities. The most important aspect of police performance from the perspective of many citizens is the impact police activities have on them and their community. Those interested in police policy are often concerned with the social impacts of police more than with how police go about producing service activities. Do more units on patrol or quicker response times, for example, lead to safer streets, fewer household burglaries, less public fear of crime, or other desired social outcomes? If so, under what circumstances and within what limits? Unless quicker police responses or more police on patrol (or any other police activity, for that matter) contribute to valued social conditions there is little reason to produce those activities, no matter how effective or efficient the production technology. Police may conduct a service activity very well, but if it does not accomplish anything of value, the activity itself has no value.

Understanding both the technology of police service production and the social effects of police service activities is important to police performance measurement. Models can help us understand both. In stating a model, one selects the combination of elements expected to influence the desired outcome and specifies the expected relationships among those elements. In testing a model, one determines the extent to which observed conditions conform to the expected relationships. Stating, testing, and restating models forces researchers to articulate theories about how policing works and how it influences the community.

Models of police technology and models of police social impacts both often need to take into account factors outside direct control of the police. The individual and cumulative effects of the behavior of private citizens and non-police officials can be quite marked for both what police do and what they accomplish. For example, both the transformation of police resources into service activities and the effects of police activities on the community may

be influenced considerably by the kinds of crime committed in an area, the extent to which citizens call on police for service, the activities of the local prosecutor, and the extent to which victims of crime cooperate with police investigations. Assessments of police performance thus need to take account of the relevant social context in which police operate. One purpose of modeling is to identify which social factors are relevant for particular police services and to specify the ways in which these contextual factors influence police performance.

The studies included in this report examine both the technologies of police service production and the social effects of police service activities. The models under study all concern police patrol. Patrol consumes more local police department resources than any other set of police services. Officers on patrol are also the most visible part of a local police department. They are the police whom citizens are most likely to encounter. A police department's performance is certainly not limited to the performance of its patrol units, but -- for most departments -- assessments of agency performance necessarily include evaluations of patrol performance.

The report is organized in two sections. The first deals with police service production technology. What are the processes by which police resources are transformed into service activities? To what extent are those processes and the resulting activities subject to police control? What non-police influences are important? The second section of the report deals with the effects of police activities on the public. Some of the papers in this section discuss the validity of citizen perceptions of police activities. How well do citizens' perceptions correspond to other measures of what police do? What accounts for any differences? Papers in the second section also model relationships between what police do and the effects those activities have on citizens.

Chapter Summaries

In Chapter 2, Roger Parks and Elinor Ostrom suggest a model for assessing and comparing the efficiency of police agencies. Their model is based upon a technique known as "envelope analysis" in which agencies are compared on the basis of their outputs-to-expenditures ratios. Using clearance rates and number of patrols per expenditure as measures of police outputs, Parks and Ostrom present a preliminary analysis of the effects of several variables (particularly metropolitan police "industry structure") on the relative efficiency of police departments. Their results suggest that police agencies operating in areas where there are more local departments may be more efficient than those operating in areas with few local departments.

In Chapter 3, Stephen Mastrofski uses Police Services Study (PSS) data to test the hypothesis that officers who are permanently assigned to small beats have a greater propensity to exhibit "service-style policing" in urban residential neighborhoods. By means of a multiple regression model that controls for the effects of other neighborhood characteristics, Mastrofski demonstrates that patrol scale has little effect on the style of officer behavior, although in low violence neighborhoods, small scale patrol may help produce service-style policing.

In Chapter 4, Robert Worden analyzes patrol response times to calls for service in PSS metropolitan areas in order to determine whether police discriminate against disadvantaged groups or invoke bureaucratic "technical-rational" decision rules in executing their roles. By correlating neighborhood service response times with socioeconomic characteristics, situational variables and officer attitudes, Worden finds that the only significant non-random determinant of response time is the seriousness of the reported problem and concludes that officers' responses to calls in the four large city departments he examined are prompted by professional norms rather than reflecting officers' personal basises.

In Chapter 5, Mastrofski explores the utility of police officer knowledge of the beat as a performance measure. He discusses the value of using police beat knowledge from several perspectives, describes the different types of police knowledge, and considers potential measurement problems. He then presents analysis designed to model the influences contributing to officers' knowledge of the beat. A standardized discriminant function analysis is used to determine which variables affect officer beat knowledge. The analysis suggests that police knowledge of the beat will not be easily increased with the policy manipiable variables included in this model.

In Chapter 6, Worden and Alissa Pollitz present a replication of an earlier study by Sarah Berk and Donileen Loseke of the effect of situational variables on police arrests in domestic disturbances. Using observational PSS data, they find (as did Berk and Loseke) that the decision to arrest in such cases turns on situational cues; they also find support for the importance of officer role orientation.

In Chapter 7, Worden and Whitaker attempt to model through computer simulation the police decision to disseminate crime prevention information to victims of crime. They find that such factors as incapacitation of the victim, presence of other officers, encouragement of supervisors, workload, and victim requests are relatively poor predictors of officers' propensity to disseminate crime prevention information; they suggest that this officer action may be a largely random phenomenon.

In Chapter 8, Mastrofski argues that survey-based evaluations of police performance --often maligned for lack of a policy-relevant focus -- can appropriately be centered upon citizens' encounters with the police. He emphasizes that such research must be mindful of the distinctions among citizen participants' roles and problems, otherwise evaluations may be biased by an incomplete or skewed range of clients.

In Chapter 9, Parks explores the extent of agreement between citizen participants and trained observers when reporting about the same incident, an encounter between the police and citizens. Using PSS interview and observation data, Parks finds high levels of agreement between citizens and observer reports, though that level varies according to the particular aspect of the citizen encounter examined. Bivariate analysis reveals only weak correlation between citizen-observer discrepencies and situational characteristics and citizen attitudes.

In Chapter 10, Parks discusses the use of citizen surveys for assessing

police performance. He maintains that citizens' ability to recount experiences with the police provides an important source of data on police performance. He reviews recent literature (pro and con) regarding this issue. Parks defends the use of citizen surveys but argues for the need for further research to strengthen confidence in their validity.

In Chapter 11, Parks uses citizen perception of police response time as a link between subjective and objective measures of police performance. Drawing from the 1972 St. Louis study, Parks presents a regression model of the influence of various objective phenomena on citizens' perceptions of the speed of police response in their neighborhoods. Parks determines that objective and subjective measures are associated statistically, when they are conceptually linked. Parks concludes that one reason some investigators have found no relation between indicators of police behavior and citizen attitudes is that they have examined behaviors and attitudes which are not thought to be closely related.

In Chapter 12, Charles Phillips and Alissa Pollitz investigate the ability of the police to mitigate the fear of crime in PSS neighborhoods. Controlling for other neighborhood and individual characteristics, they find little evidence of a police role reducing citizens' perceptions of the likelihood of victimization. They instead find that victimization levels and household victimization histories are the strongest determinants of fear. They conclude that poice efforts to reduce citizen fear might best be directed toward reducing crime.

Performance Criteria

A variety of different performance criteria are implied through the models included in this report. For example, in "Policing as a Multi-firm Industry" Parks and Ostrom explore a kind of model which lends itself well to assessments of relative efficiency. They describe ways to map the ratios of several service activities to resources and identify possible relationships between form of organization and relative efficiency. In "Policing the Beat" Mastrofski presents models which are applicable to assessments of effectiveness. He selects one patrol assignment strategy and models its intended effects on police officer activities. Examination of data about police departments' officer assignment patterns and their officers' activities both test the model and assess how effective the assignment strategy is in producing the expected officer activities. In Worden's "Street-level Bureaucrats and the Distribution of Urban Services" the focus is on the equity of police service delivery. Worden develops models of service production which include the racial and income characteristics of the areas being served by police. Data about service patterns is then examined to determine whether the expected relationships between race or income and services are, in fact, observed. In "Police Arrests in Domestic Disturbances" Worden and Pollitz develop a model which permits the assessment of police responsiveness. Requests which citizens make of the police are included in the model along with indicators of citizen need. Again the extent to which these factors bear the expected relationship to the valued outcome (here arrest) is assessed through analysis of data about citizen and police behavior.

The papers presented here build upon an earlier report to the National Institute of Justice, (Basic Issues in Police Performance, by Gordon P. Whitaker, Stephen Mastrofski, Elinor Ostrom, Roger B. Parks, and Stephen L. Percy published by NIJ in 1982). Interested readers are referred to that report for discussions of the uses of models in performance measurement, the selection of performance criteria, and data collection and analysis for performance measurement. As that report argues, the uses of performance measures of policing are varied and even conflicting, just as are the purposes and expectations which people in a community have for their police.

The papers which follow explore only a few of the aspects of policing for which people want performance assessments. They illustrate the importance of using models to test assumptions about police services and to control for important non-police factors when assessing performance. Along with other studies of police service technologies and police social impacts, these papers contribute to a growing base of knowledge about police performance. In this literature, the scientific study of police processes is directed by a concern for understanding valuable police activities and their valued social impacts. By learning how to measure police performance, we seek ways to improve police performance.

9.3963

PART I. POLICE SERVICE PRODUCTION

CHAPTER 2. POLICING AS A MULTI-FIRM INDUSTRY

Roger B. Parks and Elinor Ostrom

Most conventional analyses of public service delivery employ a unitary model of local governments. In such models, the "government" aggregates consumer preferences, procures and organizes means of service production, and delivers services as a monopoly supplier to constituents. Decisions about output and expenditure levels are assumed to be made by simple referenda or by omniscient and benevolent administrators. But few local government service delivery structures are so simple.

Since the early 1960s, scholars have argued for more complex models of public service delivery (e.g., Ostrom, Tiebout, and Warren, 1961; Margolis, 1964). Noting that the local public sector is most frequently composed of several layers of enterprises engaging in a wide variety of exchanges, they argued the need to consider the structure of intra- and inter-jurisdictional arrangements as influences on service delivery. Margolis, for example, argued that the structure of interorganizational arrangements might make it possible to deal with problems that are less amenable to solution at the level of individual organizations or jurisdictions.

> A consideration of the structure of governments gives a new perspective to old questions. We might ask whether some of the insoluble problems posed in the theory of public expenditures are worked out through the behavior of the structure. That is, does the structure have some of the characteristics of an industry and market, so that there is an interaction among governments which leads to desirable results (Margolis, 1964:236).

In addition to his concern over the neglect of interorganizational structure, Margolis also criticized analysts of public finance for excessively collapsing the internal organization of governmental units. Instead of direct democracy or pure hierarchy, most governmental structures are far more complex. As Margolis recognized, these governmental structures may give rise to opportunities for private gain.

> Just as the market can be rigged, the government can be manipulated to protect private interests of some constituents. Just as promoters can orient and stimulate the market, there is a government bureaucracy which can gain from government activities (Margolis, 1964:236-237).

Despite the cogency of these arguments by Margolis and others (e.g., McKean, 1964), few analysts of local service outputs and expenditures have taken into account overtly the ways the structure of intra- and inter-organizational arrangements may affect the performance of local public sector economies. In this paper, we will attempt to show one such set of effects. In particular, we will be interested in how the structure of service delivery arrangements for policing in a metropolitan area, conceptualized as a multi-firm industry, affects the behavior of individual police agencies within the industry. We will pose an explanation based on intra- and inter-organization-

al factors for the effects that we are able to show.

A. Service Delivery "Industries"

Ostrom, Tiebout, and Warren (1961) and Ostrom and Ostrom (1965) argued for the utility of conceptualizing public service delivery structures as "industries." Public service industries, they claimed, might be analyzed using many of the same tools as those employed by economists of the industrial organization persuasion (e.g., Bain, 1959). Consideration of service delivery structures in terms of their monopoly, duopoly, oligopoly, or competitive forms might enable behavioral predictions analogous to those made for private firms in market structures. In an early application of industrial organization concepts to the public sector, Bain, Caves, and Margolis studied the water industry in northern California (1968). But little other empirical or theoretical application of industrial organization concepts to the public sector occurred until the middle 1970's. This was due, we believe, to a lack of conceptual tools for characterizing the structure of service delivery arrangements in the public sector and a consequent lack of theoretically related empirical measures of this structure.

As a result of National Science Foundation supported studies of the organization of service delivery in metropolitan areas, two similar conceptualizations of service delivery arrangements in the public sector have been developed (Ostrom, Parks, and Whitaker, 1974; 1978; Savas, 1978). In both conceptualizations, service delivery arrangements are disaggregated by specific type of service (e.g., general area police patrol, investigation of residential burglaries, radio communications, garbage collection, dry trash collection, newspaper recycling). The participants in the service delivery arrangements are separately classified as producers of the service, as consumers of the service, or as providers or collective decisionmaking units that link producer and consumer. Once these three types of participants are separated conceptually, they can be identified empirically for any given service in a particular geographic area (e.g., a city, a county, an SMSA). Matrices can be constructed arraying, for example, all of the producers against all of the consumers (or all groups of consumers for services with attributes of public goods). Each cell in the matrix identifies whether a service link exists between a particular producer and a particular consumer (or group) and, if so, the nature of that service link. Matrices can also be constructed for producer and provider linkages, for provider and consumer linkages, and for linkages between producers of one service and producers of other services that are necessary or useful to the former producers. These service structure matrices, together with computations based upon their sizes and the patterns and types of entries, can then be used to characterize the structure of service delivery arrangements for each service of interest in many different geographic areas (see Ostrom, Parks, and Whitaker, 1978).

By analyzing the relationships between service delivery structures and the behavior of participants within structures of very different forms, we hope to improve our understanding of interorganizational influences on public bureau behavior. Does a public bureau that occupies a monopoly supply position with respect to a large population and across several different services, behave differently from a set of smaller monopolists serving an

equivalent total population or a mixed set of more specialized producers of particular service that, in the aggregate, supply an equivalent population? Does the availability of service supply to a given consumer (or group) from two or more different producers lead to inefficient duplication as some would argue, or does the presence of potential competition, even if oligopolistic, lead to more vigorous supply efforts by all producers?

Before we can begin to answer these questions, we must have measures of police performance in addition to measures of police industry structure. In the next section we develop a relative measure of productive efficiency based on two common police outputs. Following this development we show how relative efficiency is associated with variations in industry structure.

B. Measuring Relative Efficiency in Policing

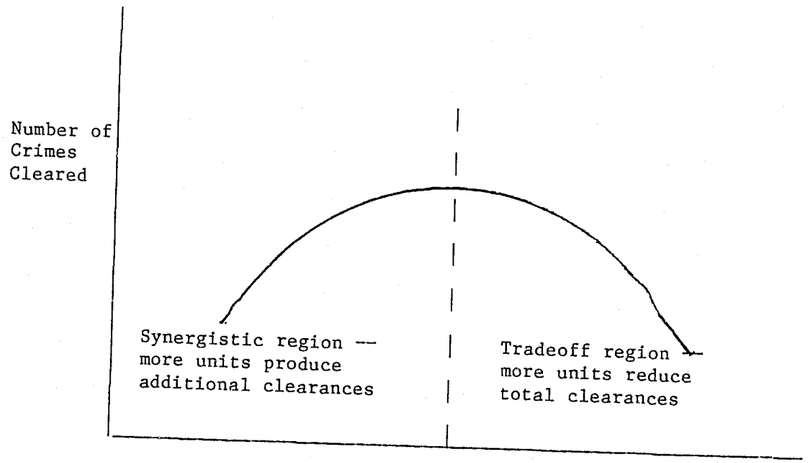
The particular performance criterion that we have chosen to employ here is limited, though quite important. We will focus on the relative technical efficiency of municipal police agencies in the production of two common outputs, clearances by arrest, and response capacity. By response capacity we mean the deployment of patrol units available to respond to citizens' requests for police services. By technical efficiency we refer to the transformation of input factors to outputs. More efficient production units obtain more output from the same inputs. By relative technical efficiency we mean to measure the technical efficiency of each police agency against that of other police agencies who are attempting to utilize similar production techniques and/or to obtain similar outputs. The sense of the term relative should become clear in the development of the efficiency measure.

Our focus on relative technical efficiency in the production of only two outputs requires some justification. We agree that it is a serious limitation. We are not so concerned on the choice of two outputs. While police do many, many things, clearing crimes and responding to citizens' service requests are among the more important in most communities and are certainly among the most resource consuming. But, the limitation to relative technical efficiency leads us to ignore other criteria, including broader concepts of efficiency as well as those of effectiveness, responsiveness, or equity in service delivery.

Rather than solely pleading data inadequacies, though the lack of adequate measures of effectiveness, responsiveness, or equity across a large sample of police agencies is clear, we argue that technical efficiency is at minimum a necessary condition for scoring well on these larger criteria. If one is technically inefficient, one could, by lessening the inefficiency, produce more output without increasing costs. This additional output could then be allocated to improve the effectiveness, the responsiveness, or the equity of service delivery. For this reason we feel justified (though uncomfortable) in using relative technical efficiency as our performance measure for these analyses.

1. Technical efficiency. Police agencies utilize productive factors including sworn personnel, civilian personnel, automobiles and other vehicles, communications gear, and many other items in the production of crime

Figure 1. Conceptual Relationship of Clearances and Response Units with Fixed Resources



clearances and response capacity. The production function for either of these outputs is not well known, however. That is, we do not know with any certainty how many officers, civilians, cars, and so forth are needed to produce X clearances, Y response units, or various combinations of these. There are a few engineering estimates with respect to response units, suggesting that a minimum of four to five sworn officers are required for each unit deployed around the clock (Callahan, 1973; Misner, 1960). But, empirical data on police agencies shows a very wide dispersion from this ideal type calculation (Ostrom, Parks, and Whitaker, 1978:Chapter 5). There are no estimates available with respect to clearance production.

Conceptually, the two outputs should be cooperative over some range of values and competitive beyond that range. That is, a department with fixed resources can obtain both clearances and response units as it begins to deploy units to the street. It is well known that on-street patrol officers supply a large number of the crime clearances obtained by most agencies. But, it may be possible to increase the response force to the detriment of clearances that could be obtained through the use of resources in specialized nonpatrol units. At the point where this begins to occur, police decisionmakers confront a trade-off between these outputs and must choose the combination deemed most beneficial to their communities. Pictorially, the situation is as shown in Figure 1.

As noted, we have no well-known production functions for these police outputs. What we do have is a large number of observations on police

agencies. For these agencies we can measure their employment of productive factors like officers, civilians, and cars; and we can measure the outputs they achieve, the number of clearances in a year, for example, and the number of response units they deploy. Relating the obtained outputs to the input factors employed could, in theory, allow us to observe an empirical production relationship for these departments. In practice this is quite difficult.

While it is possible for a police agency to choose to operate anywhere along the curve shown in Figure 1, it may also be possible for agencies to operate anywhere below such a curve. Inefficiency in transforming their fixed resources into the outputs in question would place a department below the curve. Observations on departments that lie below such a curve do not tell us about the true production function, what can be obtained with optimal use of the resources available. That can only be found by using observations from departments that are doing the best possible with the resources they have. Where we can identify that group of departments which are doing the best possible with their resources, we can estimate the production function for these outputs and then use that function to assess the relative efficiency of departments that are operating below the curve in Figure 1.

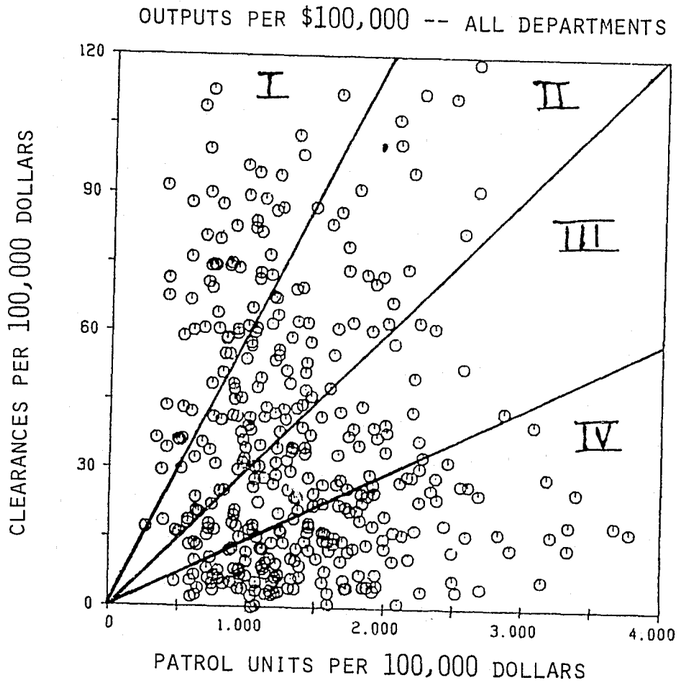
2. Relative technical efficiency. The technique that we employ is graphical in nature. It is a gross simplification of more complex linear programming methods such as Data Envelopment Analysis (see Charnes, Cooper, and Rhodes, 1978; Farrell, 1957). We are currently working toward the implementation of these more sophisticated techniques, but find this simple method to offer some interesting results. The technique we use is to divide each of our output measures by a measure of the input resources available and then to plot the standardized outputs against each other.

Figure 2 shows one such plot, where the standardizing measure of input resources is the total salary expenditure of a police agency.[1] Each circle in

[1]The data used here were collected in the first phase of the Police Services Study during 1974 and 1975. Data on police personnel resources, their allocation and deployment, together with extensive data on personnel policies and service delivery arrangements were collected in a series of in-person, mail, and telephone interviews with police administrators in 85 metropolitan areas (Ostrom, Parks, and Whitaker, 1978). Data on reported crimes, clearances, officer deployment, and assaults on police officers were made available by the Uniform Crime Reporting Section of the Federal Bureau of Investigation and merged with the organizational data. This analysis utilizes data from a subset of the departments studied. These are municipal, town, and township police agencies with five or more full-time sworn police officers for which FBI UCR data were available. More than 400 such departments are in the data set.

The departments ranged in size from five to 1,376 full-time sworn officers. They were widely distributed geographically, generally matching the geographic distribution of all municipal police agencies. The response force supplied by the departments ranged from a single patrol unit on the street to more than 100 units. The number of crimes cleared by arrest ranged from zero to 11,000. In sum, the departments provide a fairly representative sample of local police agencies in America, though not of the very largest departments.

FIGURE 2. CLEARANCE AND RESPONSE CAPACITY OUTPUTS STANDARDIZED BY TOTAL SALARY EXPENDITURES



the figure represents one police agency with its unique combination of salary expenditure, number of clearances in a year, and average number of patrol units deployed. It is obvious that there is wide variation in the number of clearances obtained per $100,000 and in the number of patrol units deployed per $100,000 in this sample of police agencies. The variation has two components. The first is a choice of emphasis. Those departments in the portion of the figure labeled I have chosen to emphasize the production of clearances over the supply of response units. Those in the area labeled IV have made the opposite choice. Those in areas II and III fall in the middle of this choice dimension.

The second component of the variation in Figure 2 is inefficiency. An agency in the upper portion of region I, producing 100 clearances and one

patrol unit per $100,000 is clearly more efficient than an agency lower in that region that produces only 50 clearances and 0.5 patrol units per $100,000. Likewise, an agency to the right in region IV, producing fifteen clearances and three patrol units for each $100,000 is more efficient than an agency in the same region that produces ten clearances and one patrol unit for each $100,000. Other efficiency comparisons are less clear, however. Without knowledge of the production function, it is not possible to compare directly the efficiency of an agency producing 70 clearances and 1.5 patrol units per $100,000 to a different agency that produces 50 clearances and two patrol units per $100,000. In the economist's terms, we do not know the marginal rate of transformation between clearances and patrol units, something we would need to know to compare efficiency directly.[2] By computing a measure of relative technical efficiency, we argue, such comparisons can be made indirectly.

The method for computing relative technical efficiency requires two steps. The first is to determine an envelope that fits the outer bounds of the points in Figure 2. This could be done deterministically, simply connecting the points that lie on the outer edge of the cloud in Figure 2. Alternatively, it can be done statistically, taking not only the outermost points, but also points that lie close to the outer bound and then using a curve fitting technique, such as regression, to fit a line to this set of points. We have used the latter method as we felt there was some distribution of error about each of the points in our data set, pushing some points out beyond actual performance and others inward to understate their performance. Statistical curve-fitting appeared to compensate somewhat for this difficulty.[3] Figure 3 shows the points used for this curve-fitting approach to envelope construction. We chose points and fitted envelopes in four different ranges of police agency size because there appeared to be a substantial difference in output emphasis that was related to size. Larger departments tended to emphasize clearances at the expense of response capacity, while smaller departments reversed this choice in our data set.

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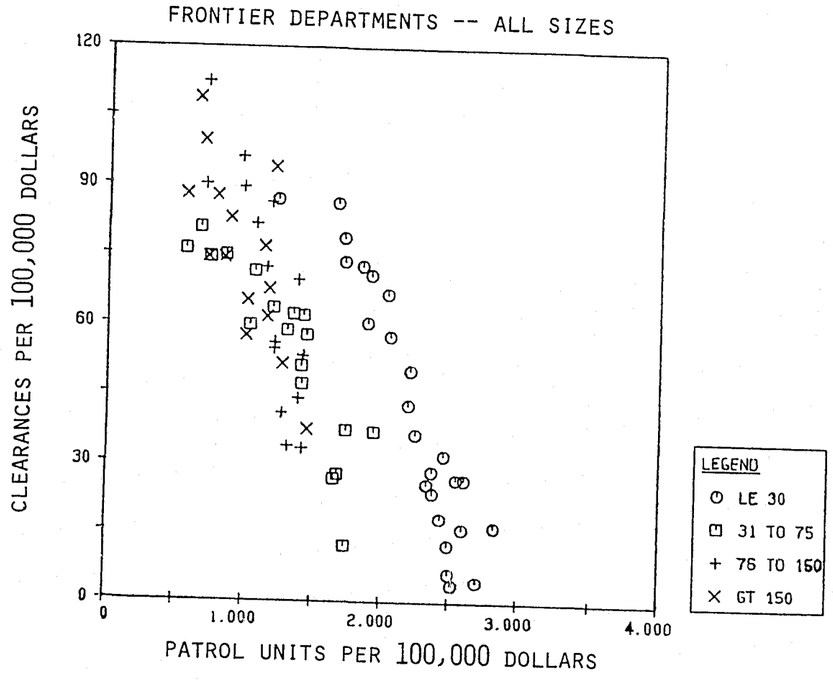
[2]To measure efficiency in more than this strictly technical sense, we would have to know even more than the production function or the production possibility curve for these two outputs. We would also want to know the relative prices of the input resources chosen by each agency so that we could examine its allocational efficiency. In other words, does the agency choose the least cost combination of input factors to produce a given set of outputs? Secondly, and much more difficult, we would want to know the relative valuation placed upon the two outputs by the consumers in each agency's jurisdiction. The extent of the match of output mix to that preferred by consumers would measure the agency's efficiency in a social welfare sense (see Levin, 1974).

[3]We further compensated by eliminating arbitrarily those points which seemed "too good to be true." That is, those points that lay beyond what appeared to be the outer boundary of the cloud of points. We suspected these to reflect reporting and/or coding errors of sufficient magnitude to warrant their exclusion. Our frontier or envelope estimates are, therefore conservative in nature.

Once the envelope is computed, the computation of relative technical efficiency is straightforward. We scribe a separate ray from the origin through the point representing each department and on to an intersection with the envelope. All points along such a ray represent a similar output emphasis in that the ratio of clearances to patrol units is constant. In this sense, all departments represented by points along a given ray are trying to accomplish the same thing. The measure of relative technical efficiency is then computed for each agency as the ratio of the distance it lies out from the origin on its ray to the distance out from the origin of the intersection of the ray and the envelope. This ratio measures the proportional accomplishment of a given department to what it could have accomplished with the same resources had it been as efficient as a department in the outer envelope.

FIGURE 3. DEPARTMENTS USED FOR FRONTIER ENVELOPE ESTIMATES



3. Comparing efficient and average police agencies. As Figure 2 demonstrates, there is a wide variation in the technical efficiency of American municipal police agencies. Table 1 illustrates some of this variation by comparing the outputs obtained by efficient departments to those obtained by median police agencies. These data indicate that the spread in efficiency is particularly wide among the smaller departments, those employing fewer than 30 sworn officers. Efficient smaller departments are 68 percent more effective at converting resources to clearances and 50 percent more effective at converting resources to response capacity than are average smaller departments. The patterning of output emphasis with agency size is also apparent from these data, showing increasing emphasis on clearances to the detriment of response capacity as department size increases.

Table 1. COMPARING EFFICIENT AND AVERAGE POLICE AGENCIES

	Number of Full-Time Sworn Police Officers			
	LE 30	31 to 75	76 to 150	GT 150
Clearances per $100,000				
Median efficient departments	31.9	58.8	69.7	74.5
Median all departments	19.9	37.0	54.8	58.9
Percent improvement for efficient	68%	59%	27%	26%
Patrol units per $100,000				
Median efficient departments	2.34	1.35	1.21	1.01
Median all departments	1.56	1.04	0.95	0.73
Percent improvement for efficient	50%	30%	27%	38%

Comparing the characteristics of efficient and average police agencies may help to identify some of the factors that are associated with higher efficiency in the production of these outputs. Table 2 presents some data for such a comparison.

TABLE 2. CHARACTERISTICS OF EFFICIENT AND AVERAGE POLICE AGENCIES

	Number of Full-Time Sworn Police Officers							
	LE 30		31 to 75		76 to 150		GT 150	
	efficient	average	efficient	average	efficient	average	efficient	average
Median sworn officers	11	14	50	45	106	106	203	306
Median civilians	4	2	9	6	24	22	60	59
Region of country								
Northeast	12%*	46%	39%	47%	20%	24%	0%	27%
South/ Southwest	52	21	28	25	40	26	74	40
Midwest	24	16	22	14	27	26	13	17
West	12	16	12	15	14	26	14	17
Median salary expenditures per sworn officer	$10,200	$12,308	$12,052	$13,558	$12,018	$13,115	$10,771	$12,168
Median percent of sworn officers assigned to patrol division	87%	77%	69%	68%	67%	61%	57%	57%

*Regional percents may not total 100 due to round off errors.

One factor that appears to be characteristic of more efficient departments is the use of civilian employees, particularly among the smaller size ranges of agencies. The median efficient department in the smallest size category employs twice as many civilians as the median department of all those with fewer than 30 sworn officers. In the next range the median efficient department employs 50 percent more civilians. This factor does not seem significant among the larger departments, however. A second factor in two of the size categories is an emphasis on patrol over other assignments in the department. For departments with fewer than 30 officers and those with 76 to 150 officers, the percentage of those officers assigned to the patrol force in the median efficient department is well above the same percentage in the average department.

Regional location is a third factor associated with efficiency. There is a relatively higher percentage of efficient departments in the South and Southwest and, to a lesser extent, in the midwestern regions of the country than are found in the northeast or the western regions. This regional difference appears to be the result of two different factors. One is a difference in salary levels for all employment among these regions. We are currently developing adjustment factors for these salary differences so as to remove these differences as an explanation. The second regionally related factor is department age. Police departments in the South and Southwest, in particular, tend to have been established much more recently than those in the Northeast and somewhat more recently than those in the West. We suspect the relationship with department age represents the effect of organizational entropy as older departments find themselves loaded down with the results of decisions made years before and, thus, in many instances unable to adopt more efficient modes of operation.

C. Industry Structure Effects on Police Agency Efficiency

The structure of the police service industry in a metropolitan area could be related to police agency performance, technical efficiency in this instance, in different ways. First, structure could have an indirect influence on performance through intermediate effects on individual agency's structure. In a metropolitan area exhibiting substantial vertical integration, that is with a number of specialized producers of services like radio communications, training, criminal investigation, or detention, many local agencies might turn to these specialists for the supply of some or all of these services. If the specialists were able to capture economies-of-scale, overall service should be more efficient because of this. Local agencies would be better able to allocate personnel to direct service activities in these circumstances.

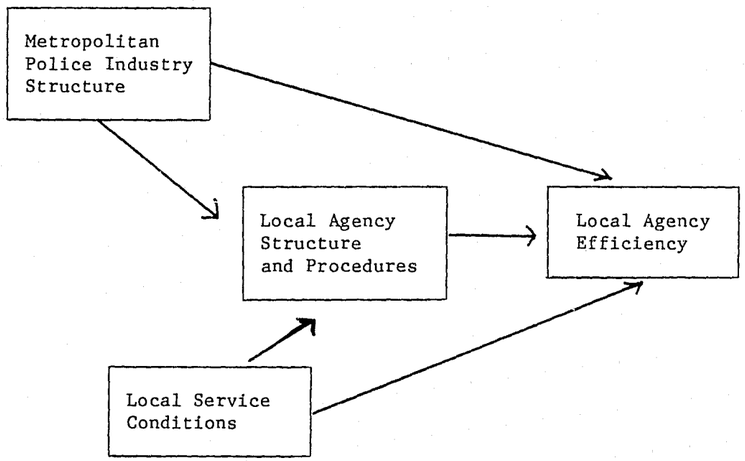
Structure might have a direct influence as well. Where there are multiple agencies of similar size confronting similar service conditions in a metropolitan area, police chiefs, elected officials, and citizens may be afforded more opportunities to learn about more efficient modes of operation. Police chiefs can learn from one another at local chief's meetings which occur frequently in many areas. Elected officials can do likewise at their professional association meetings. Citizens can gain information from friends who reside in other communities and by simply passing through other communities in

their daily business. The fact that elected officials and citizens have the opportunity for such learning increases the likelihood that police chiefs will be willing to put more efficient procedures into operation, even at the expense of perquisites they might obtain from less efficient operations. Where citizens and officials are better able to detect inefficiencies, police chiefs are more exposed to removal if these persist (Parks and Ostrom, 1981).

Conceptually, we would expect influences as shown in Figure 4. We show structure as having both direct and indirect influences on efficiency, and include similar influences for local service conditions in a jurisdiction. Such conditions would include population characteristics, weather patterns, and other factors that would make policing more or less difficult.

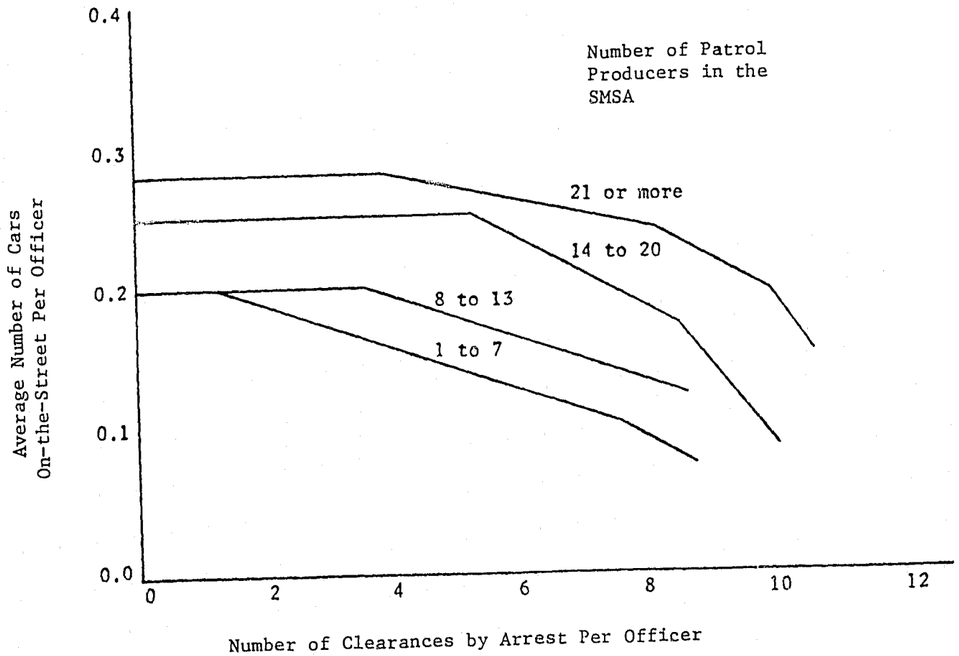
Figure 4

Structural Influences on Police Agency Efficiency



We have not been able to explore this model fully as yet. We do have some preliminary results, however, showing a relationship between relative technical efficiency and one of our structural measures. These results are shown in Figure 5. Here we plot the frontier production possibility curves or envelopes for the outputs of interest, standardized by the number of full-time sworn officers employed rather than by salary expenditures. Four envelopes are shown, one each for varying levels of multiplicity, which is the number of producers of patrol service in each metropolitan area.

FIGURE 5. FRONTIER PRODUCTION POSSIBILITY CURVES



What we have found so far is that the frontiers are further out from the origin in high multiplicity SMSAs than they are where multiplicity is low. This means that the most efficient police agencies in high multiplicity areas are more efficient than the most efficient agencies in lower multiplicity SMSAs. This finding is consistent with our argument regarding the higher availability of information for improving efficiency in such areas, though by no means does it confirm our hypothesis. We are currently developing a multivariate exploration of police agency efficiency, examining the effects of metropolitan structure and service conditions as they affect police agency resource allocation and procedures and, in turn, agency efficiency.

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CHAPTER 3. POLICING THE BEAT: THE IMPACT OF ORGANIZATIONAL SCALE ON PATROL OFFICER BEHAVIOR IN URBAN RESIDENTIAL NEIGHBORHOODS

Stephen Mastrofski[1]

Scholars and public administrators are very interested in learning how to influence the performance of street-level employees in public bureaucracies. Especially attractive to police administrators is the manipulation of organizational structure as a means to this end. This paper explores the relationship between a particular feature of police organization -- the scale of patrol -- and the nature of police behavior in urban residential neighborhoods. The hypothesis is that the scale of police patrol bears an inverse relationship to the propensity of officers to exhibit service-style policing. That is, small-scale police structure should produce more client-oriented officer behavior and less agressive, enforcement-oriented behavior.

A. The Service Style

In Varieties of Police Behavior, James Q. Wilson coins the phrase "service-style policing," which he uses to describe a pattern of police policies and behaviors that are very responsive to a wide-range of order maintenance problems as well as violations of the law. Service-style departments do not ignore crime problems, but they seek alternatives to legalistic solutions. Wilson depicts the service style in the context of a public market for police services: service-style police "produce" what the public demands -- within reasonable legal limits and the dictates of dominant community norms. Producing police service thus means putting the consumer in a central position in deciding when and how to act. Courteous, caring officers are a hallmark of Wilson's service style (1975).

Others have expanded the notion of service-style policing. Bercal (1970) includes in the service role the myriad forms of police assistance consciously excluded by Wilson (e.g., emergency medical services, taking accident reports, and pulling cats out of trees). Some observers have been concerned as much with the nature of police clients as with their problems. The burgeoning victimology literature presents crime victims not as mere sources of information for solving crimes, but as citizens needing assistance. Even suspects are entitled to civil treatment and the protection of their constitutional rights (Reiss, 1971). Laws against serious crimes must be strictly enforced, but work on such crimes is a very small proportion of the total police work load. With the service style, detection of offenders is less often the result of police-initiated actions, and apprehensions adhere closely to due process. Victimless crimes are pursued less aggressively. Alternatives to arrest for minor violations are preferred if they will alleviate the problem. Special emphasis is placed on increasing the types of citizen interactions that build community support for the department (Brown, 1981; Muir, 1977). In sum, the helping aspects of policing modulate the coercive and control aspects; greater

[1]A version of this chapter appeared in the Journal of Criminal Justice 9 (1981), pp. 343-358.

legitimacy is given to rendering individual benefits to citizens, especially when doing so does not contravene strong community and legal norms.

B. The Scale of Police Patrol

The size of an organization (in number of employees, budget, or constituency) is often taken as an indicator of organizational scale. However, the scale of police patrol, here refers to the scope of officers' routine geographic patrol responsibilities. This reflects the service structure of an organization -- not necessarily inferrable from a count of employees or dollars spent. A large agency can organize its patrol work in small units.

Several factors determine the scope of officers' geographic patrol responsibilities: the number and size of patrol beats, the frequency of officer rotation among beats, cross-beat dispatching practices, and the discretion of individual patrol officers. The design of beat boundaries and the procedures for assigning officers to beats are traditional prerogatives of "good government" police managers (See O.W. Wilson, 1963: Ch. 13). Managers also issue rules regarding when an officer may be assigned a call outside his beat, although adherence to standard operating procedures is problematic for dispatchers in many departments (Peterson and Pogrebin, 1977:8; Sherman, Milton, and Kelly 1973:94). Police managers use a variety of techniques to encourage street-level compliance (e.g., periodic radio reports to the dispatcher, supervisor observation, tachographs, and automated vehicle monitoring systems).

Through managerial policies and the discretion exercised by supervisors, dispatchers, and patrol officers, departments structure the scope of officers' routine patrol work to a small area or population -- a small beat for a year, for example. Others frequently move officers through a large number of beats, effecting a much larger scope of operations during the same time period. Some departments -- especially the larger ones -- even have markedly different scales of patrol for different parts of their jurisdiction.

For years police managers have operated as if the scale of patrol organization were an important factor in the quality of policing produced. Some have consciously achieved large-scale patrol structures because they believe that keeping officers from being attached to any given area reduces the likelihood that they will be corrupted by influential people in the beats and that it prevents their getting stale or lackadaisical (Gourley and Bristow, 1961: 139; National Advisory Commission on Criminal Justice Standards and Goals [NACCJSG], 1973:113; Vanagunas and Elliott, 1980:346). Others design such patrol organizations more for administrative convenience and officer morale. It is difficult to maintain the stable assignment policies essential to small-scale patrol, especially in organizations experiencing chronic personnel shortages and turnover. Further, many police administrators and supervisors believe that routine officer reassignment to different parts of the jurisdiction provides an important broadening experience for new officers and accommodates changes in assignment preference that often come with tenure on the force. Frequently rotating officers throughout a large district or jurisdiction can also be a very visible way of ensuring that officers receive

equal treatment in job assignment; it permits more officers to share choice assignments.

We do not have a reliable estimate of the extent of large-scale patrol organization in urban United States, but the National Advisory Commission on Criminal Justice Standards and Goals (NACCJSG) regarded it as pervasive enough to urge that "every police agency adopt policing programs that insure stability of assignment in a given geographical area for individual patrol officers who are geographically deployed" (1973:113). Patrick Murphy in his critique of contemporary police practices asserts that frequent beat rotation is conducive to "stranger policing" --the antithesis of the friendly, caring service style (Murphy and Plate, 1977:225).

A variety of organizational alternatives has been proposed and implemented to reduce the scale of patrol: neighborhood, territorial, and team policing. The essential feature of these proposals is small-scale policing --aimed at permanently tying the street officer to the same relatively small population of service recipients.[2] Like advocates of large-scale policing, small-scale advocates have a variety of presumptions about the consequences of restructuring scale. Some believe that small scale nurtures a "territorial imperative" instinct, viewing its principal benefit as greater protection against crime for those who reside in a neighborhood served by a small-scale operation (Davis, 1978:134-137). Some believe that the increased sense of responsibility presumably engendered by this territoriality will allow the officer to develop his or her beat in a more comprehensive sense --being more willing to offer intimate assistance to those in need (Murphy and Plate, 1977:264). Another set of assumptions focuses on consequences for police-citizen interaction. The officer's continued presence in a neighborhood or small area is expected to increase the probability of repeated contact with and observation of citizens in it, which should help the officer develop an understanding of people's problems and ultimately show greater empathy for them. This should be reflected in greater willingness to provide noncrime services and fewer aggressive, police-initiated interventions. Greater familiarity with the people and customs of the beat is expected to reduce the likelihood of incorrect stereotyping of citizens and misinterpreting their actions. This should lead to fewer instances of unnecessary use of force and arrest. Further, a reciprocal process of trust, gratitude, and cooperation in the public is expected to develop, encouraging officers to pursue the service style (Gay et al., 1977:17-19).

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[2]We do not have reliable estimates of the extent of small-scale patrol across the nation. However, surveys published by the Police Foundation (1978) and the Police Executive Research Forum (1978) suggest that a number of moderate-to-large departments have reduced their patrol scale. Of the combined 79 departments surveyed (serving communities ranging in population from 75,000 to 2,000,000), 33 reported using some form of team or neighborhood policing. It is difficult to know what this means in terms of their precise patrol scale, since team policing refers to a variety of organizational features in addition to small scale patrol, and departments do not necessarily apply the same definition. See Sherman, Milton, and Kelly, 1973 for details on other team-policing features.

C. Previous Research

Research on the scale of patrol organization is neither plentiful nor conclusive. By far the most studied aspect of police organizational scale is the size of the entire agency, usually given as the number of police officers or number of residents in the jurisdiction. Several studies by Ostrom, Parks, and Whitaker --motivated by interest in the consequences of consolidating small departments --have compared police service in similar residential neighbor-hoods of small and large local agencies. They report with consistency across several metropolitan areas in the last decade that smaller departments tend to show a more client-oriented style and less aggressive enforcement behavior (see Parks, 1979; 1980; and Whitaker, 1983 for summaries of these projects).[3]

Michael Brown's (1981) recent study of three California departments uses interviews with police officers, agency records, and systematic observation of officers on patrol to assess the impact of department size on patrol service. Brown's findings are consistent with those based on surveys of residents: small departments tend to show less aggressive anticrime activity and greater leniency in using enforcement procedures.

Although the above studies support the notion that small organizational scale increases the frequency of service-style behavior, they do not directly test the relationship between the scale of patrol organization and police behavior. The scale of patrol organization is necessarily limited by the entire agency's scale, but large organizations may in fact have a more decentralized structure than their overall size implies. Indeed, many efforts to decentralize police patrol are intended to counteract the perceived adverse consequences of large overall organizational scale.

Studies of team policing are to date the most relevant to issues of restructuring the patrol officer's work environment by altering patrol scale. Numerous case studies have been conducted, although their methodological rigor has been questioned (Gay et al., 1977:22). The findings have been mixed. Some evaluations report that aggressive patrol is reduced (Cordrey and Pence, 1972). Others report that police officers in Los Angeles and New York City are more aggressive under team-policing arrangements than nonteam-policing arrangements (see Brown, 1981: Ch. 10).

The most methodologically impressive evaluations of team policing were conducted in Cincinnati by the Police Foundation and in Hartford by university researchers. These were experimental designs using intervention (team policing) and control (nonteam policing) areas. The researchers in Cincinnati found that after 30 months of team policing, informal citizen contact with police had not changed much and there was little indication that officers had developed a proprietary interest in their team-policing areas (Schwartz and Clarren, 1977:34-39). After two years, Hartford evaluators found that team police officers had more favorable perceptions of their neighborhood, although citizen evaluations stayed constant or declined somewhat (Fowler, McCalla, and Mangione, 1979:127-139). Although the design features of these projects were much stronger than most police program evaluations, they were based upon interviews with citizens and officers --not direct observation of officers on patrol. In fact, with the exception of Brown's study of California departments, systematic in-person observation of police officers on patrol has not been part of research on organizational scale.

Research on the scale of policing has been limited in several respects. Those studies which have used the size of the department or jurisdiction as an indicator of scale have left untested the possibility that internal administrative policies and practices could modify the structure of patrol scale relevant to individual neighborhoods within each jurisdiction. Those studies which have examined internally determined scale (team-policing experiments) have not compared an array of levels of organizational scale; they have compared experimental and preexperimental structures. From their reports it is difficult to determine differences in organizational scale between experimental and nonexperimental conditions (Schwartz and Clarren, 1978:V-15, V-39-43; Fowler, McCalla, and Mangione, 1979:24, 45, 65). Further, these studies have relied upon interviews with citizens and patrol officers to detect changes in the nature of police service. These and agency-generated sources are useful, but limited in the detail they can provide. Direct observation of police on patrol can give that detail. The data described below address these concerns, and although the analysis is cross-sectional, they provide a range of comparisons which would be impractical in a longitudinal study.

D. The Sample

This article reports research on patrol service by eleven departments in 42 urban neighborhoods located in three metropolitan areas: Rochester, NY: St. Louis, MO; and Tampa-St. Petersburg, FL.[4] Departments were selected by the Police Service Study (see Appendix A) to represent a variety of organizational characteristics, primarily size. Jurisdiction populations range from 47,000 (University City, Missouri) to 499,000 (St. Louis, Missouri). Department size varies from 53 officers (Largo, Florida) to 2,050 (St. Louis). Eight of the departments are municipal and three are county sheriffs policing urban areas.

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[3]Those served by small and medium size departments consistently reported more positive general perceptions of police service in the following areas: rapid response to calls for service, fairness, courtesy, honesty, and overall performance. The distinctions between small and large police departments were less pronounced in citizens' perceptions and evaluations of specific encounters with police, although in most of the studies, citizens served by small and medium size agencies were more likely to report faster response times, greater frequency of police assistance, fewer police stops, and less knowledge of police mistreatment of citizens.

[4]Predominantly minority neighborhoods (more than 75 percent) comprise 26 percent of this sample; 57 percent are predominantly white; and seventeen percent are mixed (25 to 75 percent minority). The distribution of neighborhoods on median family income is 26 percent $7,500 and below, 57 percent $7,500 to $15,000 and seventeen percent above $15,000.

E. The Variables

Multiple regression is used to assess the impact of the scale of police patrol on several indicators of the service style, controlling for department and neighborhood factors. Below are descriptions of the variables and their distribution in the sample.

1. The primary assignment area and department size. The scale of police patrol in a study neighborhood is indicated by the population of the primary assignment area (PAA) of officers serving that neighborhood. The PAA relevant to each neighborhood is the geographic area in which officers normally assigned to that area spend most of their work time over the course of a year. The determination of PAA boundaries is based not only on department beat assignment policies, but also on the actual (in beat/out of beat) location of officers on patrol due to dispatched calls and officer-initiated activites. The PAA relevant to a given neighborhood may be composed of a single beat, several beats, or even all of the beats in the jurisdiction.[5]

The PAA size ranges from 7,900 (a single beat) in a University City, Missouri neighborhood to 209,700 (the entire patrol jurisdiction) in all four Pinellas County, Florida neighborhoods. The sample is skewed toward the low end of the scale, half of the neighborhoods having PAA populations below 50,000. Ten have PAAs between 50,000 and 100,000; ten have PAAs over 100,000. The PAA size is calculated in units of 10,000 in the tables discussed later.

All of the neighborhoods having PAA populations of less than 50,000 were served by departments that were making a conscious effort to keep patrol scale small (St. Louis, Rochester, St. Petersburg, and University City). Three departments (Greece, Hillsborough County, and Monroe County) tried to maintain low population PAAs but, due to personnel shortages and cross-beat dispatching, their PAAs were substantially enlarged (over 50,000). Four departments (Clearwater, Largo, Pinellas County, and Tampa) made conscious efforts to rotate officer assignments periodically or had assignment policies which ensured high instability (periodically permitting officers to bid for shift and beat assignments). Thus, all of the neighborhoods with PAAs of less than 50,000 were served by departments whose management consciously sought a small-scale patrol structure to facilitate a service approach. Those with larger PAAs were served by departments that either lacked the resources to imple-ment their intentions or consciously intended to have large-scale patrol organization.

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[5]PAA boundaries were determined from interviews with police administrators, patrol officers, beat assignment records, and observation by researchers accompanying patrol officers at work. PAAs described by administrators were adjusted according to agency assignment records and reseacher observations. PAAs reported here refer to areas that (1) accounted for at least three-fourths of the work assignments of the officers serving it, and (2) accounted for 70 percent of the observed officers' citizen encounters and time on mobile patrol. Population figures for these areas were based upon national, state, or local censuses/population estimates. A detailed account of this coding process is given in Mastrofski (1979).

2. Behavioral indicators of patrol service. Indicators of police behavior are based upon direct observation of a sample of officers assigned to beats that covered the study neighborhoods. These observations are aggregated to the neighborhood level.[6] Indicators have been selected representing two important aspects of officers' discretion. The first regards officers' decisions to initiate activity: contact with citizens and home security checks. The second regards officers' actions once they are involved with citizens, regardless of how the encounter is initiated.

The time period when officers are not involved in assignments from dispatchers or supervisors or conducting administrative duties (e.g., report writing) is their discretionary time --that time during which officers are not occupied by the demands directly placed upon them by citizens and the department. How they choose to spend that time is a reflection of their operational patrol style. The proportion of unassigned time in this sample ranges from 41 to 81 percent, the median neighborhood being 59. Four indicators of these choices are examined in this paper. Each is standardized according to the total amount of observed officers' unassigned time in each neighborhood (in 100 hour units). The less unassigned time available to an officer, the less his or her opportunity to demonstrate the measured behavior.

The first variable, "service," is the number of officer-initiated encounters in which there was at least one citizen present who was in need of assistance (as a crime victim, complainant in a civil dispute, sick or injured person, or someone unable to care for himself or needing other assistance). Suspects were also present in many of these encounters, but the rationale for including these encounters is that the presence of someone in need of help lends greater legitimacy and "street support" to the intervention than when only suspects are present (Wilson, 1975:83-89). This variable ranges from 0 to 13.4 encounters, the median being 6.9.

The second variable, "aggress," is an inverse indicator of the service approach. It is the number of officer-initiated encounters per 100 hours of unassigned time in which only suspects were present. This represents the enforcement aggressiveness of patrol behavior in the neighborhood. The absence of a victim or complainant means that officers must rely solely upon the law to legitimize their intevention. There is no "consumer" close at hand to provide support for the intervention. This variable ranges from 3.3 to 43.6 encounters, the median being 19.1.

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[6]PAA policies are designed by management to influence the nature of policing at the beat level. If PAA size is to have a meaningful impact on the style of policing to which neighborhoods are subjected, it must influence police service in the aggregate. Individual officers serving a neighborhood may vary in proclivity to offer service-style policing, but officers rarely conform absolutely to any single ideal type. Because we are interested in the neighborhood's perspective on policing, it is more appropriate to aggregate police behavior to the neighborhood --not to the officer. Aggregated police activities represent the exposure to service-style policing experienced within the neighborhood.

The third variable, "noncrime," represents the degree to which officers serving a neighborhood are willing to initiate encounters that have no direct relationship to crime problems. Such problems include: lost or damaged property, utility problems, fires, people locked out of their homes or autos, animal problems, noncrime emergencies, escorts, road directions, transportation, other information provision, hearing complaints about police, listening to people talk about their problems, and traffic problems where no violations are indicated. No suspects are present in these encounters. "Noncrime" is the number of such officer-initiated encounters per 100 hours of unassigned time in the neighborhood. These encounters are a subset of "service" encounters (which include assistance with both crime and noncrime problems). The probability of making a "good pinch" in "noncrime" situations is extremely low. "Non-crime" ranges from 0 to 10.9 encounters, the median being 3.6.

A final indicator of service-oriented proactive behavior is the frequency with which officers conduct home security checks. Many officers regard this as a tedious business --an anticrime strategy with a low arrest payoff and questionable deterrent qualities, but an activity producing good will among the recipients of the service. It constitutes a police intrusion in which specific permission has been given or is welcome, although the requester is usually not present. As such, the practice is a much less aggressive form of officer-initiated anticrime activity (Gay et al., 1977:19). This variable is named "security" and is the total number of residential security checks performed in the neighborhood per 100 hours of officer unassigned time. Security checks were infrequently conducted in the study neighborhoods. None was conducted in eight neighborhoods, although one averaged 51 checks per 100 hours of unassigned time. The median is 2.7.

Once officers intervene (regardless of whether the intervention is officer or citizen initiated), there are a number of things that they might do to reflect a consumer-service approach. Four indicators of the quality of officer behavior during both citizen-and officer-initiated encounters in the study neighborhoods are used here. They indicate the proportion of encounters of a given type when a specified officer behavior was shown. Each proportion thus represents the probability that citizens in given situations will be exposed to the designated behavior.

Advocates of small-scale patrol organization expect that officers who work under it will become more familiar with the people they deal with and will treat them in a more familiar manner. "Acquaint" is the proportion of all encounters during which the observed officers indicated in some way that they had previous acquaintance with one or more of the citizen participants. Being acquainted with someone does not necessarily mean that the officer will treat him or her kindly, courteously, or more attentively. However, familiarity, even with suspects, might be expected to produce fewer encounters in which officers felt the need to use force to accomplish their working goals. Regardless of the citizen-participants' roles, officer familiarity with them is a critical component of the more intimate service style. There is great dispersion in the "acquaint" variable. The distribution ranges from 1.7 to 39.5 percent, 15.1 being the median value.

Concern for those who have suffered victimization or complained of being otherwise wronged by citizens is a hallmark of the service style. "Comfort"

is the proportion of encounters during which such individuals were present and the police offered some overt form of comfort or solace. The denominator of this proportion is composed of violent crimes, fights, arguments, theft or damage to property, and disturbances. Neighborhoods range from 0 to 53.8 percent of the encounters when traumatized citizens were present. The median value is 16.7 percent.[7]

Advocates of the service approach prize the avoidance of officer-applied violence whenever possible. Whether an officer is unwarranted in using or threatening physical force in a given instance is extremely difficult to determine, but in the aggregate one should be able to discern a propensity or aversion to the use of force. Most people would agree that officers are justified in using some force when either they or citizens are clearly in immediate danger. The variable "force" is the percentage of all nondangerous encounters during which police officers used force on one or more citizens. Nondangerous encounters are those to which none of the following is applicable: citizen possession of a weapon; officer told (by dispatcher) that a weapon is involved; violent behavior toward the officer, other citizens, or self; officer statement to the observer that he anticipates danger. The use of force is defined as an officer doing any of the following: drawing a weapon, firing a weapon, hitting a citizen, threatening to hit or use a weapon, any use of physical force without a weapon (except when used to make someone "come along").[8] The distribution of neighborhoods on the "force" variable ranges from zero to 14.3 percent of the nondangerous encounters. Nine neighborhoods had no use of force in these encounters. The median was 3.3 percent.

Reliance on arrest to deal with most problems is contrary to the service approach. The service approach calls for the sparing use of arrest, reserving it only for the most serious crimes or chronic violators. The "arrest" variable is limited to nontraffic enforcement encounters in which one or more suspects was present.[9] "Arrest" is the proportion of such encounters in which one or more arrests was made. Neighborhoods ranged from zero to 50 percent on

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[7]In thirteen of the neighborhoods, no such victims were comforted. These neighborhoods tended to have fewer of the specified circumstances, the average number being 5. The average number observed in the other neighborhoods was eleven. The correlation between the frequency of such encounters and "comfort" is small, however ($r = .12$), indicating that the probability that victims of serious crimes and traumatic disorders will be comforted is effectively independent of the frequency that police encounter these situations.

[8]The definitions of "nondangerous" and "the use of force" are both conservative. The "force" measure is admittedly insensitive to important nuances of some encounters' dynamics. Some officers tend to "engineer" or provoke violence in citizens, and this measure would categorize these circumstances "dangerous," albeit they are within the power of the officer to defuse. Consequently, this measure must be interpreted with caution.

[9]Hit-and-run is coded as a nontraffic crime for this variable. Traffic citations are legal arrests, but they are widely considered to be of an entirely different magnitude than arrests for nontraffic violations. They have therefore been excluded.

this variable, the median being 14.3. In eight neighborhoods no arrests were made under these circumstances.

3. Neighborhood and department characteristics. The level of violent problems in the neighborhood has been a traditional justification to police for the need for more agressive policing, more arrests, and more force. Bayley and Mendelsohn (1969:88-99) provide an extensive discussion of the greater likelihood of a legalistic, coercive, and even violent response in high violence areas. Officers feel personally threatened in these neighborhoods and are thus apt to resort more quickly to strong control measures. They see other citizens as threatened by the danger of violence and therefore feel more apt to anticipate it to protect them. The high level of violence represents a community cultural norm to police, and it makes a strong or violent response also more acceptable in their eyes. An exacerbating factor is that high violence neighborhoods tend to be the least supportive of police. Without the public's support, the willingness and ability of police to use noncoercive means of solving problems is greatly reduced. Thus, more often than not, the police who work the tough neighborhoods are also confronted with myriad problems --less threatening, but no less protracted. As James Q. Wilson stresses, those who work in middle-class suburbs face fewer obstacles to providing service-style policing (1975:200). Put more colorfully by a Tampa patrol sergeant, "It's easy to be Officer Goodie Twoshoes in the Land of the Sugarplum Fairies."

The level of violence for these study neighborhoods was obtained from victimization surveys conducted during the period of on-site observation. Approximately 200 residents per neighborhood were randomly selected and interviewed by telephone. Victimizations for the entire household during the previous year were determined. Only violent crimes and major disturbances with high potential for violence (e.g., domestic disputes) were used for this analysis. The range in the victimization level ("viocrime") was zero to 43.0 per 1,000 residents. The median neighborhood had 8.7 violent victimizations per 1,000 residents.

The range in department size in this sample is fairly large. Previous research suggests the importance of department size for patrol style. In addition to representing the department's overall organizational scale, the size of the department may be associated with several other factors relevant to patrol officer behavior, such as supervisory style, task specialization, work group stability, and informal communications channels with the community (see Brown, 1981; Whitaker, 1983). Generally, large departments are expected to have less effective control of their officers, less group stability, and fewer and less effective informal links to the community --all of which are expected to detract from service-oriented behavior. The effect of department size on behavior may be independent of PAA size, but the correlation between department size and PAA size in this sample ($r = -.39$) suggests that the two are not independent. The association is rather small, however. Department size is therefore used to control for the cluster of other organizational characteristics associated with department size. This variable, "depsize," is defined as the number of sworn officers performing police functions, thus excluding deputy sheriffs who perform civil and court duties.

F. Analysis

Table 1 presents for each department variable the partial regression coefficient (b), beta coefficient, and standard error of b for PAA size, "viocrime," and "depsize" when all three are in an additive multiple regression equation. Discussion of this and other tables will focus on the coefficients for PAA size, since we are concerned with its impact on officer behavior. The partial regression coefficient is the predicted difference in the dependent variable given a unit difference in the PAA when the values of "viocrime" and "depsize" are held constant -- or controlled. In all but one instance ("arrest") the sign of the PAA coefficient is in the hypothesized direction. In this and several instances, however, the coefficients are quite small. Furthermore, variance explained (R^2) for these equations is generally low, indicating that the three variables in the model, taken together, do not account for a great deal of the variation in office behavior.

The PAA size of the sampled neighborhoods has very little impact on indicators of officer-initiated interventions when neighborhood violence and department size are controlled. The standard errors are large, relative to the coefficients, so that these estimates are not stable.

PAA size shows greater influence on police actions taken during encounters. Showing familiarity with citizen participants ("acquaint") has a regression coefficient of -.66. With an increase of 10,000 in PAA population there is an expected decrease of .66 of a point in the percentage of encounters during which officers showed familiarity with citizen participants. The PAA population regression coefficient predicting the difference in the likelihood that victims will be comforted ("comfort") is -.96. That is, a reduction of 10,000 in PAA size predicts an increase of almost one percent that a victim will be comforted. The PAA population regression coefficients for "force" and "arrest" are comparatively quite small: .02 and -.12, respectively. Although the "arrest" coefficient is contrary to that hypothesized, it is not large enough to indicate an effect of substantive or statistical significance.

Table 1 suggests that moderate and even large modifications in the scale of patrol will not produce dramatic differences in police behavior relevant to the service style. For example, reducing PAA size by 100,000, a dramatic organizational change, produces an expected increase in the probability of officer-provided comfort to victims by only 9.6 percentage points. However, in the context of the typical, low probability of this service in this sample, the impact of a large reduction in PAA size appears more impressive. For a neighborhood averaging a .17 probability that victims will be comforted (the average in this sample), an increase of .096 would constitute a 56 percent increase from the .17 level. Even in a neighborhood having a comparatively high probability of this service to victims (.5 probability), the predicted impact of a 100,000 reduction in PAA population would be a 20 percent increase from the previous level. Whether citizens in the neighborhood would perceive this increase or find it striking is a matter of speculation at this point.

It is possible that the impact of PAA size on the dependent variables is masked by the diversity of the neighborhoods in the sample. That is, the scale of patrol may have a different impact in low violence neighborhoods than in high violence neighborhoods. In Table 2, neighborhoods are divided into a

TABLE 1. MULTIPLE REGRESSION FOR PAA SIZE AND CONTROL VARIABLES WITH INDICATORS OF POLICE BEHAVIOR IN 42 STUDY NEIGHBORHOODS

Dependent Variable	PAA Size* b(Beta) Stand.Err.	Viocrime b(Beta) Stand.Err.	Depsize b(Beta) Stand.Err.	Multiple R^2
	Police Interventions†			
Service	-.06(-.11) .094	-.03(-.08) .089	-.001(-.11) .001	.03
Aggress	.28(.15) .306	-.52(-.36) .291	§(-.01) .004	.19
Noncrime	-.01(-.02) .082	-.08(-.21) .078	§(-.02) .001	.05
Security	-.32(-.21) .249	.004(.004) .237	.003(.19) .003	.11
	Police Actions in Encounters with Citizens‡			
Acquaint	-.66(-.44) .21	.52 (.47) .203	-.008(-.63) .002	.34
Comfort	-.96(-.39) .393	.11 (.06) .373	§(-.002) .005	.18
Force	.02(.04) .096	-.02(-.04) .091	.003(.50) .001	.21
Arrest	-.12(-.07) .282	.20(.15) .268	.005(.31) .003	.21

*PAA size in units of 10,000.

†Standardized per 100 hours of total observed-officers' unassigned time (time when officers were not responding to dispatcher or supervisor-assigned work or performing administrative duties).

‡In percentage points.

§Coefficient is less than .0005.

TABLE 2. MULTIPLE REGRESSIONS FOR PAA SIZE AND DEPARTMENT SIZE WITH INDICATORS OF POLICE BEHAVIOR, SPECIFIED BY LEVEL OF NEIGHBORHOOD VIOLENCE

	Low Violence (N = 22)			High Violence (N = 20)		
Dependent Variable	PAA Size* b(Beta) Stand.Err.	Depsize b(Beta) Stand.Err.	Multiple R^2	PAA Size* b(Beta) Stand.Err.	Depsize b(Beta) Stand.Err.	Multiple R^2
	Police Interventions†					
Service	-.18(-.35) .115	.003(.19) .003	.13	.09(.16) .165	-.001(-.17) .001	.08
Aggress	.66(.35) .418	-.012(-.22) .012	.13	§(§) .533	-.004(-.25) .004	.06
Noncrime	-.11(-.21) .120	.002(.16) .004	.05	.13(.31) .119	§(.01) .001	.09
Security	-.37(-.45) .177	§(§) .005	.20	-.17(-.08) .574	.003(.20) .004	.07
	Police Actions in Encounters with Citizens‡					
Acquaint	-.66(-.43) .324	-.002(-.04) .010	.20	-.92(-.62) .342	-.008(-.68) .003	.37
Comfort	-.44(-.20) .460	-.026(-.40) .014	.24	-1.41(-.60) .592	-.005(-.30) .004	.25
Force	.11(.20) .123	-.002(-.13) .004	.05	-.01(-.02) .159	.003(.63) .001	.41
Arrest	.24(.16) .355	-.005(-.12) .010	.03	-.58(-.30) .486	.004(.30) .004	.27

*PAA size in units of 10,000.

†Standardized per 100 hours of total observed-officers' unassigned time (time when officers were not responding to dispatcher or supervisor-assigned work or performing administrative duties).

‡In percentage points.

§Coefficient is less than .0005.

low violence category (fewer than ten violent victimizations per 1,000 residents) and a high violence category (ten or more per 1,000). There are 22 low violence neighborhoods and 20 high violence neighborhoods.[10] Both PAA size and department size are in the regression equations for low and high violence neighborhoods. Because the number of neighborhoods in each sample is quite small, differences between the two types of neighborhoods are suggestive only.

The dichotomization of neighborhoods into high and low violence categories shows some distinctions in the impact of PAA size. In low violence neighborhoods PAA population shows the hypothesized relationship with all dependent variables. The initiation of suspect stops (.66) and home security checks (-.37), demonstrating acquaintance (-.66), and giving comfort to victims (-.44) show the strongest effects. PAA effect on the remaining variables is relatively weak, though stronger than in the 42-case multiple regression.

These results are contrasted in the high violence neighborhoods. The impact of PAA size on initiation of the various types of encounters is less than in low crime neighborhoods, except for initiation of "noncrime" encounters. Here and for "service" encounters, the PAA coefficient, though small, is in the opposite direction hypothesized. Considering the size of their respective standard errors, the "service" and "noncrime" coefficients encourage an interpretation of very small magnitude effects at most. The coefficients for "aggress" and "security" are quite small (.00 and -.17), but their standard errors are relatively large, making it easily convceivable that in another sample of high crime urban neighborhoods, the impact of PAA size could be either positive or negative. Generally, in high violence neighborhoods, PAA size has a smaller and more ambivalent impact on the frequency of various proactive officer encounters. In high crime neighborhoods the impact of PAA size is notably greater (in the hypothesized direction) than in low violence neighborhoods for "acquaint" (-.92) and "comfort" (-1.41). Its influence on the latter variable is particularly strong relative to that demonstrated with all other dependent variables. A reduction of 100,000 in PAA size predicts an increased probability of .14 that officers will comfort victims. Although the sign is opposite as hypothesized for the use of force in nondangerous situations (-.01), the small regression coefficient and standard error limit both its substantive and statistical significance. The regression results for the likelihood of arrest in nontraffic encounters present the largest coefficient contrary to the hypothesized impact of PAA size (-.58). A reduction of 100,000 in PAA population predicts a .058 increase in the probability of arrest. This relationship is consistent with some of the earlier mentioned research on team policing that has associated it with more aggressive officer arrest behavior.

What sense can we make of the differences between low and high crime neighborhoods? PAA size consistently shows the hypothesized, albeit small,

[10]The cutpoint of 10 is somewhat arbitrary, although this distribution suggests that it is an appropriate choice. The mean violence levels are 5.1 and 17.8 for the low and high groups respectively. The difference is significant at $\rho < .001$.

impact in low violence neighborhoods. In high violence neighborhoods its impact on officer behavior is less consistent and in some cases more striking. The variables where differences between the two groups appear greatest all pertain to some form of crime-focused encounter: "aggress," "comfort," and "arrest." For "aggress" patrol scale shows markedly less impact in high crime than low crime neighborhoods. For "comfort" a markedly stronger impact in the hypothesized direction is evident. For "arrest" patrol scale shows a relationship opposite to that hypothesized and found in low crime neighborhoods. We might suspend interpretation of the "aggress" coefficients, given the large standard error in high crime areas, but it is less easy to do so for "comfort" and "arrest."

One explanation is that encounters in high crime areas are more likely to involve the most severely traumatized victims and the most threatening suspects. Within the category of victimizations, those occurring in high crime areas are more likely to involve the severer traumas, and these problems are inherently more likely to elicit consoling responses, which are further encouraged by the greater intimacy of small-scale policing. For encounters with suspects in high crime areas, the greater proportion of serious alleged violations may produce the reverse for the relationship between PAA size and "arrest." More of the suspects present a perceived serious threat to the neighborhood, which, in the context of the supposed increased territorial responsibility felt by officers in small PAAs, may produce an increased willingness to arrest such persons. These hypotheses are not verifiable with the data presented, but they do provide one rationale fo the joint increase of arrest and victim consolation in small-scale, high crime areas.

Another explanation may account for the greater likelihood of arresting a suspect in small PAAs in high crime areas. Departments may have a tendency to be particular about whom they permanently assign to a beat or area when the neighborhood is known as a "fast track," but not as choosy for the less violent neighborhoods.[11] Managers using automatic rotation schedules (associated with large PAAs), in their attempt to keep officers moving throughout the jurisdiction, have less ability to manipulate the operational style of policing in each neighborhood. In departments with more stable assignment practices, managers and supervisors may decide that enforcement-oriented officers are more appropriate to high violence neighborhoods. Officers with this orientation may be less susceptible to the hypothesized influence of small-scale patrol organization. A small PAA may not moderate their enforcement orientation; it may provide greater opportunity to actualize it. This would be reflected in higher "arrest" probabilities in small PAAs, since neighborhoods with large PAAs would not be served as often by this type of officer. Systematic data were not obtained on whether enforcement-minded officers are assigned disproportionately to high crime neighborhoods under small PAA arrangements. Management in one department with small PAAs mentioned that the opposite was true: such officers were systematically excluded from permanent assignment to these areas. In most such departments, however, the specific assignment of permanent beats was left to watch and field supervisors.

[11]I am indebted to Roger Parks of the Workshop in Political Theory and Policy Analysis at Indiana University for suggesting this alternative.

Yet another process may account for the notably smaller impact of PAA size on proactive officer encounters in high crime -- compared with low crime--neighborhoods. Failing to rotate officers frequently through a wide variety of beats might "burn out" those officers who are continuously assigned to only the violent areas --where social problems are most protracted, where citizens have greatest ambivalence or animosity toward police, and where police are busiest. Small PAAs may increase officer familiarity and empathy for neighborhood residents, but initiating "helping" encounters (or any encounters) may be a low priority after a while. Repeated exposure to the area's difficult problems may motivate officers to avoid any unnecessary contact with people on their beat (necessary being only the most serious violations or most obvious suspects). That is, they may use their unassigned time to unwind from dealing with dispatched calls rather than to initiate further contact. Patrol in low violence neighborhoods typically does not require as frequent contact with high-conflict, emotional problems. Some officers may become bored, but they do not get burned out. In low violence neighborhoods, then, the size of the PAA shows much more consistent and somewhat stronger influence in the hypothesized direction.

All of the above explanations are speculative. Detailed data on individual officers' attitudes and behavior over time would help elucidate the developmental processes hypothesized to influence operational style.

G. Conclusion

The data analysis does not show dramatic effects for the scale of patrol on officer behavior. Indeed, it shows that dramatic differences in the scale of patrol correspond to much more modest differences in behavior. Considering the relatively low frequency of many of the indicators of police behavior, the seemingly slight impact of a large change in PAA produces changes in behavior which may be noticeable. The enlargement or reduction in scale must be in units of 100,000 -- not 10,000 -- to achieve this, however. Dividing the neighborhoods into low and high violence subsamples does not produce dramatically increased effects, but it does suggest that patrol scale may not work the same way in all residential neighborhoods. In low violence areas, increases in service-style behavior and decreases in enforcement behavior are predicted by the reduction of patrol scale. In high violence neighborhoods the results are less consistent. The scale of patrol shows very little influence on officer-initiation of encounters, but strongest influence on actions taken during crime-related encounters. Officers serving high crime neighborhoods under small-scale arrangements are more likely to be empathic toward victims and more likely to arrest suspects. This suggests the possibility that officers working under these conditions become more protectionist regarding crime matters. The small size of these neighborhood subsamples requires further research to verify these differences and explore hypotheses to explain them. The small impact of PAA size remains the principal derivative of this research.

The modest effects can be more fully appreciated when placed in a larger organizational context. Restructuring patrol scale is only one of many ways that department managers attempt to influence what their officers do on the street. They promulgate reams of operating rules; they expose officers to

training; they provide and execute disciplinary standards; they structure career incentives; and they try to influence field supervisors. Programs and policies within the same organization can work harmoniously, but they often work at counter-purposes. Some of the departments with smaller PAAs (less than 50,000) did try to facilitate the service style in other ways besides the scale of the patrol delivery organization. St. Louis, for example, made a substantial effort to decentralize supervision in its experimental team-policing areas and afford officers time to exchange information and attend community meetings. However, chronic personnel shortages reduced the time available to conduct these special tasks, and a centralized dispatch still restricted the impact of decentralized supervisory control. Virtually all departments had given their officers special training in service-style topics (e.g., crisis management, human relations, juvenile problems), yet they still relied at least in part upon traditional officer activity reports that included arrests, citations, field interrogations, and parking tickets. What this means is that officers serving all of these neighborhoods were subject to conflicting signals from management about what they should be doing on the beat. Such ambiguity in these departments could have diffused the effects of small scale. This has been a chronic problem even for team-policing programs, which have probably been the most comprehensive attempts at achieving a service style through structural reform. In fact, ambiguity in work prescriptions issued "from the top" appears to be an organizational fact of life in all large police departments and street-level bureaucracies (Muir, 1977:191; Prottas, 1979:91-101).

If altering the scale of patrol is to have more dramatic impact, it must probably be instituted as part of a larger, very concerted organizational effort to influence street officer discretion. Yet the nature of multiple, conflicting police roles and the difficulties of managing a complex organization make the elimination of organizational ambiguity highly unlikely and sometimes undesirable. The integrity of small PAAs and the goal of service-style policing constantly face threats from a variety of other legitimate management concerns. Police chiefs who want to maintain stable geographic assignments must also worry about how to meet increasing requests for service and how to equalize patrol units' work load in the face of daily fluctuations in demand and personnel availability (see Maxfield, 1979:31-43). In this light, the subtle effects of organizational scale in patrol service may be a significant structural contribution to influencing the street level police discretion.

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CHAPTER 4. PATROL OFFICER ATTITUDES AND THE DISTRIBUTION OF POLICE SERVICES: A PRELIMINARY ANALYSIS

Robert E. Worden[1]

Students of urban affairs had until recently taken it as axiomatic that municipal services are distributed to the distinct disadvantage of racial and ethnic minorities, the poor, and the politically powerless. As a corollary it was held that distributional patterns are shaped either by a self-serving "power elite" or by an ostensibly pluralistic political process in which the underclass wields negligible influence. Empirical research of late has provided scant support for this set of propositions, which is now known as the "underclass hypothesis." While some analyses of service distribution have revealed patterns that are consistent with earlier assumptions (Jones et al., 1978:360-67; Mladenka and Hill, 1977:82-88; Levy et al., 1974: 165-218; Cingranelli, 1981), others have found (1) no association between levels of service and race or socioeconomic characteristics (Antunes and Plumlee, 1977; Lineberry, 1977), or (2) that otherwise disadvantaged groups are advantaged (Mladenka and Hill, 1977:76-81). Still other patterns have been found as well (Jones et al., 1978:342-60; Nivola, 1978; Levy et al., 1974:24-98).

Moreover, these studies demonstrate that services are distributed not by an overtly "political" process but by bureaucratic routines. In making their allocational decisions (which may or may not be recognized as such), bureaucrats rely on decision-rules, many of which are rooted in their professional norms and standards. For example, Levy et al., (1974) found that Oakland's library system allocated books among its branches in proportion with their respective circulation rates. Street construction projects in that city were prioritized on the basis of traffic volume and accident rates. In Houston, crime rates and volumes of calls for service determined the spatial allocation of police manpower (Mladenka and Hill, 1978:126-30). Services are thus distributed on the basis of "technical-rational" criteria that have been institutionalized, formally or, more commonly, informally.

However, several scholars have hypothesized that bureaucratic decision-rules are of little utility in explaining the distribution of services by "street-level bureaucrats" (e.g., Mladenka, 1980:996). Street-level bureaucrats are "those government workers who directly interact with citizens in the regular course of their jobs; whose work within the bureaucratic structure permits them wide latitude in job performance; and whose impact on the lives of citizens is extensive" (Lipsky, 1971:393). Police officers, school teachers, hospital attendants, and housing inspectors are street-level bureaucrats. Their latitude derives from (1) the "nonroutine" nature of their function, and (2) ambiguous and/or contradictory goals and regulations (Prottas, 1978; see also Perrow, 1970:65). Without a clear statement of what

[1]A previous version of this paper was presented at the 1981 annual meeting of the Southwestern Social Science Association. The author wishes to thank Gordon P. Whitaker and Stephen Mastrofski for helpful suggestions throughout the course of the research reported here, and Charles Phillips for comments on an earlier draft.

constitutes proper behavior, and with control over the information by which that behavior can be evaluated, street-level bureaucrats are subject to few effective constraints. Nardulli and Stonecash point out the implications for service distribution: "It may be inappropriate to presume that there is a decision-rule dominating bureaucratic activity....If hierarchical control is weak, then it may make more sense to examine variations in service delivery within the organization, rather than looking for 'organizational policy'" (1980:9). Greene argues that "personal rules are frequently substituted for agency rules," and furthermore that "the effect of individual rules is a consistent bias against lower-class clients" (1979: 11). That decision-rules guide street-level behavior is not disputed; that the decision-rules originate in professional norms and/or organizational prescriptions is.

Empirical analyses suggest that "personal rules," or at least rules that do not enjoy professional or organizational sanction, do in fact influence distributional patterns, though not necessarily to the detriment of the underclass. In an analysis of housing inspection, Nivola (1978) found that in the absence of effective organizational control, inspectors' "own adaptations and styles became decisive in the dispensation of inspectional services." For example, to keep their workload manageable, they tended to disregard minor violations. With a view toward the dysfunctions of vigorous code enforcement, they applied less stringent criteria in slum areas. And inspectors commonly classified clients according to their "'cooperativeness' -- meaning, mostly, an occupant's personal decorum, and the seemliness of his habit, at the time of inspection." The resulting pattern resembled an inverted-J: middle-class neighborhoods benefitted least, lower-class neighborhoods somewhat more, and working-class neighborhoods the most.

Maxfield (1979) examined a form of "slotting," which is the evaluation of citizens by street-level bureaucrats in terms that are meaningful for the service organization.[2] Such determinations can obligate the organization to perform certain acts; slotting can thus be construed as indicative of service rendered to citizens. By comparing, at the district level, calls for police assistance with verified crimes, Maxfield drew inferences about the distributive nature of slotting by police officers. He concluded, first, that "the transformation of calls for service into verified crimes is only weakly related to [socioeconomic or racial] differences in the clients of police service." Second, larger proportions of calls for service were "unfounded" by police in districts that generated more calls; much like the housing inspectors studied by Nivola, officers were engaging in what Maxfield called "load-shedding." Finally, the residual variation between districts was attributed to "district-specific norms."

Wilson (1968:27) reported a much different pattern ensuing from officers' suspicions as to the "legitimacy" of victims:

> Middle-class victims who have suffered a street attack (a mugging, for example) are generally considered most legitimate; middle-class victims of burglary are seen as somewhat less legitimate (it could be an effort to make a

[2]On slotting see Prottas (1978:290-94).

fraudulent insurance claim); lower-class victims of theft are still less legitimate (they may have stolen the item in the first place); lower-class victims of assaults are the least legitimate (they probably brought it on themselves).

Whether or not these suspicions manifest themselves in, say, slotting, they are, according to Wilson, communicated to the victim, the treatment of whom is very much an element of the service he or she receives.

None of these studies, however, investigated variations in service delivery within a service agency, as Nardulli and Stonecash advise. It is to this question that the research reported here is addressed. I have examined the delivery of police services in four cities: Rochester, NY, St. Louis, MO., Tampa, FL., and St. Petersburg, FL. Police departments are promising settings for the study of street-level bureaucracies. Police administrators are rarely able to specify in any but the most general terms what a patrol officer should do; policy statements typically indicate only what an officer should not do. Patrol officers thus exercise broad discretion. They are quite free to develop their own operational styles, and several studies have demonstrated that styles vary not only across police departments (Wilson, 1968) but within departments as well (White, 1972; Muir, 1977; Brown, 1981). The analysis that follows shows that, in these cities, police services are distributed primarily with reference to a professional criterion and not to personal criteria, and moreover, uniformly within (and across) departments.

A. Measuring Police Service

A principal problem in analyses of service distribution is measuring the level of service provided to clients (Lineberry and Welch, 1974; Jones, 1977). Reliable indicators of the quality of services delivered by street-level bureaucrats are particularly hard to come by, for one of the same reasons that street-level behavior is difficult for administrators to control: the information that is commonly available about clients and the services they receive is virtually monopolized by street-level bureaucrats themselves. One need presume no malevolence to expect some distortion.

Relying as they do on trained observers' reports, the Police Services Study data upon which this analysis is based are not subject to this source of bias (see Appendix A). Satisfactory indicators are elusive even with observational data, however. Some of the most interesting dimensions of street-level service delivery (e.g., agents' demeanor) are the least amenable to rigorous operationalization and measurement. Pending refinement of complementary measures, the promptness of officers' responses to calls for service has been adopted for this study. Response time, of course, does not necessarily correlate with the quality of police service provided after the officer's arrival at the scene of a problem. But a rapid police response has intrinsic worth, as a perceptible manifestation of "government's concern with the demands of the individual citizen" (Mladenka and Hill, 1978:116). Moreover, a swift response is assumed to be instrumental in the preservation of life and the apprehension of offenders. Certainly such scenarios can be envisioned, and although the presumed efficacy of minimizing police response

time has been opened to question (see Van Kirk, 1978), few if any departments have forsaken this staple of police practice. A prompt response continues to be regarded (at least in most police circles) as an important service. The shortcomings of response time as a measure of service underscore the preliminary nature of this investigation.

B. Professional Decision-rules

In their analysis of police service distribution in Houston, Mladenka and Hill (1978) found that calls for relatively serious problems were accorded a quicker response than were nonserious calls. For example, the mean response time for "serious disturbances" (assaults with a deadly weapon, gang fights, etc.) was 21 minutes; for theft (which is seldom reported in progress), it was 55 minutes.[3] Response time was also found to be markedly lower during the "graveyard" shift than during either of the other two, but Mladenka and Hill surmised that this was an artifact of a higher concentration of serious calls in that shift. They concluded that "the only independent source of variation in response to calls for police assistance appears to be the nature of the reported criminal activity."

A similar analysis of response time in Rochester, St. Louis, Tampa, and St. Petersburg reveals only a slight tendency to respond with greater celerity to serious calls (see Table 1). Response to in-progress calls, for instance, was typically more rapid than that to calls not in progress, but not very much so. Few of the differences between types of calls achieve statistical significance, and certainly none of them are substantively significant. In fact, the response to a call of any type was almost always remarkably swift. Response time exceeded ten minutes in only five percent of the calls in St. Louis and St. Petersburg, nine percent in Rochester, and twelve percent in Tampa. The mean response time in St. Louis was 4.6 minutes; in Rochester, it was 5.1 minutes; in Tampa, 6.0; and in St. Petersburg, 4.8. In Houston the mean time from dispatch to arrival was 31 minutes (Mladenka and Hill, 1978: 121).

A somewhat more pronounced pattern of prioritized response is evident in the manner in which the officer drives to the scene (see Table 2).[4] Almost half of all in-progress calls prompt faster than normal speed in three of the cities; not more than one in four, and as few as one in fourteen, not-in-progress calls do so. Still, this differentiation in response produces little variation in response time. This is attributable, at least in part, to the spatial concentration of patrol officers. In St. Louis, for example, the number of officers per square mile was (at the time of the data collection) 33.6. In Houston it was but 4.2 (Mladenka and Hill, 1978:122, n. 34). This explanation is somewhat less compelling when one considers that police de-

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[3]They also noted that the average response time for calls in progress was 27 minutes; for calls not in progress it was 50 minutes. A lack of confidence in their data precluded further analysis of this factor.

[4]Observers coded the speed of the car as "normal," "accelerated," or "emergency."

TABLE 1. MEAN RESPONSE TIME FOR TYPES OF CALLS

	Rochester		St. Louis	
	not in progress	in progress	not in progress	in progress
All calls	6.1	4.0	5.4	4.1
Violent crime	7.5	3.0*	4.7	1.9*
Medical problem	4.3*	3.3	5.0*	5.4
Suspicious circumstances	3.8*	3.4	3.4	3.4
Interpersonal conflict	4.5	3.7	7.0*	3.2
Traffic problem	5.6	4.9	5.8	4.7
Non-violent crime	6.7	3.3	6.0	3.5
Dependent person	8.9	5.7*	6.8	5.0
Public nuisance	5.4	5.0	4.2	4.4
Assistance	4.9	5.2	4.3	5.4

*Fewer than ten cases.

partments vary in the proportion of their personnel that is engaged in administration, rather than patrol; St. Louis, for one, is particularly top-heavy.[5] Furthermore, the disparity between Houston and other cities is less striking: Rochester had 17.7 officers per square mile; St. Petersburg, 8.1; and Tampa, 7.0. Nevertheless, the differences are real (even if Houston's police department has a "flat" organizational structure) and, without doubt, not without implications for response time.

[5]Only 45.6% of the sworn officers in the St. Louis Police Department were regularly assigned to general patrol duties. By way of comparison, the figures for Rochester, Tampa, and St. Petersburg were 50.5%, 60.7%, and 53.2%, respectively.

TABLE 1 (cont.) MEAN RESPONSE TIME FOR TYPES OF CALLS

	Tampa		St. Petersburg	
	not in progress	in progress	not in progress	in progress
All calls	7.0	4.7	4.8	4.7
Violent crime	7.6	3.0*	3.2*	7.0*
Medical problem	4.3*	4.9	6.5*	4.0*
Suspicious circumstances	7.8*	4.5	3.6*	3.8*
Interpersonal conflict	8.1	3.5	3.3*	6.8
Traffic problem	5.1	5.0	4.6*	4.0
Non-violent crime	5.9	4.5	4.7	2.8*
Dependent person	3.0*	9.2*	4.6	6.7*
Public nuisance	8.5	4.6	4.4*	4.0*
Assistance	9.2	7.0*	6.5	5.8*

*Fewer than ten cases.

C. Personal Decision-rules

Inasmuch as there is so little variation in response time, one might infer that departures from professionally prescribed behavior occur rarely or not at all. I have nevertheless entertained the possibility that, as Greene asserts, officers substitute personal rules for professional rules. Two cases from Muir's (1977) study of police are illustrative. One officer, "having proved incompetent at handling family beefs ... defined them as outside his police responsibilities. By his lights family beefs were not work for police but for a family counselor" (p. 86). Another officer had "discovered that he was good at something other officers had difficulty with: he could handle family beefs" (p. 92). One would scarcely be surprised to find that these two officers did not respond with the same alacrity to family disturbance calls, and indeed the former "waited to see if other patrolmen would respond to the radio dispatcher" (p. 86), while for the latter "priority went to those with family beefs" (p. 92).

TABLE 2. CAR SPEED FOR TYPES OF CALLS*

	Rochester	St. Louis	Tampa	St. Petersburg
In progress	47.2	44.9	37.1	48.2
Not in progress	9.9	7.0	23.6	17.6
Violent crime	44.4	60.0	52.9	75.0**
Medical problem	55.6	50.0	33.3	33.3**
Suspicious circumstances	46.2	51.8	65.0	31.2
Interpersonal conflict	47.0	58.3	39.1	47.6
Traffic problem	20.0	10.6	24.3	30.8
Non-violent crime	19.2	27.5	20.3	28.0
Dependent person	9.5	12.0	33.3**	0.0
Public Nuisance	15.0	26.3	16.1	29.4
Assistance	11.8	14.7	17.6	5.0

*Entries are percentages of calls where car speed was "accelerated" or "emergency."

**Fewer than ten cases.

Descriptions of the "police culture" (Skolnick, 1975:52-58; Brown, 1981:82-86) would lead one to believe that police officers approach consensus in their attitudes toward their work and their clientele. Table 3 shows the distribution of responses to two items on the Police Services Study's officer questionnaire.[6] The occupational culture notwithstanding, only half of the officers in Rochester and St. Louis agree that "social or personal problems" are not police matters; smaller but not inconsiderable proportions in Tampa and St. Petersburg --one-third and one-fifth respectively-- express agreement with this view. In Rochester and St. Louis, a majority of officers estimate a high probability of abusive treatment by citizens, but a substantial minority do not. Officers in Tampa and St. Petersburg are evenly split.

[6]Table 3 includes only those officers who were observed on patrol, or 26% to 43% of all officers interviewed in each department. The proportions reported here do not differ markedly from those for the entire sample.

TABLE 3. OFFICERS' ATTITUDES TOWARD POLICE CLIENTELE

"Police should not have to handle calls that involve social or personal problems where no crime is involved."

	Rochester	St. Louis	Tampa	St. Petersburg
Strongly agree	7 (14.3%)	14 (21.2%)	2 (4.3%)	2 (5.1%)
Agree	18 (36.7%)	18 (27.3%)	13 (28.3%)	6 (15.4%)
Disagree	21 (42.9%)	28 (42.4%)	28 (60.9%)	27 (69.2%)
Strongly disagree	3 (6.9%)	6 (9.1%)	3 (6.5%)	4 (10.3%)

"The likelihood of a police officer being abused by citizens in this community is very high."

	Rochester	St. Louis	Tampa	St. Petersburg
Strongly agree	11 (22.4%)	17 (26.2%)	1 (2.2%)	9 (23.1%)
Agree	22 (44.9%)	28 (43.1%)	21 (45.7%)	10 (25.6%)
Disagree	14 (28.6%)	16 (24.6%)	21 (45.7%)	19 (48.7%)
Strongly disagree	2 (4.1%)	4 (6.2%)	3 (6.5%)	1 (2.6%)

One would intuitively expect that such attitudes would manifest themselves in officers' responses to calls for service. It is to such variation within service agencies to which Nardulli and Stonecash refer us. Dilatory responses to calls for problems which the officer considers not to be police work, or from citizens who the officer perceives as hostile or disrespectful, constitutes a form of what Lipsky called the fragmentation of clientele. The

TABLE 4. CORRELATIONS BETWEEN RESPONSE TIME AND OFFICER ATTITUDES

	Rochester	St. Louis	Tampa	St. Petersburg
In progress				
"should not have to handle... social or personal problems	0.14*** (N=143)*	0.04 (N=213)*	0.08 (N=76)*	-0.18 (N=30)*
"likelihood of...[abuse] by citizens...very high"	-0.12 (N=185)	-0.04 (N=304)	-0.09 (N=116)	0.31** (N=47)
Not in progress				
"should not have to handle... social or personal problems"	-0.02 (N=121)*	0.16 (N=95)*	0.10 (N=79)*	-0.23*** (N=61)*
"likelihood of...[abuse] by citizens...very high"	0.0 (N=227)	0.15** (N=187)	0.02 (N=145)	-0.03 (N=108)

* excludes calls referring to a crime.

** $p < .05$

*** $p < .10$

Note: The attitudinal variables are measured on a four point scale as follows: 1 = strongly agree; 2 = agree; 3 = disagree; 4 = strongly disagree.

results of this analysis are not consistent with this hypothesis. Table 4 reports the correlations between response time and the attitudinal variables. They are small in magnitude and, with few exceptions, statistically insignificant. Each of the two largest coefficients (those in St. Petersburg) is largely a product of a single outlier. The two other relationships that reach a conventionally acceptable level of significance are in the direction opposite that which was hypothesized.

These results support Mladenka and Hill's conclusion that the only non-random determinant of response time is the seriousness of the reported problem, a decision-rule rooted in professional doctrine. Professional rules have not been supplanted by "personal" rules. In these cities, at least, this admits of a relatively large random element: distance traveled, traffic conditions, and the like. It was the exceptional case in which such influences caused substantial delay, however.

D. Distributional Consequences

The application of this professional decision-rule results in no bias across neighborhoods of different socioeconomic characters. Table 5 reports the correlations between response time and several neighborhood attributes.[7]

TABLE 5. CORRELATIONS BETWEEN RESPONSE TIME AND DEMOGRAPHIC CHARACTERISTICS

	Rochester	St. Louis	Tampa	St. Petersburg
Percent non-white	-0.05	0.06	-0.01	-0.01
Median family income	0.21*	-0.03	-0.02	0.13
Percent of families whose annual income is less than $5,000	-0.22*	0.04	0.04	-0.08
Percent of population over 18 with twelve or more years of education	0.21*	0.01	-0.01	0.04
Percent of families who own or are buying their home	0.14*	0.0	-0.09	-0.10
	(N=240)	(N=289)	(N=136)	(N=131)

* $p < .05$

None of the relationships in any city can be considered even moderately strong. No association whatever exists in any but Rochester, and even those modest correlations vanish when the wealthiest neighborhood, whose geography militates against a quick police response, is excluded from the calculations (no coefficient exceeded 0.1). No curvilinear relationships emerged in bivariate scatterplots.

[7]The demographic variables are aggregate statistics based upon the Police Services Study's citizen survey. It is reasonable to suppose that in responding to a call an officer has knowledge only of the characteristics of the neighborhood to which he has been sent and not the characteristics of the complainant.

Because the problems reported by different neighborhoods do not vary markedly in seriousness,[8] and partly because of the relatively prodigious investment in police manpower, the distributional consequence of this decision-rule is, in the cities studied here, utter equality.

E. Conclusions

This analysis reveals little variation within (or across) police departments in the delivery of police services. One should not, perhaps, be surprised by this finding. Officers' responses to calls for service are not characteristically discretionary decisions. Officers' discretion consists mainly of their capacity to define the situation (Lineberry, 1977:155). In responding to a call, the situation has already been defined by the dispatcher. Even so, it remains for the officer to evaluate this definition (e.g., domestic argument) in terms of its seriousness. That these evaluations are unrelated to officers' attitudes toward their clientele is testimony to the wide acceptance of and adherence to a professional norm.

[8]The proportion of calls falling into each of the categories of calls are roughly equal in different neighborhoods, except that white neighborhoods report more public nuisances and fewer interpersonal conflicts.

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CHAPTER 5. POLICE KNOWLEDGE OF THE PATROL BEAT AS A PERFORMANCE MEASURE

Stephen Mastrofski[1]

Traditional measures of police performance stress the apprehension of offenders, the clearance of crimes, and the deterrence of crimes. Numerous studies since the 1960's show that police do much more than deal with crime, and most research since the 1970's fails to demonstrate police capacity to reduce crime. Several recent works call for a reorientation in police performance assessment. They reject intangible and unvalidated performance indicators and express the need to develop measures which are more tangible and clearly within the bounds of organizational influence (Kelling, 1978; Whitaker et al., 1982; Wycoff, 1982).

Police officer knowledge of the beat warrants development and use as an indicator of both employee and organization performance. The difficulties in measuring officer knowledge are more easily surmounted than those associated with crime control and other broad social goals, and officer beat knowledge is well within management's influence. It is instrumental to the achievement of many organization goals: detection and apprehension of offenders, maintenance of order, and responsiveness to client needs. Police knowledge of those policed is also valued for its own sake. The American democratic tradition calls for a government that is close to the governed (Schmandt, 1972:521). Americans like to be governed by public officials who know and understand them.

This paper explores the use of police officer knowledge of the beat for performance measurement. First, the value of using police beat knowledge is discussed from several perspectives. Second, different types of police knowledge are discussed. Third, measurement problems are considered. Fourth, previous efforts to use police knowledge of the beat are reviewed. Last, an example of using beat knowledge to evaluate program performance is provided.

A. Perspectives on Beat Knowledge

There is widespread agreement among scholars, reformers, and police officers on the importance of the officer knowing the people and terrain where he works. Police manuals dating from the 19th Century to the present stress the need for the patrol officer to develop a personal knowledge of people, places, and customs. In the Nineteenth Century, the foot patrolman was expected to use his knowledge to maintain order. After the conversion to automotive patrol, "good government" reformers, such as O.W. Wilson, emphasized the need for the patrol officer to know the "hazards" on the beat and to develop information sources to fight crime and maintain order (Wilson, 1963:237). Professional reformers of the 1960's and 1970's presented the acquisition of beat knowledge as a way of improving community relations as well as fighting crime

[1]A version of this chapter was published in Police at Work: Policy Issues and Analysis, Beverly Hills: Sage, 1983, pp. 45-64.

(Murphy and Plate, 1977; Gay et al., 1977; Davis, 1978). Many reformers in the neighborhood movement hoped that a stronger and more personalized police effort to know the neighborhoods would facilitate a professional response "shaped more closely to the tastes of the residents," and perhaps ultimately produce a service delivery more sensitive to grassroots control (Schmandt, 1972:577). Even the occupational culture of the rank-and-file officer places detailed knowledge of the beat at the top of the list of requisite tools for patrol. Several ethnographies of police work emphasize the centrality of beat knowledge for apprehending offenders, maintaining order and ensuring the safety of the officer (Van Maanen, 1974; Rubinstein, 1973). Thus, from a variety of perspectives, police knowledge of the beat is the sine qua non of effective street work.

Despite the broad consensus on the value of beat knowledge to the patrol officer, police departments have not institutionalized the concept in their formal systems for evaluating officer and agency performance. With a few exceptions, which will be discussed in a later section, police departments do not routinely monitor what officers know about the people they police. Using knowledge as a performance indicator is not novel for police departments, however. Individuals are given sworn status, promoted, and assigned work based in part upon their ability to demonstrate professional knowledge of the law, emergency medical techniques, handling crisis situations, reporting accidents, etc. This sort of knowledge is also widely accepted as an essential part of the policeman's inventory of occupational tools. The difference between professional knowledge and beat knowledge is that the former is considered generalizable, while the latter is particularistic. Professional knowledge is institutionalized and disseminated through professional literature, training programs, and schools. Knowledge of particular beats enjoys no formal structure for dissemination. It is obtained primarily through personal experience, informal contact, and station-house "stories" about events on the street. Police performance measurement, even with its many recent innovations, has focused on what is easily generalized and has tended to ignore the circumstantial nature of police work. As long as patrol work is idiosyncratic, we should try to incorporate an appreciation for it in our performance appraisals of policing. Management should try to develop programs that facilitate the communication of information about beats rather than rely on the departmental "grapevine". This will not be an easy task, however. In the following section I discuss the concept of police beat knowledge and obstacles to measuring it.

B. A Conceptual Outlook on Police Knowledge of the Beat

William K. Muir suggests that a police officer's knowledge of people and events has two components: judgment and understanding. Judgment refers to a straightforward factual awareness that permits officers to predict events with accuracy. Judgment is knowing what goes on in the beat; who belongs where and when. It is knowing the patterns of life on the beat. Understanding refers to the ability to "see the play of the many motives involved. . . Understanding constituted the know-how, the knowledge of cause and effect, in short, the technology of governing" (1977:173).

An example may help distinguish these two components. A patrol officer

sees a group of juveniles at a streetcorner in a busy part of the business district of his beat. His judgment tells him that they gather there frequently and that they seldom-- but do occasionally-- cause trouble. The officer understands that the juveniles gather there to shoot the breeze about school, girlfriends and boyfriends, sports, etc. The location is ideal for them because it is near the school (but far enough to be beyond the control of school officials), near a convenience store, and is the central part of the "public" part of town, through which many of their peers pass on their way to school, work, or play. This is where their "society" passes. The group has a strong territorial attachment to this area because of its advantageous location. The group would not find a less obtrusive spot, such as a nearby park, palatable. The only occasions when the group has gotten out of hand have been when a gang from an adjacent neighborhood intruded. The intruding group's membership is older and more belligerent than this one. Neighborhood retailers have become increasingly apprehensive about juvenile gangs, although their relationship with the neighborhood's group has not become too strained because they are a significant source of income for some merchants. In sum, this group is controllable and a beneficial part of the neighborhood under usual conditions. Armed with this understanding and judgment the officer is in a position to govern the beat effectively. He will have a sense of the need for intervention in this instance and will also sense the distribution of probable outcomes of the various alternatives: ignoring the juveniles, rapping with them, lecturing them, suggesting an alternative rendezvous, ordering them to disperse, etc.

The ultimate choice of strategies in the above example is guided by the officer's values and the threats and rewards (from the department and businessmen) he associates with each. Consequently, a knowledgeable officer may make an inappropriate choice, if his values are inconsistent with those of the evaluator --his sergeant, his chief, fellow officer, neighborhood businessmen, or the parents of the juveniles. Clearly, knowledge of this sort is no guarantee of performance. It is a necessary, if not sufficient condition, however, and might therefore become part of the appraisal of the officer's and department's performance. If the officer is motivated and rewarded for doing so, he can use his knowledge to minimize the need for force, increase the utility of force that he does use, and increase the effectiveness of the assistance he renders to citizens.

C. Problems in Assessing Beat Knowledge

If one can accept Muir's concept of police knowledge as theoretically applicable to performance appraisal, it is necessary to demonstrate the feasibility of assessing it in the real world. Two significant obstacles confront us: (1) establishing the knowledge base for a given beat, and (2) measuring the individual officer's mastery of that body of knowledge.

1. Establishing the knowledge base. Management and police professionals are themselves in a poor position to provide the requisite knowledge base for particular patrol beats. Police academy curricula and subsequent formal training stress the law, weaponry, techniques for arrest, search, and interrogation, report writing, scientific analysis of evidence, radio procedure, and other matters whose regularity is demanded by bureaucratic fiat or is held

to be consonant with laws of science. When management ventures into the terrain of individual beats, it is usually in the form of statistical summaries of crime and notices to pay particular attention to crime and disorder in certain "hazards" such as bars, pool halls, school grounds, etc. Sometimes lists of neighborhood resources and organizations are supplied. At best, this information illuminates the general contours of neighborhood life, but it does not provide the judgment and understanding required to govern the beats. Police administrators rely on the patrol officer to generate most of the department's information about street life, which is recorded in routine reports. If police departments are to generate a knowledge base for each particular beat, it must come from the bottom of the departmental hierarchy.

No one officer, even if assigned to the same beat for his entire career, will be able to provide a comprehensive knowledge base for it. What an officer knows about a beat is heavily influenced by the particular patrol orientation he brings to his work. Michael K. Brown finds significant differences among officers in the nature of the problems they choose to handle on their beats (1981:223). An officer who prefers to do traffic work will have a substantially different reference base from that of the officer who focuses on felony arrests. The officer who accepts the handling of family fights as part of his work will have a different knowledge base from the officer who avoids these situations whenever possible. Neighborhoods themselves change their character in the course of a day. What is common and acceptable during business hours may be uncommon and unacceptable at night. Thus, police organizations are most likely to develop a comprehensive knowledge base for each beat to the extent that they can pool information collected by low ranking personnel.

Police officers are not renowned for sharing information with each other. Westley, Skolnick, Van Maanen, Rubinstein, and others offer graphic examples of the jealousy with which officers guard personal information about their beats. Information about suspects and informants is particularly sacrosanct, shared only with a partner or close comrade, if at all. Of course, the rookie's field training period and the routine requirements of coordinating street patrol require the exchange of information, but on the whole, police officers do not tend to be a talkative group --unless their supervisors and managers create an environment that encourages information exchange. (See Muir, 1977:265; Rubinstein, 1973:200). Except for roll call, patrol officers work by themselves or in pairs. Administrators view the field rendezvous between officers as suspect unless it relates to the handling of a particular case. The police hierarchy stresses the quantity of incidents handled, not their quality. Furthermore, what knowledge that is shared among officers about the beats they serve is not systematically recorded. Unless it is informally passed along when one officer relieves another on the beat assignment, it must be "rediscovered." Thus, police departments are not organized to develop this key occupational tool.

Ironically, information management is a growth industry in policing. Spurred by rapid growth in computer technology, police administrators are eager to implement automated systems that allow their officers to "check out" suspects, automobiles, stolen property, and weapons. While the computer may be a boon to the apprehension of serious offenders, it is a far-less-than-adequate means of developing the sort of judgment and understanding

described by Muir. Most police-citizen encounters do not involve a criminal offense, and even for those that do, the computer would be a cumbersome device for assisting in the process of dealing with people. Knowledge of the beat must be internalized in each officer, who must make split-second decisions about whether to intervene, how to intervene, and how to try to direct the course of events in a given encounter with the public. A simple technological "fix" will not provide the solution; more fundamental structural changes are needed. Some of these efforts will be reviewed in a subsequent section on previous efforts to measure beat knowledge.

2. Measuring the officer's mastery of beat knowledge. Assuming that we could develop a knowledge base for assessing an officer's own judgment and understanding of his beat, how would we measure it? The traditional solution to this problem is to administer a test to the officer. Given the peculiarities of beats and the particularistic nature of beat knowledge, such tests could not be standardized in the same way that entrance and promotion examinations are. What is relevant to one beat may be quite irrelevant in another. The sort of information needed to patrol a neighborhood beset with juvenile problems will be quite different from that needed for a retirement community. Consequently, the set of relevant test questions will vary from beat to beat. How then, does one compare the knowledge level of officers serving different neighborhoods? There seem to be three solutions:

(1) Do not compare knowledge levels of officers in different beats; compare only those officers serving the same beat;

(2) Try to make a qualitative judgment about the requisite level of competence for each beat; and

(3) Use some statistical standardizing method, such as percentage of correct responses.

Each of these options has its strengths and weaknesses. The first accepts as overwhelming the difficulties in comparing knowledge of one beat with another and limits comparisons to groups of officers that serve or have served the same beat. Over time, a norm might emerge for each beat, allowing cross beat comparisons of individual officers in terms of their deviations from the norm for their respective beats. The second option would allow someone --say a field supervisor --to establish standards for levels of competence in knowledge performance for each beat patrolled by his officers. All supervisors might be required to use identical scale levels (e.g., poor, fair, acceptable, excellent, outstanding) and rate officers in each of several general knowledge categories (e.g., beat geography, residents, transients, juvenile, neighborhood leaders, social services, etc.). However, each supervisor would be left to his own devices to determine the nature and amount of knowledge required in each category and the relative weight of each category for a summary evaluation. This approach assumes a competence in beat knowledge which may not be justified for many supervisors. The last option is usually the most appealing to managers and researchers, for it appears to be the least subjective and most reliable method, akin to taking an entrance or promotion examination in a controlled environment. The tradeoff is the potential loss of

relevance to the neighborhood's pecularities. It might be possible to combine all three approaches, however, by allowing supervisors and street officers to develop their own knowledge norms for a beat over time, investing the supervisors with the responsibility of devising a weighted questionnaire, and administering it to produce a standardized score which could be compared from one beat to another.

More difficult than establishing a measurement method will be establishing what constitutes knowledge. Of the two knowledge components, intersubjective agreement about judgmental questions is more likely than questions about understanding. Verification of the likelihood of events -- even if challenging --is possible through observation. For example, officers can share their experiences on juvenile groups in a neighborhood to obtain some estimation of the likelihood that the groups will cause trouble under a variety of circumstances. In some instances, the department might attempt to obtain and disseminate an independent estimate of juvenile problems to assist in the development of the officers' knowledge base. Traffic counters, unobtrusive observation of street activity, accident and crime report statistics, neighborhood organization and citizen surveys, and other forms of observation and analysis may contribute to establishing the particulars of a knowledge base for each beat.

Establishing a body of information for the "understanding" component of knowledge is far more difficult. Understanding people's actions requires more than observation; it requires theories of cause and effect. These theories may be put to empirical tests by officers, but the manner of the tests usually requires intervention by the officer, and given the variations in personal styles of policing among officers, agreement on theories is not likely. If an accepted body of understanding the whys and wherefores of neighborhood people and their activity is to emerge, it will require the luxury of discussion, argument, experimentation, and reformulation enjoyed by scholars in the pursuit of academic theories. Assessing the "understanding" component of beat knowledge does not lend itself to quantitative assessment of rightness and wrongness. We might, however, try to assay officers' views of neighborhood people and activities, much as Muir does with his small sample of "Laconia" patrol officers. One might begin by giving officers an opportunity to depict the causes of both legal and illegal behavior of a variety of types of people frequenting their beats: residents, office workers, commuters, Chicano juvenile gangs, winos, prostitutes, wife beaters, etc. Whether the measurement instrument is highly structured (e.g., a fixed response questionnaire) or whether it is loosely structures (e.g., general, open-ended questions) would depend upon the skills and preferences of the evaluator.

D. Previous Efforts to Use Beat Knowledge as a Performance Measure

The use of beat knowledge as a performance indicator has been limited to a few adventuresome departments: San Diego and a few team policing projects, notably, Cincinnati's. These pioneering efforts to systematize beat knowledge as a performance measure merit review and commentary.

1. The San Diego Community Profile Project. The San Diego Community Profile Project was conducted 1973-1974, having as one of its two goals, "increasing the individual patrol officer's awareness and understanding of the community the officer serves" (Boydstun and Sherry, 1975:1). Incorporated into the project was an evaluation of its accomplishments, conducted by the System Development Corporation with funding from the Police Foundation. The project was conducted as an experiment; officers serving the same set of beats were randomly assigned to the Community Profile Group and the control group. The Community Profile group received training, supervision, and organizational structure geared to improve participants' motivation to develop knowledge of their beats and to facilitate the acquisition and use of this knowledge. The Community Profile orientation involved a humanist and participative approach to management. Officers were encouraged to obtain beat knowledge methodically by close interaction with the community, use of department-supplied information, and writing journals of their observations on the beat.[2] In addition, officers participated in group discussions about beat problems and were instrumental in establishing work priorities and the knowledge base for the areas they worked. Performance assessment was based on qualitative methods, which included the supervisor's evaluation of the officer's acquisition and use of beat knowledge (Boydstun and Sherry, 1975:78-80). The control group received no special training or change in organization from the department's traditional technical, nonparticipative, and routinized patrol. Only symptomatic beat knowledge related to trouble spots was emphasized. Traditional performance assessment indicators were used-- none relating to specific beat conditions or knowledge. Officers in both experimental and control groups were permanently assigned to beats.

The key contributions of this project were to highlight the desirability of beat knowledge as a performance concept and to demonstrate how a program to improve beat knowledge might be implemented. The project evaluators found that the experimental group did show a significant gain in the level of beat knowledge compared to the control group in the following areas:

-Physical, demographic and socio-economic characteristics of the beats; and

-Availability and quality of community resources and services.

The experimental group showed a slight but statistically insignificant increase in knowledge about crime information sources.

The limitations in the evaluators' measurement of beat knowledge are several. First, the evaluation presented analysis of a narrow range of the measures of the judgmental component. Analysis of beat knowledge was re-

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[2]The department provided census statistics for each beat, monthly crime statistics per beat, and a directory of local social service agencies. A resource center was created to facilitate the storing and exchange of information. Officers were given hand-held radios to permit them to conduct knowledge-gathering activities with citizens and still be available for emergencies. Officers shared information on their beats by submitting a series of reports based on observations recorded in their journals (Boydstun and Sherry, 1975:73).

stricted to officer awareness of community resources and their quality and awareness of such neighborhood characteristics as housing, languages, economy, recreation, income and religion. More importantly, the indicators of knowledge attainment were based on officers' self-assessments of the extent and value of their knowledge (1975:40). The lack of any independent assessment raises the question of the extent to which these measures reflect officer motivation to be knowledgeable, rather than possession of knowledge.

In the analysis of beat knowledge there is no consideration of the likelihood of events. In fairness to the project, however, some questions of this sort were asked under the general category "perceived support from the community." Some examples are indicated below, with the potential response ranging from zero (never or strongly disagree) to 100 (always or strongly agree) (1975:B-4).

> -Most people in your patrol area do not respect patrol officers.
>
> -Citizens in your patrol area report crimes they observe.
>
> -Citizens in your patrol area assist you when juveniles are causing trouble.

Unfortunately, these questions were presented as "opinion" items to the officer and there was no attempt to verify them independently. If such questions were worded with greater specificity and if the responses were measured against a separate data base, the breadth of the project's evaluation of officer judgment would have been much enlarged.

The Community Profile evaluation did not explicitly consider the "understanding" component of beat knowledge, but officers were asked to respond to one item which would qualify:

> In your beat it doesn't do any good to talk things over with people from minority groups because all they understand is force.

In Muir's terms, agreeing with this statement could be said to show a "cynical" or dualistic understanding of the people on the beat. Those disagreeing with the statement express a "tragic" understanding, one that allows for the unitary nature of the human condition on the beat (1977: 225-226). Other questions might have been asked which let the respondents express their theories of the motivations of various groups of people on their beats.

In sum, the Community Profile evaluation provided a limited set of beat knowledge performance indicators which were not independently verified. They were, however, an important start.

2. The Cincinnati Team Policing Experiment. The Cincinnati Team Policing Experiment (1973-1975) had a much broader mission than the San Diego Community Profile project, but among its objectives was the increasing of patrol officer knowledge of the beat (Schwartz and Clarren, 1978). The Community Sector Team policing or COMSEC, experiment involved many of the features of the San Diego

project, albeit less emphasis was placed on the methods and incentives for officers to acquire knowledge of their beats. Officers assigned to the experimental team policing area of the city received special information on community resources available for effecting nonarrest dispositions of incidents. Experimental team policing officers were permanently assigned to beats. Participative management was encouraged among each team of officers and their leader and monthly meetings were held so that team members could share perceptions of problems on their beats. The department tried to provide detailed crime and calls-for-service data to team leaders. Information specialists were assigned to each team to collate information provided by central headquarters and officers serving the beats in their respective team areas. They maintained special weekly summaries of "street knowledge" concerning "who's wanted and who's around" (1978:Ch. V). The control group was comprised of the patrol officers in the remainder of the city. They received no special training information and operated in the department's traditional paramilitary organizational structure. The evaluation of the project was funded by the Police Foundation and conducted by the Urban Institute. It was expected that the experimental group would have more beat knowledge than the control group.

The principal contribution of the COMSEC evaluation is its application of independent measures of officer beat knowledge. Officers' appraisals of their beat knowledge were compared to citizens' perceptions of their neighborhoods in two areas:

> -Police recognition of people who live in the neighborhood; and
>
> -Concern about the problem of hard drugs in the neighborhood.

The most striking feature of these comparisons is the difference between citizen and officer perceptions. Citizens were far more likely than officers to believe that police working in the neighborhood recognized only a few, as opposed to some or most, of the people in the neighborhood (1978:III-45). This applied to both experimental and control groups.[3] Citizens in both experimental and control areas were far less likely than officers to view hard drugs as a serious problem in their neighborhoods (1978:III-51).[4] Of course, the difference between police and citizens on this item may well be due to differences in values about what is serious, not about the likelihood of drug use or drug-related crime. Unfortunately, the evaluation does not report information which would allow comparison of police and citizen estimates of these measures; only citizen estimates are provided.

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[3]Two groups of citizens were surveyed: a sample of those arrested by the police and a sample of those receiving service assistance from the police. The results are in a similar direction for both groups.

[4]This comparison also included samples of merchants, who though closer to the officers in their perceptions of the drug problems than the samples of arrested and serviced citizens, were still about 20 percent less likely to view hard drugs as a serious problem.

The COMSEC evaluation shows that citizen surveys are not in agreement with the self-reported beat knowledge of patrol officers in Cincinnati. This does not mean that police officers' own assessments of beat knowledge are necessarily inaccurate, but it suggests that further verification of the measures should be undertaken.

The COMSEC evaluation does include measures which reflect officers' understanding of some neighborhood residents. The following series of questions was asked of officers:

-All people in poverty areas want is a handout without working for it;

-People live in poverty areas only because they are unwilling to help themselves;

-If the truth were known about poor people, it is that they are lazy and don't really want to work; and

-One of the main causes of poverty is lack of moral strength and will power.

Each officer was given a score based upon the sum of his responses to all four items. The evaluators believed that this summary score reflected the officer's understanding of poor people in the experimental area -- those with high agreement scores having stereotyped views. Questions specific to the relevant beats would have been preferable, however.

E. An Empirical Assessment of Patrol Officer Beat Knowledge

The San Diego and Cincinnati evaluations introduced an innovative conceptualization of police officer performance, one which requires further development. In this section, I present an empirical analysis of a performance indicator of beat knowledge. I develop a measure of police officers' awareness of citizen voluntary organizations active in their assigned beats. The indicator is based upon an officer's ability to provide the name or names of specific organizations active in his beat. The impact of a variety of management strategies on officer awareness of citizen organizations is assessed, controlling for the visibility of citizen organizations in the neighborhood and other neighborhood characteristics. This analysis is neither comprehensive in scope nor free of all of the measurement problems discussed in previous sections, but it does indicate how such a measure could be used to evaluate management policies and programs.

1. The sample and methods. The analysis is based upon data collection by the Police Services Study (PSS) conducted in 24 police departments and 60 neighborhoods located in Rochester, NY; St. Louis, MO; and Tampa-St. Petersburg, FL. (See Appendix A).

This chapter utilizes data from PSS officer interviews, observation of officers on patrol, interviews with citizens and Police administrators, and

agency records.

2. Police knowledge of citizen organizations in the neighborhood. In a recent article in The Atlantic Monthly, James Q. Wilson and George L. Kelling wonder to what extent police street activity should be shaped by the neighborhood and the values that predominate in it. They appear to be calling for a greater emphasis on police responsiveness to neighborhood standards --as opposed to the abstract and distant "rules of the state" (1982:34). To be responsive to neighborhood standards, police must have some knowledge of them, and this in turn requires some "handle" or "hook" which communicates, clarifies, and interprets the diverse values percolating in the community. One way is for the officer to develop extensive personal contacts with residents and habitues and from his experiences develop his judgment and understanding of the community. Another way is for the officer to rely upon citizen organizations in the neighborhood to aggregate, distill and interpret the neighborhood's customs, events and standards. These organizations promote citizen participation in both the formal and informal control of the neighborhood. Some emphasize the independent production of services to the neighborhood; others emphasize integration of their activities with government programs; others perform an advocacy function for members of the neighborhood vis a vis local government (See Sharp, 1978).

These organizations in particular may color the officer's understanding of the threat of potential "hazards" (juvenile groups, winos, the mentally deranged, and other real and symbolic threats to public order). Contact with these groups may expand the informal resources available to an officer in solving situational crises, apprehending offenders, and maintaining acceptable levels of order. The officer's knowledge of these voluntary citizen organizations is thus a prerequisite for tapping into the formally organized social structure of the community he governs.

Officers in the study sample were asked to name any groups of people in their respective neighborhoods who:

-Conducted volunteer citizen patrols;
-Encouraged citizen to take crime prevention measures; and
-Dealt with police-community relations.

If an officer was able to name one or more citizen groups operating in the neighborhood he was considered knowledgeable. Of the 888 respondents without missing values (six had missing values on one of the independent variables), 38.5 percent could name at least one citizen organization in the neighborhood.

3. Evaluating department programs. The above-described indicator of police knowledge of neighborhood organizations can be used to assess the impact of several programmatic approaches believed to influence officer knowledge and attachment to the beat. Several variables may account for differences in officer knowledge:

a. Organizational Structure

There is a growing literature which demonstrates that the size of a police department and the size of its patrol jurisdiction have an important bearing on the approach to patrol work taken by its officers (Parks, 1980; Whitaker, 1983; Brown, 1980; Mastrofski, 1981b). Generally, researchers have found that police in smaller jurisdictions are more client-oriented and more familiar with the neighborhood residents they serve. The presumed intimacy of the small town may then be expected to enhance patrol officer knowledge of the citizen organizations and the largeness of big jurisdictions and their police departments would be considered a barrier to acquiring such knowledge. The PSS patrol jurisdiction populations range from 5,600 to 498,700. The jurisdiction population for the median department is approximately 30,000; for the median neighborhood it is 209,700. (See Table 1 in Appendix A for a complete account of jurisdiction sizes).

The internal structure of the department may also have some bearing on knowledge of citizen organizations. Team or "neighborhood" policing and stable beat assignment programs are designed to facilitate officers' contacts and familiarity with neighborhood residents, leaders and organizations (Gay et al., 1977). In research reported elsewhere, I have incorporated the frequency of rotation of beat assignments with the size of those beats, developing a measure of the internal scale of police patrol (Mastrofski, 1981b). The scale of patrol is determined by the beat or beats in which officers routinely serving a study neighborhood work in a year. This area is called the Primary Assignment Area (PAA). The boundaries for the PAA relevant to each study neighborhood were determined by where officers were assigned to work and where they actually worked while on patrol. There is one PAA associated with each study neighborhood. The scale of PAA is indicated by the size of the residential population within its boundaries.[5] The PAAs range in size from 5,600 (the entire population of a small town) to 209,700 (the population of the entire patrol jurisdiction of a county sheriff). Small PAAs in this sample are in several small towns and a few large jurisdictions successfully implementing a stable officer assignment program. (See Chapter 3 of this report.)

b. Individual Officer Characteristics

By their hiring, firing, promotion and assignment practices, police departments determine who serves a given neighborhood. Several characteristics have a potential impact on the dependent variable.

Some departments impose residency requirements, ostensibly to increase the officer's commitment and attachment to the community he polices. The

[5]Actual location in or outside the officers' assigned beats was determined by in-person observation by trained observers for a matched sample of fifteen shifts in each study neighborhood. PAAs used in this analysis refer to beats that (1) accounted for at least three-fourths of the work assignments of the officers who served it, and (2) accounted for 70 percent of the observed officers' citizen encounters and time on mobile patrol. Population figures for these areas were based upon national, state, and local census/population estimates.

hiring of "local boys" is also a way that departments can increase the likelihood that the patrol force will be familiar with the beats. An indicator which captures both of these characteristics is the length of time the officer has lived in the jurisdiction he polices. In these data, this ranges from zero to over twenty years in the sample, the average being 12.3 years, the standard deviation being 11.7.

The length of time an officer has been a policeman may also be a relevant personal characteristic. As Muir (1977) suggests, officers age differently, so that by itself we might expect only a weak association with beat knowledge. In general, we might expect that the longer an individual has been a police officer, the greater the likelihood that he will see the need to develop a knowledge of the beat. The range of experience of police officers in this sample was great (a few months to over twenty years), but the majority had served fewer than five years. The sample average was 5.1, the standard deviation being 4.0.

The police officer's orientation toward the police role can be expected to have some bearing on his willingness to develop knowledge about citizen organizations. Elsewhere (Mastrofski, 1981b:278), I have developed a Service Orientation Index (SOI) which reflects the extent of the officer's commitment to providing nonapprehension services to citizens. Officers were asked to indicate whether police should handle family disputes, social or personal problems, and public nuisances. These are the problems that frequently concern neighborhood residents and their organizations and, unlike clearly serious criminal violations, the law and departmental policies are less deterministic. Consequently, we would expect officers who are more disposed to handle these problems would be more disposed to seek guidance from the community and the citizen organizations it uses to voice its preferences. The Service Orientation Index is computed by summing the number of types of situations he believes police should handle (family disputes, social/personal problems, and public nuisances). Thus officers may have an SOI score of 0-3.[6] The mean and median SOI scores are 2.0 in this sample; the standard deviation is .9.

Many reformers believe that the race of the patrol officer is an important factor in how he works his beat. In their assessment of the impact of racially integrating police forces, Jacobs and Cohen discuss two research projects which indicate that black police officers are more understanding and aware of problems in the black community than are white officers (1978:172). In a recent discussion of policing the black ghetto, Cooper (1980:Ch.5) maintains that the black officer in the ghetto is placed in the untenable position of middle-man between two hostile forces: the department and the black community. He is mistrusted by both and feels isolated. He wants and needs both department and community support. Under these circumstances, we might well expect the black officer in a black or racially mixed neighborhood to seek support through acceptable neighborhood institutions, such as churches, block groups and especially any that are designed to work with the police department to prevent crime. The white officer in these circumstances

[6]This index Guttman scales at a high level of reproducibility (.949). Minimum marginal reproducibility is .735; the percent improvement is .214; and the coefficient of scalability is .806.

expects to be viewed with hostility and can derive more support from his white colleagues who hold most of the positions in the department, especially at supervisory levels. Consequently, we would expect the strongest officer awareness of neighborhood organizations where the motives are strongest: black officers in black neighborhoods and perhaps to a somewhat lesser extent white officers in white neighborhoods. The racial distribution of officers in the sample is given in Table 1, the majority being white officers in white neighborhoods (58 percent); six percent of the sample were black officers in black neighborhoods.

c. Neighborhood Characteristics

The nature of the neighborhood probably influences the officer's knowledge of it. We might expect that when an officer's assigned neighborhood matches his own background, he would be more likely to be motivated to learn about its organizations. The PSS did not collect data on officers' personal background. However, we might expect that low income areas would present more obstacles to officer involvement with the community, but high violence in a neighborhood would encourage officers to become familiar with potential supporting neighborhood institutions. Neighborhood income and level of violent crime were estimated from the responses to the residential surveys in each neighborhood. The median family income for neighborhoods in the sample ranged from $4,300 to $22,300. The mean value for the sample of officers was $11,200 with a standard deviation of $5,000. The level of annual violent victimization ranged from zero to 43 per thousand residents. The mean value for the sample of officers was ten and the standard deviation, eight.[7]

TABLE 1. DISTRIBUTION OF OFFICERS IN NEIGHBORHOODS BY RACE

Neighborhood Racial Profile	Officer's Race White	Black
White (<25% Black)	518 (58.3%)	21 (2.3%)
Mixed (> 25% and <75% Black)	113 (12.7%)	12 (1.4%)
Black (<75% Black)	172 (19.4%)	52 (5.9%)

A final neighborhood characteristic that would have particularly important bearing on officers' knowledge of its citizen organizations would be the visibility of such organizations in each neighborhood. Where citizen organization activity and visibility were low, we would not expect officer awareness to be as widespread as areas where organization activity and visibility were high. Interviews with citizen organization leaders in the

[7]The correlation between the level of violent crime and the median family income of neighborhoods to which officers were assigned is -.43.

study jurisdictions indicated that the level of activity in neighborhoods varied. An indirect indicator of their activity and a direct indicator of their visibility is the proportion of residents who were able to name citizen organizations active in their neighborhoods. This ranged from 4-55 percent. The average value in the sample of officers was 13.5 percent and the standard deviation, 9.9 percent.

4. The analysis. Given the categorical nature of the dependent variable, officer ability to name a citizen organization, and given the nature of the policy and control variables expected to influence this knowledge, discriminant analysis is an appropriate statistical method to discern the nature and strength of the predictive capacity of explanatory variables and estimate the accuracy of their prediction (Klecka, 1980). Discriminant analysis is similar to multiple regression in that it allows the analyst to estimate the independent effects of explanatory variables in a multivariate model, while simultaneously controlling for the effects of each variable on the dependent variable. Both seek the best predicting linear combination of independent variables. Regression seeks the best prediction by minimizing the sums of squares of the error terms for an interval dependent variable; discriminant analysis seeks the linear combination of independent variables which best distinguishes the groups of a categorical dependent variable (Talarico, 1980:23).

In this sample, there are two groups of officers: those with knowledge of citizen organizations in their assigned beats and those without such knowledge. The following "discriminating" variables were used in the statistical analysis:

-Population of the patrol jurisdiction;

-Population of the primary assignment area (PAA);

-Number of years the officer had lived in the jurisdiction;

-Number of years the officer had been a policeman;

-Service Orientation Index score;

-Racial match between officer and neighborhood;[8]

-Neighborhood median family income;

[8]The racial match was entered as a series of dummy variables for each cell category in Table 1, using white officers in white neighborhoods as the reference group. If an officer falls in a given cell, he receives a value of one for that variable; otherwise he receives a zero.

-Number of violent victimizations per thousand neighborhood residents; and

-Percent of residents able to identify a citizen organization active in their neighborhood.

Table 2 compares the means for officers in the no-knowledge and knowledge groups for each independent variable. The most striking differences are in PAA population, black officers in white neighborhoods, black officers in black neighborhoods, and percent of knowledgeable residents. Officers in smaller PAAs tend to be knowledgeable;[9] blacks in black neighborhoods tend to be knowledgeable.

TABLE 2. GROUP MEANS COMPARING OFFICERS WITH AND WITHOUT KNOWLEDGE OF CITIZEN ORGANIZATIONS

Independent Variable	Officers With Knowledge	Officers Without Knowledge
Patrol jurisdiction population	230,242	203,694
PAA population	47,328	79,761
Years lived in jurisdiction	14.0	11.2
Years served as policeman	5.7	4.7
Service Orientation Index Score	1.9	2.0
White officer in white neighborhood	.52	.62
Black officer in white neighborhood	.01	.03
White officer in mixed neighborhood	.14	.12
Black officer in mixed neighborhood	.01	.01
White officer in black neighborhood	.21	.18
Black officer in black neighborhood	.10	.03
Median family income of neighborhood	11,272	11,164
Violent victimizations/100 res.	11.9	8.7
% Knowledge residents	16.9	11.3

The results of the discriminant analysis permit the comparison of the effects of each of these variables while simultaneously controlling for all others. Table 3 presents the standardized canonical discriminant function coefficients, which represent the contribution of each variable to the discriminating ability of the linear model relative to all other variables in the model. Its interpretation is similar to that of a standardized regression coefficient (Beta) in the interpretation of multiple regression models (Klecka, 1980:29).[10] Patrol jurisdiction population, PAA population, and being a black officer in a white neighborhood or a white officer in a mixed neighborhood show the expected inverse relationship to officer knowledge.

[9]The number of officers in this sample is too small and the within-group variation too great to lend much significance to this difference.

Also as expected, the following variables show a direct relationship to officer knowledge: time lived in the jurisdiction, time spent as a police officer, being a black officer in a black neighborhood, median family income of the neighborhood, level of violent crime in the neighborhood, and visibility of citizen organizations to residents. The Service Orientation Index score and being a white officer in a black neighborhood do not conform to the expected relationship, being negative and positive respectively.

As we might expect, the visibility of citizen organizations in the neighborhood contributes the most to the model's ability to distinguish knowledgeable and unknowledgeable officers (.57). Its predictive power is nearly three times that of the patrol jurisdiction population and eight times that of the officer's Service Orientation Index score. The second most important contributor to the discriminant function defined by these variables is the PAA population, having a coefficient of -.42. This is by far the most powerful policy variable in the model, contributing more than 1.5 times the discriminating power of the next largest variable, years of police experience.

TABLE 3. STANDARDIZED CANONICAL DISCRIMINANT FUNCTION COEFFICIENTS

Independent Variable	Standard Coefficient
Patrol jurisdiction population	-.20
PAA population	-.42
Years lived in jurisdiction	.25
Years served as policeman	.26
Service Orientation Index Score	-.07
Black officer in white neighborhood	-.14
White officer in mixed neighborhood	-.19
Black officer in mixed neighborhood	-.13
White officer in black neighborhood	.17
Black officer in black neighborhood	.20
Median family income of neighborhood	.14
Violent victimizations/1000 res.	.27
% Knowledgeable residents	.57

To assess the overall ability of this model to discriminate between officers with and without beat knowledge we can compare the two groups' distribution along the standardized discriminant function. The two histograms in Figure 1 show the degree of separation between the two groups provided by the discriminant function (unknowledgeable on top and knowledgeable below). There is clearly a great deal of overlap. The "centroids" for each group are marked below each histogram. These show the mean score for all cases in each

[10]The standardized coefficient converts the raw data so that each variable has a mean of zero and a standard deviation of one.

group on the discriminant function -- the typical location of that group's cases. The knowledgeable group's centroid is .52 and the unknowledgeable group's is -.32. The histograms present an intuitive indication that these variables are not powerful discriminators of the two groups. The table below the histograms in Figure 1 indicates that the discriminant function defined by this model correctly classified 67 percent of the officers. Had we randomly assigned officers to the two groups we would expect to get 50 percent correct assignments. A standardized measure of the proportional reduction in error from random assignment due to the discriminant function is given by tau, which can vary from zero to one.[11] A value of zero indicates no improvement in discriminating ability; a value of one indicates that there could be no greater improvement in discriminating ability (zero errors). The value of tau for this model is .34 (292 actual errors as opposed to 444 expected by chance).

A 34 percent reduction in error by the model used in the discriminant analysis is not a very substantial improvement. In policy terms, this analysis suggests that having a small police department or stabilizing patrol assignments to neighborhoods in larger departments could have only a small impact on the number of officers who will know the names of citizen organizations active in the beats they patrol. Beat assignments of officers by matching races will have a slight impact. In fact, it appears that the most effective course for the administrator who wants to increase his officer's awareness of neighborhood organizations is simply to encourage the organizations to become more visible in the community.

There are, of course, other policies not evaluated in the analysis. I did not explore department evaluation and incentive systems to encourage officer beat knowledge. With the exception of two neighborhoods in St. Louis, none of the departments were employing programs specifically designed to increase street-level officers' contact with community organizations. This suggests that extraordinary efforts -- such as those made in San Diego and Cincinnati -- would be required to make large gains in patrol officers' knowledge of citizen organizations.[12]

The particular measure of beat knowledge used here does not plumb the depth of officers' knowledge of each organization. Measures which reflect officers' awareness of the organizations' particular activities and their preferences regarding police service would enhance the evaluation. Measures of this sort might show stronger effects for the types of assignment policies

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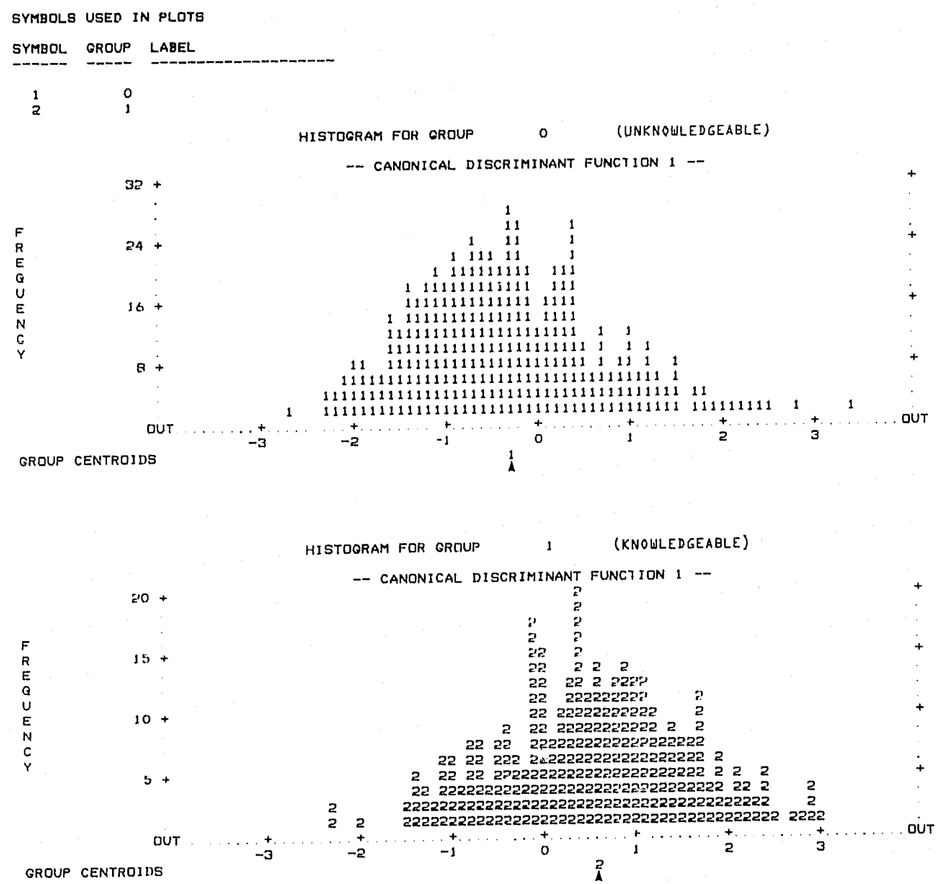
[11] It can also assume a negative value, indicating no discrimination or a degenerate solution.

[12] The St. Louis department made a special effort to give officers a chance to meet citizen organizations and share beat information through an experimental team policing program. Taking this into account in the statistical model had no significant effect on its ability to discriminate officers correctly between groups. This lack of effect may be due to the deterioration of this part of the team policing program due to personnel shortages, which cut into time set aside for team meetings and community organization work.

FIGURE 1. DISTRIBUTION OF UNKNOWLEDGEABLE AND KNOWLEDGEABLE GROUPS ON THE DISCRIMINANT FUNCTION



CLASSIFICATION RESULTS -

ACTUAL GROUP		NO. OF CASES	PREDICTED GROUP MEMBERSHIP 0	1
GROUP	0	546	372 68 1%	174 31.9%
GROUP	1	342	118 34.5%	224 65.5%

PERCENT OF "GROUPED" CASES CORRECTLY CLASSIFIED: 67.12%

evaluated in this analysis. Perhaps the most revealing finding of the analysis is the simple statistic that six of every ten officers in this sample were unable to name even one citizen organization active in their beat. A more demanding indicator of officer beat knowledge would have demonstrated an even smaller proportion of knowledgeable officers.

F. Conclusion

Using officers' knowledge of their beats as a performance indicator of employee and program performance is sensible. There is widespread agreement on the utility of such knowledge for doing good police work. It appears that sophisticated measurement of such knowledge requires a strong management commitment to participation by the rank and file in developing a knowledge base for evaluating performance on a beat-by-beat basis. Local governments presently find themselves pressed to maintain the quantity of police service, so that allocating substantial resources for improving its quality seems unlikely. Yet, a modest effort might be made to develop "beat histories," written by the officers who have worked each beat. Officers could be encouraged to share their knowledge and experiences in their beats. Over time, this accumulation of reports (perhaps submitted semi-annually) could form a knowledge base from which a measurement instrument could be derived. Its periodic updating would ensure its currentness. Patrol officers' participation in its development would increase their motivation to gain beat knowledge. External surveys sponsored by the department, the local government, or a university could be used from time to time to check on the bias of the knowledge base and measurement instrument. The need for measures of the quality of policing has never been stronger. The need for measures that fall within the capacity of administrators to influence is also great. Knowledge of the beat -- valued in itself and as a means to other ends -- can satisfy some of the needs of contemporary policy performance evaluators.

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CHAPTER 6. POLICE ARRESTS IN DOMESTIC DISTURBANCES: A FURTHER LOOK

Robert E. Worden and Alissa A. Pollitz[1]

I. INTRODUCTION

When domestic discord waxes violent, few would contend that the state does not have a responsibility to intervene. The nature and extent of state intervention, however, is delimited by the response of the police, who have been criticized for the infrequency with which they apply legal sanctions in domestic incidents. The apparent unwillingness of patrolmen to invoke the law is commonly attributed to belief systems that implicitly condone intrafamilial violence. While there is some evidence consistent with this proposition (Parnas, 1967; Brown, 1981), it has not yet been supported by rigorous empirical analysis.

The most recent investigation of police arrest practices in domestic disturbances is that of Sarah Fenstermaker Berk and Donileen Loseke.[2] Berk and Loseke place the policing of family disputes in a "broader perspective on police work" (320). From this perspective, the role of the police is "to impose or, as the case may be, coerce a provisional solution upon emergent problems" (Bittner, 1974:18); the law is but one of several resources available to "handle the situation" (Wilson, 1968:31). Berk and Loseke do not deny that "personal or occupational prejudices" may influence the outcomes of encounters, but their empirical findings suggest that the police response "is not wholly determined by legal considerations, by an officer's personal or occupational prejudices, or by some unchecked free association with the events of the encounter" (342; emphasis in original). They find that the arrest decision turns, in domestic disturbances as in any encounter (cf., Black, 1971; Smith and Visher, 1981), on characteristics of the situation itself--cues that the conflict can be managed only by recourse to legal action.

Berk and Loseke's study represents a long overdue effort to systematically test hypotheses otherwise supported only by fragmentary evidence, but one must be cautious in generalizing from their results because of the limitations of their data. Our analysis replicates and, in some important respects, extends Berk and Loseke's analysis using data that are more externally (and perhaps more internally) valid.

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[1]The authors wish to thank Gordon P. Whitaker and Charles Phillips for helpful comments, and George Rabinowitz for methodological advice. Special thanks are due Richard O. Lempert for his invaluable assistance. A similar version of this chapter appeared in Law and Society Review.

[2]We shall frequently have occasion to cite their article. Page numbers which appear in the text and which are otherwise unidentified refer to Berk and Loseke (1980).

II. THE REPLICATION

The Data. Berk and Loseke's data are suspect on two counts. Because they were collected from official police reports that may be ex post facto reconstructions of incidents intended to "justify actions already taken" (329), rather than accounts of what actually transpired during the encounters. If so, they may shed more light on police reporting practices than on police arrest practices.

Furthermore, Berk and Loseke's sample of domestic disturbances is limited to those for which sufficient documentation was contained in the police report. Their sample consists of "domestic disturbance incidents which are deemed serious enough by the police to warrant more thorough attention, and a nontrivial amount of police time" (326). As Berk and Loseke acknowledge, their findings may hold only for rather serious incidents.

Our data do not share these sources of bias; provided by the Police Services Study, they were collected by observing officers on patrol.[3] Police-citizen encounters during samples of shifts in each of twenty-four police departments were reconstructed from field notes by trained observers who coded the nature of the problem, the characteristics and actions of the participants, and the location of the encounter. Observers also prepared brief narrative accounts of many encounters (including almost all domestic disturbances). These narra-tives and the coding forms provide the information needed to operationalize all but one of the variables in Berk and Loseke's model.[4]

Our sample of incidents, like Berk and Loseke's, is restricted to domestic disturbances in which "the principals were adults involved in a heterosexual 'romantic,' or conjugal relationship prior to, or at the time of, the incident"(326). Also following Berk and Loseke, we define as disturbances those incidents involving not only "physical violence and the threat of violence, but also property damage and verbal arguments"(327). These criteria

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[3]Observational data are not necessarily free of distortion either; in the presence of an observer an officer may not behave as he otherwise would. We are inclined to believe, but are unable to demonstrate, that "reactivity" bias is neither pervasive nor systematic. For a complete description of the PSS data base, see Appendix A.

[4]We were unable to find any indication of property damage in the PSS data. It seems quite unlikely that there was no damage in any encounter, but it was probably very rare. In Berk and Loseke's sample property damage was reported in only five percent of the incidents in which both principals were present. Since our sample includes a large proportion of less serious cases, there is good reason to believe that property damage occurred less frequently in our sample. In any case, the variable was not statistically significant in Berk and Loseke's analysis.

TABLE 1

MEANS OF VARIABLES IN THE ANALYSIS

VARIABLE*	Berk and Loseke	PSS
Arrest	.385	.102
Principals married	.477	.497
White man	.454	.317
Woman calls police	.626	.653
Incident on Saturday or Sunday	.427	.240
Both principals present	.492	.707
Woman only alleges violence	.592	.437
Man drinking	.179	.317
Injuries	.442	.204
Woman injured	---	.144
Citizen's arrest signed or promised (ordinal)	.156	---
Complaint signed	---	.042
Both present X injuries	.252	.120
Both present X woman injured	---	.072
Both present X man drinking	.118	.281
Both present X woman only alleges violence	.305	.251
Private setting	---	.317
Man's demeanor disrespectful	---	.042
Number of dispatches per officer (interval)	---	6.57
	(N=262)	(N=167)

* All variables are dummy variables unless otherwise noted.

yield 167 encounters.[5] Table 1 compares the means of all of the variables in the analysis for both the PSS sample and Berk and Loseke's sample. The PSS sample contains proportionally fewer incidents in which one of the parties was injured and fewer in which the woman alleged violence. Furthermore, a much smaller proportion of the PSS encounters ended in an arrest.[6] These comparisons confirm Beck and Loseke's supposition that because of police reporting practices less serious disturbances are underrepresented in their sample.

The Model. Four variables in Berk and Loseke's analysis had a substantively and statistically significant effect on the probability of arrest : (1) the willingness of the woman to sign an arrest warrant, (2) the source of the request for police intervention, (3) evidence that the man has been drinking (when both principals are at the scene), and (4) an allegation of violence by the woman (again, when both principals are present). Table 2 compares Berk and Loseke's OLS results with OLS estimates of their model using PSS data.[7] The similarities are striking: three of the four variables that emerged as significant in their analysis are significant in our's as well, and only one variable that is significant using PSS data is not significant in Berk and Loseke's study.

Berk and Loseke found that the probability of an arrest increases by .30 if the woman signs or promises to sign a warrant; it decreases by .30 if she explicitly refuses to sign a warrant. This finding, which is consistent with earlier research (e.g., Black, 1971), is by and large corroborated by our

[5]Berk and Loseke also excluded cases which were presumably atypical in that only the woman was arrested. We deleted three cases in which the woman was arrested. Interestingly, the woman was identified as the suspect and the man as the victim in an additional twenty-two cases. Our findings are not altered by excluding these cases from the analysis.

[6]Arrests were made in fourteen percent of Berk and Loseke's unrefined sample (including cases with too little information).

[7]Because the dependent variable is dichotomous, OLS estimates are inefficient (but unbiased). One approach to this problem is a generalized least squares (GLS) procedure. GLS weights each observation by the reciprocal of the estimated residual variance (see Hanushek and Jackson, 1977: 181-82); i.e., the larger the residual variance, the less weight is given to that observation. GLS estimation of this model corroborates the OLS results.

Berk and Loseke sought to obtain unbiased estimates of the coefficients' standard errors by estimating a logistic model with a maximum likelihood technique. The logistic model carries with it some substantive baggage, assuming that the form of the relationship is S-shaped within the [0,1] interval (Hanushek and Jackson, 1977:183-86). Berk and Loseke did not specify such a model a priori, and we know of no reason to specify a logistic form. Nevertheless, we too used a maximum likelihood technique to estimate a logistic model; these estimates corroborate the OLS results without exception. Simply put, our results hold whether one postulates that the functional form of the model is linear or nonlinear.

TABLE 2

OLS Estimates of the Effect of Situational Characteristics on Arrest[a]

VARIABLE	Berk & Loseke's Model B & L's sample	Berk & Loseke's Model PSS sample	Extended Model PSS sample
Constant	.259 (4.19)	.025 (0.42)	.020 (0.36)
Principals married	.077 (1.59)	-.075 (-1.68)*	-.066 (-1.54)*
White man	.024 (0.51)	-.038 (-0.78)	-.035 (-0.74)
Woman calls police	-.209 (-4.18)*	.009 (0.19)	.043 (0.91)
Incident on Saturday or Sunday	.028 (0.61)	.041 (0.79)	----
Injuries	.081 (1.30)	-.042 (-0.50)	----
Woman injured	----	----	-.049 (-0.55)
Citizen's arrest signed or promised (ordinal)	.300 (8.21)*	----	----
Complaint signed	----	.246 (2.17)*	.225 (2.05)*
Both present X injuries	-.031 (-0.37)	-.078 (-0.70)	----
Both present X woman injured	----	----	-.059 (-0.46)
Both present X man drinking	.204 (2.70)*	.168 (3.31)*	.142 (2.90)*

a: Entries are unstandardized regression coefficients and, in parentheses, corresponding t-values.
* $p < .05$; one-tailed test
** $p < .10$; one-tailed test

TABLE 2 (cont.)

OLS Estimates of the Fffect of
Situational Characteristics on Arrest[a]

VARIABLE	Berk & Loseke's Model B & L's sample	Berk & Loseke's Model PSS sample	Extended Model PSS sample
Both present X woman only alleges violence	.319 (5.06)*	.132 (2.27)*	.091 (1.61)*
Both present X property damage	.020 (0.19)	----	----
Private setting	----	----	-.053 (-1.14)
Man's demeanor disrespectful	----	----	.431 (3.91)
R^2	.454 (N=262)	.172 (N=167)	.235 (N=167)

results; we find that the probability of an arrest increases by .25 when the woman signs a complaint.[8] This variable has by far the most substantial effect on the outcome--at least fifty percent larger than any other.

Berk and Loseke expected that the effects of some some situational characteristics would be greater when both principals are present: "If both parties to the conflict are present when the police arrive, the police must weigh alternatives and seek resolutions in a context of ongoing confrontation and potential for escalation" (335). Two such interactive variables were significant in their analysis. When both principals are at the scene, the probability of arrest increases by .20 if the man appears to have been drinking, and rises by .32 if the woman alleges violence. Both findings are confirmed in our analysis: the likelihood of arrest increases by .17 if the man has been drinking, and an allegation of violence by the woman increases

[8]As Berk and Loseke point out, their indicator of victim preference is an ordinal measure: 1 if the victim signed or promised to sign a warrant; -1 if she refused to sign; zero if no preference was noted (see pp. 334-35). But their model implicitly assumes that this measure is interval in nature. Because a promise to sign may increase the probability of arrest more (or less) than a refusal to sign decreases it, we attempted to estimate separately the effect of the woman's refusal to sign a warrant by relying on observers' reports that she asked the officer to let the man go without arrest. But the woman made such a plea in only two of the cases, in both of which an arrest was made. We inferred that the request was made subsequent to the arrest, and excluded the variable from our analysis.

the probability by .12. As Berk and Loseke suggest, these circumstances may indicate to the police that the conflict cannot be even temporarily resolved without some form of coercive legal intervention, and they may also provide legal grounds for arrest.

Some null findings of both analyses are also noteworthy. First, the likelihood of arrest does not increase if one of the disputants has been injured. As Berk and Loseke suggest, an injury might constitute evidence that a felony has been committed, thus allowing an officer to make an arrest regardless of the victim's preference. When both principals are present, an injury might cue the officer that the conflict is likely to continue unless legal measures are taken.

Second, race has no apparent effect on arrests.[9] Race might be expected to have a positive effect, or negative effect, or no effect on arrests. Domestic conflicts are usually intraracial, and while previous research suggests that black suspects are more vulnerable to arrest because they are not sufficiently deferential (Black, 1971; Sykes and Clark, 1975), one might suppose that black victims are less likely to enjoy the protection of the law. On the basis of Berk and Loseke's model one can infer only that race has countervailing effects or no effect on the arrest decision. Third, workload has a statistically insignificant effect on arrests in both samples, but Berk and Loseke's measure of workload--occurrence on a Saturday or Sunday--is too crude to allow us to conclude that arrest practices are unaffected during periods of high demand for police services.

While our results are largely congruent with Berk and Loseke's, they differ in several important respects. In Berk and Loseke's sample the probability of an arrest decreases by .21 if the police are summoned by the woman. Berk and Loseke inferred that if the woman initiates the encounter, the dispute is likely to be less serious; since it has not escalated to a point at which (1) she is physically incapable of placing the call, or (2) neighbors or friends are aware of the conflict and are sufficiently concerned (or irritated) to call the police. They also speculate that a disturbance confined to the principals obviates an arrest made solely to avoid complaints from "outsiders."

When Berk and Loseke's model is estimated with PSS data, this variable has a no effect on arrests. Furthermore, there is reason to doubt that it is inversely related to the seriousness of the disturbance. Although the PSS sample contains proportionally fewer "serious" disturbances than does Berk and Loseke's,[10] the frequency of female-initiated police calls is roughly equivalent in the two samples. Also, police who intervene in domestic disturbances at the behest of the woman are, in the PSS sample, about twice as likely to find an injured victim as are those who intervene on their own or a third party's initiative.

[9]The PSS data included information only on those parties present during the encounter. If the man was absent, he was coded as white if the woman was white.

[10]See the discussion above.

One characteristic of the situation that is statistically significant in the PSS sample, but not in Berk and Loseke's, is marital status.[11] In the PSS sample, arrests are less likely in incidents involving married disputants that they are in conflicts between unmarried parties. In Berk and Loseke's sample, arrests are somewhat more likely if the principals are married, but the effect does not reach conventionally acceptable levels of significance. Our result is consistent with theory (Black, 1976) and previous research (Black, 1971) that suggests that relational distance (in the eyes of the police if not in those of the principals) is directly related to the likelihood of legal sanction. Berk and Loseke attribute their null finding to the homogeneity of their sample: all of the disputes involved parties who are or at one time were romantically related. This interpretation is less plausible in light of our results. A more likely explanation is that marital status affects the outcome only when the incident is not serious. If so, the divergent findings can be understood in terms of differences in the severity of the incidents in the respective samples.

Our replication of Berk and Loseke's study allows us to place greater confidence in their findings. Taken together, these analyses provide compelling testimony that the arrest decision turns on situational cues. But much of the variance in arrests remains unaccounted for. In the following section we consider the implications of variables not available to Berk and Loseke, especially the intervening officer's role orientation.

III. EXTENSIONS OF THE MODEL

Situational Characteristics. We first extended Berk and Loseke's model by introducing more sensitive measures of workload and of injuries, and by adding two theoretically important situational characteristics: the location of the encounter and the demeanor of the man involved in the incident.[12] Our measure of workload is the expected number of dispatches per officer during the shift on which the encounter occurred.[13] This variable failed to achieve statistical significance, and was excluded from later analyses to avoid sacrificing thirty-seven cases due to missing data.

Since the victims of domestic violence are typically women, we suspected that the predictive power of injuries may have been diluted by including those incurred by the man. Of the encounters in which one or both disputants were injured, the woman alone was injured in only 71% (or 14% of all encounters). Neither the main nor the interactive effect of this variable is, however, in the predicted direction or statistically significant.

Berk and Loseke suggest that if the disturbance is confined to the principals, the officer is not compelled to placate "outsiders" with an arrest. If this is true, we would expect to find that disputes in private settings are less likely to result in arrest. We defined as private the thirty-two percent of domestic encounters that transpired wholly in a house or apartment. While our results suggest that arrests are, ceteris paribus, less likely in private settings, the effect of this variable does not achieve statistical significance.

Previous research has demonstrated that disrespectful behavior increases the probability of arrest in police-citizen encounters (Black and Reiss, 1970; Black, 1971; Lundman, 1974; Sykes et al., 1976). Our analysis shows that this finding holds for domestic disturbances. PSS observers coded the demeanor of all citizen participants at the outset of the encounter as "businesslike," "friendly," "apologetic," or "sarcastic, disrespectful, hostile." As Table 1 shows, the last category , which we call "disrespectful," was quite rare. However its effect on the arrest decision is substantial: disrespectful behavior increases the probability of arrest by .44. The effect of race remains insignificant. Assuming that we have adequately controlled for forms of hostility that are peculiar to police encounters with Black suspects, we can infer that the officers in this sample do not discriminate against black victims. The fact that the man has been drinking (which Berk and Loseke believed would be related to demeanor) retains its importance, as do all other variables which were significant in the original model. Largely because of the predictive power of demeanor, the extended model explains twenty-three percent of the variance in arrests in the PSS sample, or about one-third more than could be explained by Berk and Loseke's model.

Role Orientations. Berk and Loseke's model, as they advance it and we extend it, implicitly assumes that all patrolmen subscribe to the same scale of occupational priorities, and that occupational prejudices do not condition the causal relationships that they (and we) find. Variation in officers' responses to the situational factors we have investigated may be obscured by these results. Some officers may be guided by their "interpretation of salient 'signs' in the context of the immediate situation" (342), while others are blinded to such signs by occupational prejudices.[14] If so, Berk and Loseke's (and our) results may misstate the magnitude and even the direction of the effects of some variables.

A number of studies (Muir, 1977; Brown, 1981; White, 1972) distinguish between officers whose conception of the police role stresses law enforcement (read: the control of repressible crimes), and those whose role orientation acknowledges the responsibility of the police to intervene in noncrime problems as well. For the former, a domestic disturbance is not a police

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[11] We operationalize marital status somewhat differently than did Berk and Loseke; we code separately principals as married. If separated couples were defined as unmarried, we would expect being married to diminish the probability of arrest even more.

[12] The estimated parameters of this extended model are shown in Table 2. Again, maximum likelihood estimates of the logistic form are congruent with the OLS estimates.

[13] We estimated the number of dispatches expected in each police district during each shift (daytime, evening, graveyard) and day of the week from police records of calls for service. Our measure of workload is the expected number of dispatches per patrol unit assigned to the district for the shift.

[14] James L. Gibson (1978), in his research on racial discrimination in criminal sentencing, shows how analysis that overlooks individual differences can lead to erroneous inferences.

responsibility, and an arrest "uses time that could ... [be] more profitably spent working the street" (Brown, 1981:265). The latter treat domestic disturbances more as a family counselor would (Muir, 1977:92-97). This approach is time-consuming, and officers using it "carried a diminished workload. They took fewer burglary reports; they did less preventive patrolling; they made fewer arrests ..." (Muir, 1977:95). In short, they regarded many kinds of problems as important police responsibilities, and did not accord the highest priority to fighting crime.

TABLE 3

MEANS OF VARIABLES IN THE ANALYSIS

VARIABLE*	Crime-fighter	Problem-solver
Arrest	.085	.099
Principals married	.407	.571
White man	.271	.341
Woman calls police	.610	.637
Both principals present	.678	.714
Woman only alleges violence	.424	.473
Man drinking	.220	.363
Woman injured	.136	.143
Complaint signed	.017	.055
Both present X woman injured	.051	.088
Both present X man drinking	.203	.319
Both present X female only alleges violence	.203	.297
Private setting	.356	.264
Man's demeanor disrespectful	.017	.055
Woman asked to sign complaint	.170	.110
	(N=59)	(N=91)

* All variables are dummy variables unless otherwise noted.

The salience of situational cues may vary depending on how an officer sees his role. A self-styled crime-fighter, whose conception of legitimate police responsibilities excludes all but the most serious domestic incidents, might be expected to only rarely make arrests. In most disputes he could be expected to ignore situational cues because he considers the incident trivial and feels no obligation to "handle the situation." Problem-solvers might be expected to be more attentive to signs that the situation is volatile and to be more sensitive to the victim's wishes.

We explore these possibilities in a preliminary way using survey data gathered from the observed officers. We classify officers on the basis of their agreement with the following statement: "Police should not have to handle calls that involve social or personal problems where no crime is involved." For expository convenience, we refer to officers who agreed as "crime-fighters," and call officers who disagreed "problem-solvers."[15] We do not suppose that this (or any other) dimension of officer attitudes can by itself isolate psychologically homogeneous categories of patrolmen. For example, officers who concur on the legitimacy of the dispute resolution function may disagree over how that function should be discharged (compare Muir's "professional" with his "reciprocator"). In spite of the variation

[15]This operationalization is not without its shortcomings. There may, for example, be a substantial number of "problem-solvers" whose first priority is "working the street," but who nevertheless believe that they have a responsibility to handle disputes as well. But we believe that this item is on its face closely related to the divergent role orientations that Brown, Muir, and others describe, and this interpretation is supported by an analysis of other survey items. Using survey data for all interviewed patrolmen (and not only the officers observed in these encounters), we conducted an exploratory factor analysis of a number of items on the officer questionnaire. One factor that emerged (eigenvalue=2.1) appears to correspond to the role orientation dimension. The loadings of four variables exceeded .30 (no other exceeded .12). Two items asked officers for a yes or no response (1=no; 2=yes):

> Do you think police should help to quiet family disputes if they get out of hand?
> Do you think the police here should handle cases involving public nuisances, such as barking dogs or burning rubbish?

The other items asked officers to (strongly) agree or (strongly) disagree (1=strongly agree; 4=strongly disagree):

> Referring a citizen to social service, health, or welfare agencies is a waste of police officers' time in most cases.
> Police should not have to handle calls that involve social or personal problems where no crime is involved.

Confirmatory factor analysis yields one factor (eigenvalue=1.3), on which these variables load .34, .31, .28, and .99, respectively. The last variable, on the basis of which we classify officers, correlates with the factor scale at .96.

CONTINUED

1 OF 3

that this categorization obfuscates, we believe that this attitudinal dimension is theoretically important for police behavior, particularly in domestic disturbances.

Table 3 reports the means of the variables we analyze, calculated separately for incidents involving each of the two types of officers.[16] The subsamples are too small to support any but the most tentative inferences. But these data provide little support for the supposition that officers who belittle domestic disturbances in word do so in deed as well. The most striking finding in Table 3 is the infrequency with which either type of officer resorts to arrest; the difference in their respective arrest rates (8.5% versus 9.9%) is statistically insignificant.

Furthermore, officers who place a premium on "working the street" as well as more service-oriented officers are guided in the arrest decision by situational cues. The regression analysis presented in Table 4 reveals that two variables--the willingness of the victim to sign a complaint and the man's demeanor --have positive and significant effects on arrest for both types of officers.[17] Each type is influenced in the arrest decision by other situational factors as well. Our original question, whether the arrest decisions of patrolmen with a crime control orientation are unaffected by situational cues can be tentatively answered in the negative.

The analysis also suggests that arrests are a function of a somewhat different model for each of the two types of officers. When the coefficients are allowed to vary among subsamples, these variables explain twenty-one percent more of the variance in arrests (an increase significant at the .10 level). In other words, the effects of this set of variables are different for each type of officer.[18]

The coefficients for each subsample are compared in the last column of

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[16]Three incidents are excluded, in all of which an arrest was made by an officer other than the officer under observation, and for whom we therefore cannot associate attitudinal data. Note also that Table 3 includes one variable which we have not heretofore examined: whether the officer explicitly asked the woman to sign a complaint. There is a small (though not statistically significant) difference in the frequency with which the officer presented this option to her: crime-fighters did so more often. We do not include this variable in the model since we assume that it affects arrests only by influencing the preference of the victim.

[17]Both GLS estimates and maximum likelihood estimates of the logistic form differ from the OLS results in one respect: the source of the call does not affect the likelihood of arrest by crime-fighters. GLS estimation also shows that an injury sustained by the female when both principals are present makes an arrest by crime-fighters significantly less likely. We hesitate to interpret these differences substantively in view of the size of the sample. The contradictory evidence underscores the tentative nature of our findings.

[18]This comparison is done by adding to the extended model in Table 2 a series of "slope dummy variables." See Hanushek and Jackson (1977:127-28).

TABLE 4

OLS Estimates of the Effect of Situational Characteristics on Arrest by Crime-fighters and Problem-solvers

VARIABLE	Crime-fighter	Problem-solver	B_{cf} & B_{ps} compared[a]
Constant	-.016 (-0.22)	.052 (0.73)	0.528
Principals married	-.067 (-1.11)	-.068 (-1.17)	0.983
White Man	-.021 (-0.32)	-.023 (0.37)	0.987
Woman calls police	.080 (1.27)	-.011 (-0.18)	0.327
Woman injured	-.035 (-0.32)	-.094 (-0.71)	0.737
Complaint signed	.684 (2.91)*	.329 (2.52)*	0.232
Both present X woman injured	-.199 (-1.04)	.190 (1.10)	0.154
Both present X man drinking	.045 (0.61)	.138 (2.16)*	0.376
Both present X woman only alleges violence	.242 (2.71)*	-.023 (-0.33)	0.031
Private setting	-.011 (-0.18)	-.032 (-0.49)	0.824
Man's demeanor disrespectful	.729 (2.93)*	.504 (4.00)*	0.466
R^2	.514	.317	
	(N=59)	(N=91)	

* $p < .05$; one-tailed test
** $p < .10$; one-tailed test

[a]This is the probability of estimating a difference at least as large as $|b_{cf}-b_{ps}|$, given the null hypothesis that the difference is in fact zero. Each probability is based on the t-statistic for the corresponding slope dummy variable. See footnote 18 and Hanushek and Jackson(1977:127-28).

Table 4 which reports the probability of obtaining a difference of the estimated magnitude or greater when, in fact, there is no difference between the coefficients. One variable has substantially different effects. Crime-fighters are more likely to take legal action if the woman alleges violence, while the likelihood of arrest by problem-solvers appears to be unaffected by such an allegation. Crime-fighters may see an allegation of violence as evidence that a crime warranting arrest has been committed, while problem-solvers apparently do not treat it as cue that an arrest is a suitable solution whether or not the law has been violated. The interactive effect of injuries is different in the two subsamples. This difference (and the respective coefficients) approach but fail to achieve a customary level of statistical significance. One would incorrectly reject the null hypothesis that the subsample coefficients are equal fifteen times in one hundred (see Table 4). But one should also be concerned with the likelihood of erroneously assuming that the coefficients are equal. If the difference is in fact more than a mere sampling fluctuation, it may explain why this variable has no discernible effect in Berk and Loseke's analysis and in the analysis that we present in Table 2.

The evidence offered by this analysis, though not compelling, suggests that situational stimuli are filtered through a perceptual lens --the contours of which depend on the officer's conception of his role--and refract into a behavioral spectrum. Role orientations influence arrests only by affecting officers' responses to immediate, idiosyncratic factors. Thus, these results suggest that a model of arrest that fails to take role orientations into account will misstate the effects of different situational cues. Where Berk and Loseke's results differ substantially from our replication, the reason may lie not only in differences in the severity of the incidents in the respective samples, but also in the different proportions of crime-fighters and problem-solvers.

IV. CONCLUSIONS

Replications are often motivated more by a desire to refute than to confirm; warmed-over discoveries are, after all, rather boring. But on the subject of domestic disturbances, where little ink has been spilt, our corroboration of Berk and Loseke's situational hypotheses is at least moderately encouraging. Berk and Loseke maintain that the routine exercise of police discretion in domestic disturbances entails choices about how inter-personal conflict can be (temporarily) resolved. Evidence that the law has been violated does not inevitably result in an arrest. As both Berk and Loseke's analysis and our own suggest, arrests are made when the circumstances indicate to the officer that the situation requires legal rather than less formal measures. Our analysis further indicates that this inference holds for officers with very different role orientations and, presumably, different occupational priorities.

This finding does not necessarily imply that police responses to domestic disturbances are not affected by occupational or other prejudices. By itself an arrest is an ambiguous indicator of responsible policing. A concerned officer's determination to protect a victim may manifest itself in an arrest, but it can also take any one of a number of other forms. Alternatively, an

arrest may be a quick and simple --though not necessarily effective --way to dispose of an assignment. Neither Berk and Loseke's portrait of the arrest decision nor our own is definitive, but perhaps a more fruitful line of inquiry lies in a broader conception of patrolmens' options. Arrest may represent only one end of a continuum of responses, including referrals, informal counseling, and indifference; or it could lie on one of several dimensions of behavior. Only a fuller understanding of the complex texture of domestic conflict and the spectrum of possible responses will enhance the effectiveness of police intervention.

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CHAPTER 7. CRIME PREVENTION AND THE PATROL OFFICER: THE DISSEMINATION OF CRIME PREVENTION INFORMATION

Robert E. Worden and Gordon P. Whitaker

Few would deny that effective crime prevention requires the active cooperation of the citizenry. Emerging from a period of utter obscurity, the citizen's role in the delivery of services --including, and perhaps especially, police services --has received increasing emphasis, and is likely to be stressed even more in a time of fiscal cutbacks for public service agencies. Recent scholarship has recognized this and has investigated the nature and extent of "citizen coproduction" of public services (Percy, 1978; Whitaker, 1980; Sharp, 1980; Parks et al., 1981).

Citizen coproduction has been encouraged by police agencies in a variety of ways. Efforts to promote coproduction often consist of special programs designed either to foster collective action or to instruct citizens in how to protect themselves. Block clubs and citizen patrols have been organized by the police, with notable success (Washnis, 1976). Classes in crime prevention are held for community organizations and business groups (Goldstein, 1977:64-65). For the patrol officer, enlisting the cooperation of citizens is usually part of a more comprehensive strategy of improving police-community relations, whereupon citizens will presumably be more inclined to, say, report crimes and suspicious circumstances. This is one objective of "team policing" (Sherman et al., 1973:4-5).

In this paper we are concerned with a rather simple but potentially effective means of stimulating citizen coproduction, namely the dissemination of crime prevention information by patrol officers in their encounters with crime victims. Victims of crime, under no illusion that "it can't happen to me," may be particularly receptive to crime prevention advice and disposed to act on it. Moreover, crime victims suffer a greater likelihood of future victimization than do those who have not been victimized (Nelson, 1980); they are thus a constituency that can materially benefit from instruction in crime prevention.

Supposing, as we believe it is reasonable to do, that crime prevention information is a valuable commodity, we are interested in simulating with a simple model the process by which an officer chooses to provide information to crime victims. Such a "process model" would resemble a flowchart (see, e.g., Crecine, 1969), specifying the decision-rules by which the officer makes his choice. "We use simulation to determine how changes in the types of inputs or activities...may affect other activities and outputs" (Whitaker et al., 1982; 107; also see Simon, 1981:17-22). Particular attention, then, is given to policy manipulables -- features of police agency organization (e.g., resource availability) that can be altered (within certain constraints to be sure) to affect activity.

A. Theoretical Framework

Police officers are street-level bureaucrats, which is to say that they

are among "those government workers who directly interact with citizens in the regular course of their jobs; whose work within the bureaucratic structure permits them wide latitude in job performance; and whose impact on the lives of citizens is extensive" (Lipsky, 1971:393). Street-level bureaucrats perform a nonroutine function. According to Perrow, "...nonroutineness means that there are few well-established techniques; there is little certainty about methods, or whether or not they will work. But it also means that there may be a variety of tasks to perform, in the sense that raw materials are not standardized..." (1970: 75). The processes by which many street-level bureaucrats (e.g., schools, police agencies) can effect desired outcomes are generally not well understood. And the "raw materials" for street-level bureaucrats are "complex and unpredictable" citizens (Prottas, 1978: 292). Under such conditions, it is difficult to define standards for evaluating behavior. It is also difficult even to obtain information about behavior except from the street-level bureaucrats themselves. Enforcement of organizational prescriptions is therefore problematic, to say the least (see Prottas, 1978: 294-306). There is a correspondingly greater likelihood that "non-organizational values and interests" will find expression in street-level behavior (Perrow, 1970:65).

Given their autonomy, the stresses to which street-level bureaucrats are subject may lead them to adopt coping mechanisms that reduce service or even harm clients. Like any other bureaucrat, the street-level bureaucrat chooses his courses of action based on a view of reality that has been reduced to manageable proportions. "He makes his choices using a simple picture of the situation that takes into account just a few of the factors that he regards as most relevant and crucial" (Simon, 1976:xxx). Street-level bureaucrats differ from other bureaucrats, however, in the extent to which they, and not the organization, are able to determine the set of relevant factors. The stresses they face, so the theory goes, encourage them to supplant the organizationally sanctioned set with one of their own (see Greene, 1979).

Lipsky (1971:393-94) identifies three kinds of stress on the street-level bureaucrat: (1) inadequate resources, (2) threat and challenge to authority, ans (3) contradictory or ambiguous job expectations. Resources being what they are (namely, scarce), the stress of inadequate resources is ubiquitous. All bureaucrats must make decisions quickly and without perfect information. For street-level bureaucrats, one means of managing the stress of inadequate resources is "load-shedding" (Maxfield et al., 1980:227-28); higher levels of demand are met with lower quality service. For example, Maxfield et al. found that "As the total level of demand for police services increases, it becomes less likely that a call for service...will be recorded as a verified offense" (1980:231). Similar findings have been reported in studies of other street-level bureaucracies (Jones et al., 1977; Nivola, 1978; Brintall, 1981). A second kind of stress comes from the threat of physical harm or chal-lenge to authority. Many street-level bureaucrats --housing inspectors, wel-fare workers, and school teachers as well as police officers --work in hos-tile surroundings. Even if the objective risk of injury is slight, many street-level bureaucrats are justifiably concerned with this potentially serious (even fatal) contingency. A more probable eventuality that also represents a threat is the loss of control of encounters with citizens. These are often unpredictable transactions; the environmental turbulence that confers bureaucratic power has another edge.

No street-level bureaucrat feels this kind of stress more acutely than does the police officer. For Skolnick, this stress accounts for the policeman's "working personality"; he asserts that "the policeman's role contains two principal variables, danger and authority" (1975:44). Skolnick and others (e.g., Muir, 1977:153-73; Wilson, 1968:39-43) have observed that the policeman learns a "perceptual shorthand" (Skolnick, 1975:44) to predict whether the behavior of the citizens with whom he interacts will be threatening. According to Muir, officers evaluate a limited number of cues on the basis of which they classify citizens as "governable" or "rebellious" (1977:156-57). Lipsky contends that "these simplifications tend to be developed in stereotypic ways with racist orientations" (1971:395). Indeed, some studies suggest that the characteristics of citizens (e.g., their race or class) influence police behavior (Sherman, 1980: 79-84). But Muir discovered that, at least in "Laconia," officers relied on more sophisticated cues (1977:158). In any event, police are less likely to be helpful to those they perceive as threatening. They tend to reduce the stress of threats to authority by increasing the formality and coerciveness of their actions (Muir, 1977).

The third kind of stress relates to job expectations. Lipsky points out that "role expectations may be framed by peers, by bureaucratic reference groups, or by public expectations in general" (1971:394). Often, especially for police, these expectations conflict (see Whitaker et al., 1982: ch. 3). Consider, for example, the conflict beyween the rule of law and administrators' demands that officers "produce" (Skolnick, 1975). Or compare the demands of one segment of a community for aggressive law enforcement, and those of another segment for civility. According to Lipsky, street-level bureaucrats resolve these conflicts of expectations by conceptually fragmenting their clientele (1971:396-97). By defining some groups (e.g., blacks) as outside of the population to be served, the expectations of those groups are denied legitimacy.

This theoretical framework allows us to deduce a number of specific hypotheses about factors which might affect the dissemination of crime prevention information by patrol officers. In view of their freedom to ignore organizational policy, the first two hypotheses concern officers' own estimations of the value of disseminating crime prevention information.

Hypothesis 1: Crime prevention information is provided to victims more often by officers who think that it is important to do so.

Hypothesis 2: Crime prevention information is provided more often to victims who, in the opinion of the officer, are likely to incur a similar victimization in the future.

Three hypotheses relate to resource constraints.

Hypothesis 3: Crime prevention information is disseminated less often by officers with a heavy workload.

Hypothesis 4: Crime prevention information is provided less often when little time remains in a shift.

Hypothesis 5: Crime prevention information is provided more often when other officers are at the scene.

Another hypothesis is derived directly from the psychological separation of governables and rebels.

Hypothesis 6: Crime prevention information is provided less often to victims who are uncooperative, i.e., "rebellious."

In addition, we hypothesize that the dissemination of crime prevention information is affected by certain characteristics of the encounter. Many studies demonstrate the influence of situational factors on officer behavior (see Sherman, 1980). Encounters with victims who are emotionally traumatized or physically injured are not propitious occasions for offering instruction in crime prevention. Thus,

Hypothesis 7: Crime prevention information is provided less often to victims who are incapacitated.

The presence of a suspect diverts attention from the victim.

Hypothesis 8: Crime prevention information is disseminated less often in encounters in which a suspect is present.

And like many other municipal bureaucrats, patrol officers, we hypothesize, use "Adam Smith" decision-rules (Levy et al., 1974:229), dispensing services to those who demand them.

Hypothesis 9: Crime prevention information is provided more often to victims who request it.

The theory of street-level bureaucracy admits of only a limited role for administrators, except by virtue of their control of resources. Police administrators have been depicted as influencing patrol officers only with respect to relatively trivial, administrative matters; an officers' discretion in substantive matters is presumed to be guided by his own belief system (Brown, 1981). Officers' coping mechanisms --load-shedding, relying on simple (perhaps stereotypic) cues, and fragmenting clientele --are adopted in spite of official department policy. Each is supposed to diminish the likelihood that patrol officers will disseminate crime prevention information. At the same time, department policy prescribing (or at least encouraging) provision of crime prevention information may increase the frequency with which this service is rendered. Such is the expectation of administrators who establish such policies. So, the theory of street-level bureaucracy notwithstanding, we consider the following hypothesis.

Hypothesis 10: Crime prevention information is provided more often by officers whose supervisors encourage it.

B. Operationalizations

We test these hypotheses with PSS patrol observation and officer interviews data (see Appendix A). Crime victims were present in 1,011 of the observed police-citizen encounters. Because some encounters included more than one victim there are more victims (1,113) than encounters. Excluding cases with missing data, our sample consists of 805 victims.

Some of our operationalizations are quite straightforward, but many warrant elaboration. Officers' attitudes toward the dissemination of crime prevention information are measured in terms of their volunteered comments during the period of observation. An officer is considered to think that this activity is important if he so indicated explicitly; if he indicated other-wise, or failed to mention it one or way the other, we assume, for this analysis, that he does not think it important. The shortcomings of this measure are difficult to overstate; at worst, this indicator may be caused by rather than a cause of the dissemination of crime prevention information. But the officer's attitude is, according to the theory, sufficiently important that in the absence of a better measure we quite willingly employ this one. Officers' estimations of the likelihood of different types of victimizations were obtained in the officer interviews. Officers were asked whether three types of victimizations --robbery, burglary, and vandalism --were "very likely," "somewhat likely," or "not at all likely."

Workload is measured in terms of the time the typical officer could expect to spend on dispatches during the shift on which each encounter occurred. The amount of time remaining in the shift was measured (in minutes) from the time at which the encounter began. Other officers at the encounter included the observed officer's partner (if any), patrol supervisors, and other officers from the officer's own department or from other law enforcement agencies. These were all noted in observers' reports.

Uncooperative behavior included fighting, arguing, or cursing at officers, refusing to answer officers' questions, or refusing to comply with some other request. We defined as incapacitated victims who were emotionally agitated, injured, ill, or intoxicated. By agitated we mean upset (e.g., scared, crying), angry, or violent. Unfortunately, these categories encompass a broad range of emotional states, but more refined measures are not available. Similarly, the severity of injuries or illnesses was not systematically coded on our observers' accounts; an 'injured' victim may not be truly incapacitated. Our indication of citizens' requests for crime prevention information is somewhat crude; observers did not differentiate between requests for crime prevention information and requests for other types of information.

Finally, supervisors in each district were considered to encourage the dissemination of crime prevention information if one or more officers voluntarily indicated to patrol observers that police "brass" or immediate supervisors expected them to provide this service. The drawback of this indicator, like our measure of officers' own attitudes toward the dissemination of crime prevention information, is that it is not systematic. One virtue of the measure, however, is that it reflects officers' perceptions of supervisory preferences; policies that are unrecognized are not likely to have any impact.

TABLE 1. VARIABLES IN THE MODEL

Variable	Mean
Dissemination of crime prevention information	0.12
Officers' attitude	0.06
Officer's estimation of likelihood of future burglary (burglary victims only)*	1.78
Officer's estimation of likelihood of future robbery (robbery victims only)*	2.11
Officer's estimation of likelihood of future vandalism (vandalism victims only)*	1.66
Workload **	90.04
Time remaining in shift**	262.62
Other officers present	0.40
Victim's demeanor	0.02
Suspect present	0.18
Victim's request	0.12
Supervisory attitude	0.35

Note: All variables are dichotomous unless otherwise noted.

* Measured on a three point scale: 1 = very likely; 2 = somewhat likely; 3 = not at all likely.

** Measured in minutes.

The means of all of these variables are shown in Table 1. Perhaps the most remarkable item in Table 1 is the dependent variable; crime prevention information is offered to only twelve percent of all crime victims. On the face of it, officers do not seem to be fully exploiting this opportunity to help citizens help themselves. Officers who think that it is important for them to do so are few in number. Only 22, or six percent, indicated to observers that they believed it is important; they served just six percent of the victims. Uncooperative behavior was rarely forthcoming from victims; sixteen, or two percent, were "rebellious" as we define it. Fourteen

percent of victims were incapacitated. It bears repeating that this is probably an upper limit; our operationalization is an inclusive one.

C. Preliminary Results

Bivariate analysis provides tentative support for some of the hypotheses, and reveals ways in which our hypotheses might be modified (see Table 2). An officers' attitude toward the dissemination of crime prevention information appears to influence his behavior; this activity was twice as frequent in encounters with officers who thought it was important. The effect of officers' estimation of the chance of future victimizations depends on the type of victimization. Crime prevention information was never given to the victims of a robbery (many of whom may have been distraught). Crime prevention information was far more frequently given to vandalism victims who live in areas where vandalism was common that it was to other victims of vandals, as we hypothesized. Contrary to our hypothesis, however, crime prevention information was given to roughly the same proportion of burglary victims in each of the three categories of risk; perhaps officers feel that (1) they have worthwhile advice to offer with respect to this crime, and (2) burglary is sufficiently serious that it warrants a lesson in preventive measures no matter what the likelihood of future victimization. These results would suggest that we not only modify hypothesis 2 above, but also that we consider the hypothesis that crime prevention information is more likely to be given to the victims of some types of crimes than to the victims of other types, simply, perhaps, because some types of crimes do not lend themselves to preventive measures.

The stress of inadequate resources appears to have only a limited effect on the dissemination of crime prevention information. While it was relatively unlikely that crime prevention information would be disseminated during shifts with the heaviest workloads, it was almost equally unlikely to have been furnished by officers with the lightest workloads. Officers whose workload was moderate were somewhat more likely to disseminate information. One possible explanation for this curious result is that officers with lighter workloads may also serve neighborhoods that are relatively free of crime, making the dissemination of crime prevention information less imperative. Officers with heavy workloads may in fact have been load-shedding. The differences are not striking, but a heavy workload does appear to diminish the quality of service. The provision of crime prevention information is largely unaffected by the amount of time remaining in the shift when the encounter begins. The notable exception to this rule is the group of encounters which began very late in a shift (i.e., fewer than thirty minutes). Given the paucity of cases in this category, this result could be a mere sampling fluctuation. A substantive interpretation is that when little time remains in a shift, officers do what they can to prolong encounters, lest they receive another assignment (a subtle form of load-shedding indeed). Based on this result, we reject hypothesis 5, and instead build into our model a "window" of load-shedding at the end of each shift. The presence of other officers does not appear to encourage dissemination of crime prevention information, but we cannot reject our original hypothesis on this basis. Problems which are dangerous and/or urgent may be more likely to have many officers present, but may not be situations in which the disemmination of crime prevention information is appropriate or possible.

TABLE 2. BIVARIATE ANALYSIS

Variable	% victims to whom information was provided (N)
Officer's attitude	
important	23.1 (52)
not important	11.0 (753)
Officer's estimation of likelihood of future burglary	
very likely	16.2 (142)
somewhat likely	17.1 (245)
not at all likely	13.3 (45)
Officer's estimation of likelihood of future robbery	
very likely	0.0 (6)
somewhat likely	0.0 (4)
not at all likely	0.0 (8)
Officer's estimation of likelihood of future vandalism	
very likely	23.8 (63)
somewhat likely	6.5 (46)
not at all likely	5.3 (19)
Workload: Time expected on dispatches per shift	
0-30 minutes	10.9 (128)
30-60 minutes	17.1 (164)
60-90 minutes	13.3 (196)
90-120 minutes	11.3 (133)
over-120 minutes	6.0 (183)

TABLE 2 (cont.)

Variable	% of victims to whom information was provided (N)
Time remaining in shift	
0-30 minutes	26.7 (15)
30-60 minutes	7.3 (41)
60-120 minutes	11.9 (84)
120-240 minutes	11.3 (213)
over 240 minutes	12.0 (452)
Other officers present	
none	14.8 (480)
2-4	8.1 (284)
5 or more	2.4 (41)
Victim's demeanor	
cooperative	11.9 (792)
uncooperative	7.7 (13)
Victim's condition	
incapacitated	10.6 (113)
not incapacitated	12.0 (692)
Suspect	
present	7.0 (142)
not present	12.8 (663)
Victim's request	
information requested	17.9 (95)
information not requested	11.0 (710)
Supervisory attitude	
important	11.0 (282)
not important	12.2 (523)

The effect of the victim's demeanor is not nearly as significant as we expected. Uncooperative behavior on the victim's part was rare; the small N qualifies any generalization. But we find it remarkable that a "rebellious" victim is offered crime prevention advice in any case. The emotional and physical condition of the victim has no appreciable effect on the dissemination of crime prevention information. It bears repeating that our indicator of the victim's condition is crude; many victims may not be so incapacitated as we assume. The presence of a suspect appears to have some impact on the likelihood that the officer will offer crime prevention guidance, but again the magnitude of the relationship is not large. Victims' requests for information seem to prompt officers to provide it; the magnitude of the effect would no doubt be greater if requests for information included only those for crime prevention information specifically.

Finally, the attitude of supervisors toward the dissemination of crime prevention information appears to have a negligible impact on officers' behavior. This result tends to confirm the autonomy of stret-level bureaucrats, and their ability to ignore organizational mandates. Alternatively, it may be that the dissemination of crime prevention information is sufficiently stressed by none of the departments in our sample to influence officers' behavior. Still another explanation is that our operationalization of supervisors' expectations may be faulty.

D. The Model

One way to assess the independent effect of each of the hypothesized influences would be to estimate the parameters of a multiple regression model. With our dichotomous variable, each of the regression coefficients would be interpretable as the change in the probability that an officer will disseminate crime prevention information given a unit change in one independent variable, ceteris paribus.

A regression model, however, may not be appropriate.[1] In a study of decision-making in Congress, Kingdon points out that "If legislators were to make decisions in a fashion analogous to regression, they would be required to weight each potential influence and to consider simultaneously the entire set of weighted influences. Given the severe time constraints on decisions, and perhaps a general tendency for human beings to avoid thinking in such a simultaneous weighting fashion, this mode would not seem to be a plausible model of decisional processes" (1977:592). Typically, some decisional criteria take precedence; considerations of others is contingent upon these prior factors. One advantage of process models vis a vis mathematical models is their capacity to incorporate first-, second-, or higher-order interactions (see Crecine, 1969:27).

Our model, therefore, is in the form of a computer program (see Figure 1). Each element of the model corresponds to one of the hypothesized influences. All but one of the factors have a conditional effect, i.e., they influence the outcome only under certain circumstances. For example, the presence of other officers is postulated to influence the dissemination of crime prevention information only when (1) the victim is not incapacitated and (2) there is a suspect present. Based upon the evaluation of the model's elements, in the specified sequence, we predict an outcome: either the officer offered crime prevention information to the victim or he did not.[2] We will then, in a summary fashion, compare our predicted outcomes with the actual outcomes, and express the model's explanatory power in terms of the percent of outcomes correctly predicted. We will also evaluate the contribution of each element to the model's predictive accuracy.

E. Results

The model correctly predicts the outcome in 78.5 percent of the cases. Compared with one standard --predictions based on the marginal distributions--the model performs rather poorly. Greater predictive success would follow from the simple prediction that crime porevention information is never provided to crime victims. Because it is disseminated so rarely , this approach would work quite well --88 percent correct --if prediction alone is one's object. Such a "naive model," however, offers no insight into the nature of the process whereby crime prevention information is disseminated. And it is disseminated, albeit not very often.

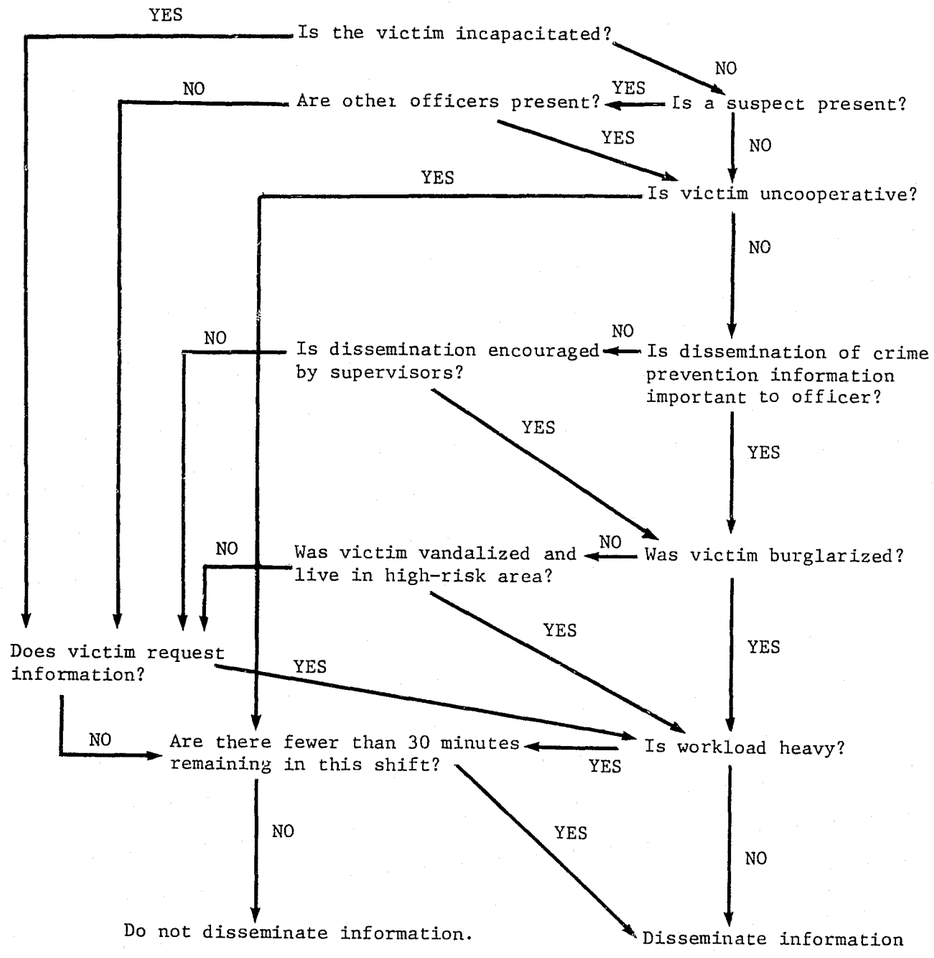
Unfortunately, the model reveals little if any more about the process than did the bivariate analyses. Our model implicitly postulates that each factor, except the victim's condition, has a conditional effect, but the magnitude of the conditional effect was seldom greater than the simple, direct effect. We note that, in the absence of theoretical propositions concerning the priority of these factors, we were guided by common sense. Numerous alternative specifications were tested; none provided appreciably better empirical results.

Table 3 reports the number of cases that flowed through each path in Figure 1, and the proportion which in fact received crime prevention information. For example, 653 victims were neither incapacitated nor uncooperative and in their encounters with the observed officers either no suspect was present or, if there was, other officers were also at the scene. It is only under such circumstances, according to the model, that the officer's attitude toward the dissemination of crime prevention information is relevant to the outcome. Of the 653 victims, 38 were served by an officer who thought crime prevention

[1]The estimation of the model's parameters, it might be noted, is fraught with difficulties, because of the binary nature of the dependent variable. See Hanushek and Jackson (1977: ch. 7).

[2]The model is not as deterministic as Figure 1 would make it appear. We include what might be thought of as an "error term"; the model predicts dissemination to the same proportion of victims that actually received crime prevention information, given that (1) the officer's workload was not heavy, or (2) fewer than thirty minutes remained in the shift, as the case may be. For example, crime prevention information was provided by officers whose workload was not heavy to 13.4 percent of crime victims. So, of the 195 cases that fall to that juncture in the model, 13.4 percent (randomly chosen) are predicted to receive instruction in crime prevention.

FIGURE 1. A MODEL OF OFFICER DECISION-MAKING ABOUT DISSEMINATING CRIME PREVENTION INFORMATION



information was an important activity, 18.4 percent of whom were actually offered this service. Most of the 653 victims, however, encountered an officer who did not believe dissemination important, and indeed a smaller proportion of these victims, 11.7 percent, received crime prevention information.

TABLE 3

Variable	% of victims to whom information was provided (N)
Officer's attitude	
important	18.4 (38)
not important	11.7 (615)
Type/risk of victimization	
burglary	15.3 (131)
Vandalism/high risk	17.4 (23)
other	2.4 (82)
Workload	
heavy	7.9 (38)
not heavy	15.9 (195)
Time remaining in shift	
less than thirty minutes	30.8 (13)
thirty or more minutes	10.1 (597)
Other officers	
none	9.4 (32)
one or more	1.5 (65)
Victim's demeanor	
cooperative	12.1 (653)
uncooperative	14.3 (7)

TABLE 3 (cont.)

Variable	% of victims to whom information was provided (N)
Victim's condition	
incapacitated	10.6 (113)
not incapacitated	12.0 (692)
Suspect	
present	4.1 (97)
not present	13.3 (595)
Victim's request	
information requested	12.7 (79)
information not requested	10.6 (565)
Supervisory attitude	
important	9.6 (198)
not important	12.7 (417)

But the magnitude of the relationship was greater in the bivariate case (see Table 2). This is true for most of the other factors as well.

Some of the model's elements not only fail to contribute to its predictive accuracy but detract from it. Generally, movement from right to left in Figure 1 makes it less likely that the model will predict that crime prevention information is disseminated. When, for example, the victim is incapacitated, or when a suspect but no other officers are present at the encounter, the model predicts dissemination only if (1) the victim explicitly requests it, or (2) the encounter began in the last thirty minutes of the shift. Table 3 clearly shows that several elements --the victim's condition, the presence of other officers, and supervisory attitudes --channel to the left many victims who in fact received crime prevention information; the latter two move larger proportions of victims who actually received information to the left than to the right. Eliminating these elements from the model (as well as the victim's demeanor, the contribution of which is negligible) improves its predictive accuracy, but only slightly. This more parsimonious model performs better, to be sure, but still not well.

F. Conclusions

We began with the theory of street-level bureaucracy, which emphasizes the autonomy of street-level bureaucrats such as patrol officers, and the devices by which they manage occupational stresses. We deduced from that theory several hypotheses about the dissemination of crime prevention information by patrol officers in their encounters with crime victims, incorporating these hypotheses into a computer simulation of the officers' decision making process. We tested the model empirically with data obtained through (1) a questionnaire, and (2) observation. In our judgment, the model does not "fit" these data well.

Three explanations for the model's poor performance occur to us. The first is that the model is misspecified, i.e., one or more important factors have been omitted, or the sequence in which they are evaluated is incorrect. That the model is misspecified is certainly possible. But we find other possible explanations more compelling.

A second explanation is that our operationalizations do not allow us to fairly assess the model empirically. Many of our indicators --of the victim's condition, officers' attitudes, and supervisors' attitudes, to name a few -- are crude indeed. Data which might permit more precise measurement of these variables might show that the model has considerable predictive and explanatory power. On the other hand, analysis of such data might offer further evidence for a third explanation: the dissemination of crime prevention information is not a predictable behavior.

A simulation model consists of a series of decision rules; information is processed and a decision is made. Decision-rules are typically developed to simplify decision-making. Because decisions are made time and time again, the decision maker routinizes the process, relying on the same relatively small set of criteria each time, rather than approaching the task de novo. But if our data are representative, the dissemination of crime prevention information is not a routine activity; quite the contrary, it is infrequently done. We are led to conclude that the dissemination of crime prevention information is something of a random activity, which is to say that it is influenced by a host of idiosyncratic factors. If so, then it is a behavior that is not amenable to modeling.

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PART II. MODELING THE SOCIAL IMPACTS OF POLICE ACTIVITIES

CHAPTER 8. SURVEYING CLIENTS TO ASSESS POLICE PERFORMANCE: FOCUSING ON THE POLICE-CITIZEN ENCOUNTER

Stephen Mastrofski[1]

Disaffection with police-supplied data and the emergence of a consumer perspective have contributed to the burgeoning of public surveys to ascertain citizens' experiences with crime and their assessments of police performance. The federal government has institutionalized this strategy in the massive National Crime Survey. Many state and local governments now conduct periodic citizen surveys to evaluate police programs. Increased practical applications of survey research to program evaluation have produced a small but growing body of critical literature. This article responds to the criticism that survey-based evaluations of police performance often lack the focus required to inform policy decisions. I argue that greater focus is needed and that a citizen's encounter with the police is an appropriate event to provide such focus, provided that we sufficiently differentiate participants' roles and problems.

A. Unfocused Survey Evaluations

Critics of survey research for human services evaluation have suggested a number of difficulties in asking clients to describe their perceptions and evaluations of service delivery. Questions are too general or abstract and response categories too limited to tell evaluators what was done right and what was done wrong (White and Menke, 1978; Stipak, 1980). The definition of the service is so vague that we cannot be sure that it has relevance to anything beyond the institution in a general sense: "Would you say, in general that your local police are doing a good job, an average job, or a poor job?" (National Crime Survey item). One might wonder, which police officers and which job? Similar problems occur with general perception questions, such as "Do you think the police get along better, worse, or about the same with the people who live in this neighborhood as they do with people in other neighborhoods in [the city]?" (Reiss, 1967:24a).[2] Again, which police? What does "get along" mean? Which are the "other neighborhoods"? We cannot tell whether responses are based upon personal experience with police, accounts of acquaintances, presentations by the news or entertainment media, or are the product of some long-held disposition.

Several critics have suggested that general or abstractly worded questions may be responsible for high levels of positive evaluation found in many human services surveys (White and Menke, 1978; Gutek, 1978; Nelson, 1980). White and Menke provide evidence that general survey questions produce positive responses much more frequently than do specific questions asked of

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[1]A version of this chapter was published in Evaluation Review 5 (June 1981), pp. 397-408.

[2]See White and Menke (1978) for an extended critique of this and other survey items.

the same respondent (General Item: "Most police are competent in their work." Specific Item: "Police are careful not to arrest innocent persons" 1978:217). This may not be a validity problem, but one of confusing diffuse support for police as an institution with perceptions of specific police agency characteristics or activities. No doubt more specific wording could improve the face validity of the questions for program evaluation, but that alone does not provide the strongest base for assessing the respondents' assessments. The analyst needs to know the perceptual scope of the respondent's evaluation, and one way to obtain this is to ask the respondent about his first-hand experiences with the department.

Most of the services, and virtually all of the human services provided by police, are delivered in specific encounters between field personnel (street-level bureaucrats, such as police officers, telephone operators, accident investigators) and citizens. Survey research which focuses on the clients' perceptions and evaluations of specific encounters can provide more comprehensive, accurate, and interpretable data about the quality of police performance in these encounters than can survey research that asks citizens to render evaluations of all past encounters or impressions of entire programs or routine operations. The researcher can obtain detailed information from the client about the nature of the service provided to him or her. Client reactions to specific police activities and the entire encounter are relevant. Client expectations and alternative methods to problem solving available to the client may be ascertained. The importance of the encounter to the respondent can also be asked. Although one always faces problems of respondent reliability and bias, linking performance to a specific encounter offers greater focus for dependent and control variables. Thus, asking about specific encounters also permits easier external validation with other sources (e.g., agency records, other participants, police officers; Bush and Gordon, 1978).

Surveying citizens on their specific contacts with police is not new, but there are several ways that such surveys can be improved for performance evaluation. Survey evaluations of a given program or activity often focus on only one kind of client or fail to distinguish among several types of clients who are interviewed (except for personal characteristics). The clientele of a given police encounter needs to be defined more broadly to include all the participants in the encounter (e.g., victims, suspects, witnesses, and service recipients). These client roles should be differentiated in the analysis and evaluation, however. The problem context of each encounter must also be distinguished to ensure the comparability of the specific services being evaluated.

B. Defining and Distinguishing the Police Clientele in Citizen Encounters

Defining the population of clients pertinent to police encounters is not easy. Most welfare, education, corrections, and health services are rendered through programs that identify clients and link them to organizations and individual agents on a recurring and rather predictable basis. Most citizen encounters with police are not programmatic; they are episodic and unplanned. Client roles are subject to change from one encounter to the next, and even within the same encounter. This instability creates problems for the survey

researcher as well as the policeman.

Unless he is well-acquainted with a citizen, a police officer relies upon stereotypes to determine client status. Van Maanen offers a typology from the officer's perspective:

> (1) "suspicious persons" -- those whom the police have reason to believe may have committed a serious offense; (2) "assholes" -- those who do not accept the police definition of the situation; and (3) "know nothings" -- those who are not either of the first two categories but are not police and therefore, according to the police, cannot know what the police are about [1978:223].

Police feel entitled to stop and interrogate a suspicious person, offering him a brisk but professional demeanor unless his suspicions are confirmed or a suspect becomes an asshole. The asshole, in the eyes of the officer, commits stupid or irrational acts which do not conform to the officer's view of the situation at hand. The asshole challenges the officer's definition of the situation and confronts him. Because the asshole is treated as a subhuman aberration, he may be offered "street justice" instead of courtesy and respect. The know nothings are the clientele from the officer's perspective. Their naive, nonconfrontational, nonmanipulative behavior entitles them to professional police service: courteous, swift, attentive, and legal. More often than not, one of the citizen participants to the face-to-face street encounter has asked for police assistance (Reiss, 1971:26-120) and will be presumed a know nothing unless he or she subsequently acts like an asshole. Although the role assigned an individual may vary from one encounter to another, certain contexts or problems show a much greater likelihood than others for the stereotype chosen. Although the officer may see the suspicious person as entitled to certain rights, he defines the asshole as totally beyond the pale. The importance of the citizen's role to the officer emphasizes its importance to those who want to evaluate officers' performance.

Police differentiate clients. Evaluators of police studies should do so too, although police operating stereotypes need not be the bases of their typologies. The evaluator should begin by extending the client domain to any persons on whom the benefits could have been directly bestowed or withheld by police. Normally this would include only the participants in the encounter, although one might also include others who are immediately affected by police actions in the encounter -- even though they are not present.

An encounter itself may be defined as any significant communication between one or more citizens and a police officer. It could be verbal exchange, physical contact, or gestures. "Significant" verbal contact can be operationalized a number of ways. One study of police encounters considers police contact with citizens to qualify as significant if there are three or more verbal exchanges between the officer and citizen (Caldwell, 1978).

Most survey evaluations of police focus on only one kind of client, when actually many are often involved in an encounter. Attending to a crime victim's request for assistance often means that an officer will interview witnesses, bystanders, and suspects in addition to the victim. During the encounter someone may request a special service such as transportation,

referral, or information. A single police action in an encounter often has important implications for more than one citizen participant. For example, assisting an abused wife may require the removal of the husband -- either by force or persuasion. Witnesses and bystanders may also be affected by the treatment they receive during an encounter. Quite often the police spend more time with them than they do with complainants or suspects (who may not be present).

Treating suspects, witnesses, and involved bystanders as clients of police may seem unusual to some. Often, those who are involuntary participants in a program are called "clients" --with quotation marks --to indi-cate that they are clients in a different way than those who desire police intervention (Wilson, 1975:5). Actually, all participants are subject to police coercive authority, which can be used to assist or restrain. This aspect of policing permeates all citizen contacts with police officers. It is latent in some and quite manifest in others.

In a relationship heavily imbued with the coercive authority of the agent, this power sets the context of the benefits that can be bestowed or withheld. For example, a suspect may be quite displeased to receive the attentions of an officer, but he may also be eager for the officer to protect his constitutional rights and protect him from antagonists. Most witnesses have a vested interest in what the police do with the information they have, since they are frequently involved with other parties in the encounter. Some witnesses are potential suspects. Some witnesses may be disinterested parties to a crime, disturbance, or emergency, but they, too, have a personal interest in the officer's reaction to their testimony. Especially when testimony is volunteered, the witness may be concerned that the officer hear him out. Witnesses and involved bystanders who are unacquainted with other participants may well regard themselves as streetcorner jurors entitled to make judgments about the actions of citizen and police participants. Regardless of their role status in an encounter all are subject to the authority of the officer. They are sensitive to how he uses his authority on themselves and others --whether he is considerate, courteous, and effective. In effect, the participants of a police encounter comprise a social microcosm --a small theater in which the citizen-actors are also the audience. They may make judgments about police performance based upon their closehand participation in that encounter. "Client," then, is an apt description for all of the citizens involved, even though they may have markedly different needs and characteristics.

Clients, according to the roles described above, are distributed differently according to police unit or division. A major study of criminal investigators found that most of a detective's direct contact with the public involves interviewing witnesses and victims. Interrogation and arrest of suspects uses substantially less time (Greenwood et al., 1975:161; 164-165). Juvenile officers and special tactical operations units focus heavily upon suspected offenders and witnesses (Piliavin and Briar, 1964; Bordua and Tifft, 1971), although parents are involved in some programs. Citizen contacts with the patrol division are by far the most frequent, and patrol officers have by far the most diverse clientele.

Despite the great diversity in client roles, most survey research related to police has focused on victims of crime. There are notable exceptions, but

some of these do not clearly distinguish client roles and none systematically samples more than one participant per encounter.[3] Respondents in these projects were identified by agency records or direct observation. General population surveys --for a variety of cost and technical reasons --usually avoid distinguishing any but victims and occasionally those stopped by police.

Data provided by the Police Services Study (see Appendix A) indicate the extent to which a variety of client viewpoints can be distributed across several types of police encounters. Patrol officers were accompanied by observers for over 7,200 hours. They recorded data on 5,688 face-to-face encounters involving 10,747 direct citizen participants. Of these participants, 57 percent were involved in encounters where at least one other citizen participant was present during the encounter. More than one type of participant (victim, suspect, service recipient, witness, or other) were present in over one fourth of the encounters. Most of those on the scene of the encounter did not summon the police (63 percent). Only ten percent of the participants were victims of violent or nonviolent, predatory crime.

Observers were told to classify participants according to how they appeared at the beginning of the encounter. Victims were those who claimed to have been wronged by another. Suspects were persons who were identified by citizens or police participants as wrongdoers. Service recipients were those who desired or needed police assistance to deal with problems that did not appear to be connected with the wrongdoing of others. Witnesses/bystanders were those who posssessed information about the incident but were in none of the above categories and were not public servants responding to the incident. The "other" category was comprised mostly of nonpolice servants or people in the helping professions (e.g., physicians, social workers). Bystanders not directly involved with the above participants were excluded from analysis.

A citizen's role may be ambiguous, or it may change during the encounter. Occasionally several roles may apply simultaneously. Those reported here are the predominant roles as they initially appeared to the observers. Subsequent decisions by police to change the classification of an incident or participant are not included in this analysis. The documented probability that police will "unfound" a citizen's crime report is substantial (Maxifeld, 1979) -- even when the crime is alleged to be severe and personal, such as robbery (Block and Block, 1980:11). This suggests that these observer-based data overestimate the presence of officially designated victims and suspects.

Table 1 gives the breakdown of citizen participants according to the nature of the problem associated with each encounter (See Whitaker et al., 1982, for a detailed description of these problem categories). In each problem category, victims comprised less than one half of the participants. In all of the encounters only 26 percent of the participants were victims; 36 percent were suspects; 20 percent were witnesses or involved bystanders; 16 percent were nonvictim, complainant requesters of police service; and 2

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[3]See the following: Bordua and Tifft (1971), Kelling et al. (1974), Bloch and Anderson (1974:21-27), Schwartz and Clarren (1978); Allen (1978), and Antunes and Ostrom (1979)

TABLE 1. THE ROLE OF CITIZEN PARTICIPANTS IN POLICE ENCOUNTERS IN RESIDENTIAL AREAS ACCORDING TO TYPE OF ENCOUNTER PROBLEM

Type of Problem	Total Number of Citizens Involved	Citizen Participant Role %of Citizen Participants[a] Victim	Suspect	Service Recipient	Witness/ Bystander	Other
Violent Crime	600	35	21	9	32	3
Nonviolent Predatory Crime	1,861	48	15	6	30	2
Morals Crime	330	16	59	5	18	2
Suspicious Circumstance	1,154	15	60	8	16	2
Interpersonal Conflict	1,370	40	35	7	17	1
Nuisance	1,898	24	56	6	14	1
Dependent Person	636	18	20	38	21	4
Medical Problem	540	17	5	41	33	3
Other Assistance	954	19	12	45	21	3
Information Request Only	257	6	2	84	7	1
Information Provision Only	174	35	6	22	36	2
Traffic	2,330	22	54	6	16	1
Internal/Administrative	285	5	22	14	54	5
All Encounters	10,747[b]	26	36	16	20	2

SOURCE: Police Services Study Patrol Observations.

[a]Row percentages may not sum to 100 due to rounding error.

[b]The sum of the number of citizens in each problem category does not equal the total number of citizens in all encounters because some encounters involved more than one type of problem.

percent had some other role. These data imply that restricting attention to crime victims or any single-client group would obscure the survey researcher's understanding of who was getting what from patrol officers.

Different client roles can produce markedly different reactions to police in the encounter and in subsequent citizen evaluations. Reiss's observations of almost 14,000 police-citizen contacts indicates that although the predominant behavior between citizens and police is civil, uncivil actions and abuses are virtually all directed against suspected offenders. Suspected offenders also account for a disproportionate amount of the citizes' uncivil behavior toward police (Reiss, 1971:147).

Not surprisingly, experiences born of these role differences affect participants' evaluations of police performance. Bordua and Tifft (1971) found that clients subjected to officer-initiated enforcement (suspects) were much more likely to evaluate police lower than those who were involved in citizen-initiated encouters. Schwartz and Clarren (1978: 111-113) found significant differences in the evaluations of a sample of arrested respondents and service recipients. (The latter included crime complainants, disputants, and miscellaneous service recipients.) Respondents were asked if they had observed police in several different types of incidents in the last month (e.g., handling a drunk, investigating a crime, and so on). Those who had observed such incidents were asked to evaluate police performance on each.[4] The arrested sample consistently showed lower evaluations than the service sample. For some types of incidents the proportion of the service sample's positive evaluations was more than 25 percent above the arrested sample's. Evaluations of performance in individual incidents were positively correlated with the respondent's overall evaluation of police service.

These projects suggest that survey researchers can expect vastly different levels of satisfaction depending upon which client groups are chosen, either advertently or inadvertently. A balanced evaluation of encounters requires multiple respondents.

The nature of the problem confronting the police officer is also important. "Problem" refers to the reason for the police mobilization in the encounter. Bittner calls it "something-that-ought-to-be-happening-and-about-which-someone-had-better-do-something-now!" (1974:30). Goldstein (1979) emphasizes that the more specific the evaluator can be in describing the problem, the more powerful will be his analysis. General categories such as crime, order maintenance, traffic, and miscellaneous services are inadequate for much policy formulation. Those listed in Table 1 are more useful, but even finer distinctions can and should be made. For example, assault on a stranger places the victim in a very different context than assault on a close associate or relative. Where, when, and how it occurs are also significant (e.g., in public or private, time of day, type of weapon). The physical and emotional states of all participants are also critical. Police actions that are appropriate in some circumstances will be inappropriate in others.

[4]Unfortunately, the report did not indicate the respondents' own roles in their observed encounters.

Participants show a tendency to evaluate police differently according to the problem involved. Poister and McDavid (1978) find that the severity of the problem has a significant correlation with crime victim's satisfaction with police performance: the likelihood of a positive evaluation increases with the severity of the crime. They find this to be independent of police officer actions. Bordua and Tifft find in their sample of patrol contacts that clients in crime calls are twice as likely to be appreciative of police than those in disturbance calls (1971:169). Antunes and Ostrom find only a slight relationship between type of problem and citizen satisfaction, although they do not control for client role (1979:48). We lack systematic survey research on the interactive effects of client role and problem. Researchers might develop one or more problem severity indexes to be used with client role types.

C. Summary

Evaluations that use the client as informant on what police do and how well they do it can improve the usefulenss of survey research for program assessment by focusing on those aspects of service which the client observes directly, particularly those in which the respondent took part. The evaluator who uses this method must be careful to sample the complete range of police clients. Surveys often cover only those who request police intervention or who presumably desire police service (victims), but we have seen that this group typically constitutes only a small proportion of the people with whom police deal. Research has shown that the participants' evaluations of police actions in encounters are related to their roles in the encounters and the nature of the problem which occasioned the encounter. Failure to include and specify the complete range of clients associated with a program will likely produce biased conclusions about the program's benefits and costs.

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CHAPTER 9. COMPARING CITIZEN AND OBSERVER PERCEPTIONS OF POLICE-CITIZEN ENCOUNTERS

Roger B. Parks

The question of whether citizens can perceive accurately the public services they receive has become of significant interest in recent years. Surveys of the public on topics related to service delivery have become a regular part of the tool kit of evaluation researchers and others who would measure public agency performance. This usage is predicated upon often implicit assumptions that citizens can and do perceive accurately characteristics of the services they receive, that they can remember these characteristics, and that they can recall them for an interviewer when questioned at some later time. Yet none of these assumptions have such firm empirical support that they can be accepted without question. As Angrist nicely characterizes our present situation:

> There is an uncanny wishful thinking in the established practice of framing survey questions and hoping that respondents know about the topic and are equipped to answer. Despite our rigorous attempts to ensure that the question is clearly worded, suits the respondent's universe of discourse, and has universally known and understood referents, we may be wrong (1976:10).

While such a characterization points to potential difficulty with all uses of survey research, it would be particularly damning for research related to service delivery, as the intent of such surveys is often to provide information for policy making. If the information from surveys is not well grounded, there is a danger that subsequent policy making will be flawed.

My colleagues and I have used citizen surveys for the purpose of measuring and comparing police performance for a number of years.[1] We have arranged for the interviewing of citizens in nearly 20,000 households as a part of our studies. Our instruments have always been carefully designed and extensively pretested. We have felt confident that the replies we obtained with our questionnaires tapped real citizen perceptions of and experiences with local police services. But we may have been wrong.

This paper is one attempt to test some of the implicit assumptions that lie behind the use of citizen surveys for purposes of performance measurement. Data are presented which compare perceptions reported by trained observers to perceptions reported by citizens to trained interviewers, with both observers and citizens reporting on the same sequence of events. The particular foci

[1]These have included intensive studies of police service delivery in the metropolitan areas of Indianapolis, Chicago, St. Louis, Rochester, and Tampa-St. Petersburg, as well as broader though less detailed studies of police organization and performance in 85 and 200 SMSA samples. Representative reports of this research include Ostrom, et al., 1973; Ostrom and Parks, 1973; Ostrom and Whitaker, 1974; and Ostrom, Parks, and Whitaker, 1978a; 1978b.

are some 650 encounters between citizens and police officers. The data are drawn from an extens ve study of the performance of police agencies in three metropolitan areas. While not collected specifically for methodological purposes, this subset of the larger data set does allow close comparisons of observer and citizen perceptions to be made. These comparisons may contribute to our understanding of what can and cannot be obtained using interview techniques.

A. Previous Research On Interview Data Accuracy

Since at least the work of LaPierre (1934), the social science literature has contained warnings that people may not always behave in the real world as they would in interview situations. Their expressed attitudes, in other words, may not be good predictors of their actual behaviors. This discordance between "what we say" and "what we do" (Deutscher, 1973) is not, however, the topic here. Rather, the question is whether accurate reports of prior events of which they were an integral part can be obtained from individuals through the use of survey techniques. Are a person's reports of his or her experiences reliable and valid indicators of what "really" occurred?

In a sense this is an easier task than establishing linkages between attitudes and behaviors. There exists a conceptually more accessible benchmark for judging the reliability and validity of people's reports. But this benchmark, "what really happened," while conceptually accessible, may be practically difficult to delineate. One is forced, as in all measurement situations, to compare measurements taken with different instruments and from different perspectives and, then, to draw one's own conclusions about which indicators or combinations best reflect a no longer present reality.

In the literature bearing upon the reliability and validity of citizen reports, it has been most common to compare those reports to some officially maintained records. This was, for example, the model employed in the various "forward" and "reverse" records checks in the methodological literature of victimization studies.

In the reverse records checks, citizens who had made a report to the police of a victimization experience were contacted for an interview as a part of a standard victimization study (e.g., U.S. Department of Justice, 1972; Sparks, Genn, and Dodd, 1977). The interviewers were unaware that the citizens were known to have reported a victimization and the citizens were unaware that they had been selected for this reason.[2] Citizens' responses to the victimization interview schedule were compared with the information contained in the official police report of the particular incident and differences were noted.

[2]It is not clear in the study reported by Sparks, Genn, and Dodd whether interviewers did or did not know that their respondents came from a pool of known victims or were part of a randomly selected pool. I assume that interviewers were unaware of respondent status. See Sparks, Genn, and Dodd (1977).

In the forward records check procedure, citizens who reported a victimization in the course of a standard victimization survey, and who told the interviewer that they had made this victimization known to local police, had these reports checked against local police files, again with differences between these two sources noted (Schneider et al., 1978). A large forward records check was also conducted in the area of health service delivery (Andersen et al., 1979). In this case, "verification" data were obtained from doctors, clinics, hospitals, insurance firms, and employers, and then compared with the responses of individuals in a large scale survey of the use of health services.

In these validation studies, though to a greater or lesser extent, differences between citizen reports and the data culled from official records were taken to reflect citizen errors. Andersen et al., justify this by noting that measurement of response errors requires an operational measure of the "true answer," and suggest that "what doctors and hospitals report is closer to reality than what survey respondents report" (1979:xvi). Schneider et al. (1978), entertain the possibility that police records might be the source of mismatches between citizen and police reports at several points in their monograph, but the thrust of their summary and recommendations reads to me as if they believed citizens to be the primary source of errors. Sparks, Genn, and Dodd, and the author of the U.S. Department of Justice's reverse records check volume see differences in the data from citizens and official records as citizen reporting errors resulting from survey procedures or memory failures.

Having spent a good deal of research time attempting to wrestle with official records maintained by police agencies and other public service suppliers, I am more inclined toward evenhandedness in assessing the source of differences found between citizen and official reports. Offical reports, often prepared by the immediate service supplier and used in part to measure his or her performance, would seem to be clearly vulnerable to error. Many authors have commented on the inadequacy of self-reports of performance, both in policing and other areas (e.g., Peter and Hull, 1969; Hoffman, 1971; Seidman and Couzens, 1974; Etzioni, 1964). The fact that many police officers refer to activity and other reports as "lie sheets" is suggestive here.

Both citizen reports of their experiences and official records of those experiences are likely to contain errors. So too are other sources of information, such as the reports of observers of interactions between citizens and officials. The fact that virtually any source of data will contain some error suggests that we should use multiple measures of phenomena wherever possible. As Webb and his colleagues argued:

> the operational implications of the inevitable theoretical complexity of every measure . . . calls for multiple operationism, that is, for multiple measures which are hypothesized to share in the theoretically relevant components but have different patterns of irrelevant components (1966:3).

Neither those who use survey research extensively nor those who prefer to rely on official records should pretend that their preferred sources are without error or couldn't be improved with multiple operationism. Where multiple

indicators of the same phenomenon differ, one might learn a good deal about the phenomenon by trying to find an explanation for those differences, rather than attempting to select one indicator as the standard. With that in mind, I now turn to a comparison of multiple indicators of police actions in encounters with citizens.

B. Data Collection and Data Base

This chapter utilizes patrol observation and citizen debriefing data from the Police Services Study (see Appendix A). Data from the PSS encounter observation schedule and the debriefing interview schedule were merged for each encounter. The analysis set for this paper was restricted by excluding encounters where the debriefed citizens indicated they had been a third party (not a participant in the encounter), or where the observer indicated that he or she had not been able to fully observe because of staying in the patrol car or being asked to leave the scene by the observed officer. These exclusions left a total of 690 encounters for analysis.

C. Comparison of Perceptions of Problem Type

Observers recorded the nature of the problem as it was initially presented to the officer (via dispatch, on view, or by other means), as it appeared upon arrival at the scene, and as it appeared after the encounter had ended. Citizens were asked to describe what happened and their responses were coded using the same 237 category codes.[3] To capture the complexity of many incidents, citizens and observers were able to indicate more than a single problem code or category. The first problem recorded for each was intended to be the most "serious" or that indicating the main problem at hand, though this was frequently difficult to ascertain with confidence.

Citizens and observers agreed on the first problem coded in 63 percent of the 690 encounters. Of the 257 encounters where they disagreed on the first problem recorded, the discrepancy was erased by subsequent problem codes in all but two cases. Thus, overall agreement on what the encounter was about was obtained in virtually 100 percent of the encounters.

D. Comparison of Perceptions of Police Response Time

For encounters that were initiated via a radio dispatch of an officer, observers recorded the amount of time which elapsed between receipt of the dispatch and arrival at the scene of the encounter. Citizens were asked how many minutes it took the police to arrive for those encounters where the citizen had called the police to request service. These times are obviously not the same conceptually or practically. The observer recorded time cannot include delays that might have occurred at the police complaint desk or dispatch center. However, by allowing some reasonable bounds about the reported times to accomodate this difference in the object of interest, a comparison can be made.

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[3]See Whitaker et al. (1982) for a description of these codes.

Citizens and observers agreed on police response times for 359 of 435 encounters (83 percent) when bounds of fifteen minutes were used to define agreement. This bound was chosen to allow comparison with Schneider's Portland findings where the comparable agreement percentage was 48 (75 of 155 encounters). (See Schneider et al., 1978:63.) One reason for the higher agreement in our study may be that observers recorded arrival time as the time at which the officer physically arrived at the scene of the encounter with a citizen. This could include the time required to locate a citizen with whom an encounter could be initiated. As the citizen probably measures response time from when he called to when an officer contacts him, this is more congruent with our observers recording than it would be with typical police recording. Officers report arrival at a dispatched location when they reach the address to which they have been sent or, often, prior to actual arrival at that address. One might further speculate that our observers felt few incentives to record a quicker response time than had actually occurred, while Portland officers might have felt some positive incentives to show a quick response.

Putting tighter bounds on time discrepancies, a lower percentage of agreement results. In 47 percent of the encounters, citizens and observers reported response times within five minutes of each other. In another 29 percent of the encounters citizens reported times that were from five to fifteen minutes longer than those reported by observers. A further eleven percent had discrepancies from fifteen to 30 minutes with citizens reporting the longer times. If one adds these together, assuming that many of the discrepencies here were attributable to operator and dispatcher delays, one could argue that citizen and observer reports of police response time were not inconsistent in some 87 percent of the encounters.

Schneider examined the correlates of discrepancies in reporting between citizens and official reports, looking at such factors as time lag from incident to interview; seriousness of event; age, sex, race, and education of the survey respondent; and the respondent's attitude toward the police. None of these factors showed a significant correlation with discrepancies in response time reporting in her data (1978:66), though there appeared to be a slight tendency for those citizens with unfavorable attitudes toward the police to report longer response times in their experiences. This same tendency is found in our data. The Pearson product moment correlation (r) between citizens' ratings of the police service in their neighborhood and the amount by which their report of response time exceeded that of observers was -.13. Other significant correlations with this discrepancy measure include citizens' perceptions of the trend of crime in their neighborhood (r = .09), and citizen's race (r = -.11, coded 0 for nonwhite and 1 for white) and income (r = -.09). That is, there was a weak tendency for those who perceived crime to be increasing in their neighborhoods to report longer police response times, while whites and higher income citizens tended to report times closer to those recorded by observers than did nonwhites and lower income persons. The overall level of agreement was sufficiently high, however, as to suggest that these tendencies have little effect on the accuracy of citizen reports of police response time.

E. Comparison of Perceptions of Officer Actions

Observers coded whether officers present at an encounter had taken any of 67 different actions ranging from drawing or firing their weapons to comforting or reassuring a citizen participant. Citizen participants who were debriefed were questioned about actions taken by police officers during the encounter. Depending upon the type of incident, citizens were questioned about as many as twenty distinct actions which officers could have taken.

Table 1 presents data on the agreement of observers and citizens as to police officer actions in victimization incidents.[4] Their agreement is fairly high, ranging upward from about 70 percent for most actions. Where there is disagreement, citizens were for the most part more likely to credit police officers with taking an action than were observers. The only disagreement where observers reported more action than citizens was that of asking citizens for crime related information.

Table 2 presents similar agreement data for incidents involving assistance to citizens and disturbance incidents. The percentage agreement is generally high here also, though not as high as for victimization incidents on several actions. The general trend of the discrepancies here, as for victimization, is for citizens to indicate more actions than did observers.

Beyond simply cataloguing agreements and disagreements between citizens and observers, it may be useful to explore some possible explanations for the discrepancies found. Explanations might be derived from the characteristics of the citizens. Do young people agree with observers more than do old, or women more than men? Or explanations might be sought in citizens attitudes. Do those who favor the police agree with observers more than those who do not? Finally, explanations can be sought in the characteristics of encounters. Do citizens and observers agree more in simple incidents than more serious or complex ones? Does the number of officers present make a difference? Fully exploring these sorts of explanations would require a sophisticated multivariate analysis and more space than is available here. Some simple bivariate explanations of these explanations can be offered, however.

Table 3 presents data to examine the effect of situational factors on the discrepancies between citizen and observer reports of police actions. The discrepancies are coded such that a positive discrepancy is a case where a citizen reported seeing more activity than did the observer. The situational variables examined for their effects are the number of citizens involved in the encounter, the number of police officers involved, and the number of times that the location of the encounter changed during its course (e.g., from a front porch to an inside room, then back outside and, perhaps, to the police station). These factors were chosen as ones which could well lead to confusion or misperception for citizens and observers.

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[4]Interviewers asked citizens about actions which seemed appropriate to the problem posed in the encounter. If no one was injured or sick, for example, questions about medical assistance were not asked. The actions displayed in Table 1 are those about which a large number of debriefed victims were asked.

Table 1. PERCEPTION COMPARISONS FOR POLICE OFFICER ACTIONS IN VICTIMIZATION INCIDENTS

Officer Action	Number of Encounters[a] Where Citizens and Observer:					
	Agree Action Occurred	Agree No Action	Disagree Citz-Yes Obs.-No	Disagree Citz-No Obs.-Yes	Citizen[b] Didn't Know or Refused	Percentage Agreement
Question citizens for crime related information	197	9	25	56	2	72
Completed an official report	178	17	65	9	20	72
Searched or looked around area	100	68	53	29	16	67
Gave citizens crime prevention information	16	117	47	11	8	70
Comforted or reassured citizen(s)	26	99	80	13	4	57
Took someone to police station	2	58	14	0	10	81
Arrested someone at the scene	7	102	10	1	12	91
Frisked or searched someone	2	14	4	1	9	76
Shouted at someone	1	64	2	0	4	97
Handcuffed someone	7	12	5	0	2	79

[a]Total number of encounters varies by officer action as interviewers adjusted questionnaire to encounter circumstances.

[b]Don't know and refused answers not included in percentage calculations.

Table 2. PERCEPTION COMPARISONS FOR POLICE OFFICER ACTIONS IN ASSISTANCE AND DISTURBANCE INCIDENTS

Officer Action	Number of Encounters[a] Where Citizens and Observer:					
	Agree Action Occurred	Agree No Action	Disagree Citz-Yes Obs.-No	Disagree Citz-No Obs.-Yes	Citizen[b] Didn't Know or Refused	Percentage Agreement
Completed an official report	67	94	77	21	52	62
Searched or looked around area	41	85	56	16	14	64
Comforted or reassured citizen(s)	31	63	90	14	3	47
Took someone to police station	4	60	6	0	8	91
Arrested someone at the scene	3	66	2	2	12	94
Called an ambulance or doctor	4	48	4	1	1	91
Took someone to doctor or hospital	0	28	2	0	1	93
Gave first aid	2	34	1	0	0	97
Gave other assistance	3	73	17	2	4	80
Settled an argument	8	36	15	5	2	68
Talked someone into leaving scene	10	40	13	4	9	75

[a]Total number of encounters varies by officer action as interviewers adjusted questionnaire to encounter circumstances.

[b]Don't know and refused answers not included in percentage calculations.

Table 3. SITUATIONAL CORRELATES OF DISCREPANCIES[a] BETWEEN CITIZEN AND OBSERVER REPORTS OF POLICE ACTIONS

Officer Action	Victimization Incidents			Assistance and Disturbance Incidents		
	Number of Citizens	Number of Police	Number of Scene Changes	Number of Citizens	Number of Police	Number of Scene Changes
Question citizens about crime	$-.12^{+b}$	$-.14^{+}$	-.06	-----	-----	-----
Completed official report	$-.12^{+}$	-.01	$-.12^{+}$	-.03	.03	-.01
Searched or looked around area	-.01	.02	.02	-.07	.03	.02
Gave crime prevention information	$.16^{+}$	.07	.06	.03	.02	-.04
Comforted or reassured someone	.04	-.00	-.05	-.09	-.00	-.11
Arrested someone at the scene	-.00	.08	-.06	-.00	-.05	-.12
Called ambulance or doctor	--	--	--	.18	$-.24^{+}$	-.02
Gave other assistance	--	--	--	-.05	-.05	.05
Settled argument	--	--	--	.08	.12	.16
Talked someone into leaving scene	--	--	--	.06	-.13	.16

[a]Discrepancies are coded so positive represents citizens reporting more than observers.

[b]Pearson product moment correlation (r) with situational variable.

$^{+}$ $\rho < .05$ $^{++}$ $p < .01$

These data show, for example, that as the number of citizens or police officers involved in an encounter increased, observers were more likely to report that citizens were questioned about the crime than were citizens. This may be a result of the fact that our observers were generally able to circulate more freely at encounters than were citizens. Thus, they may have been in a position to see more questioning, which is often done in isolation from other citizens.

The data with respect to official reports is also consistent with an explanation that observers may have seen more of the whole encounter than our citizen respondents. As the number of citizens present increased, any given citizens' likelihood of seeing officers complete a report probably decreased. This decrease in likelihood is also probable for encounters with several scene changes. Citizens did not always move from scene to scene wi h the officers, while observers usually did. The relationship between the discrepancy over calling an ambulance or doctor and number of police is consistent with an observer advantage, too. Citizens did not have ready access to police radio channels to know that an officer had requested an ambulance or doctor, while observers had this access.

None of the coefficients in Table 3 are so strong as to claim that these situational variables provide the explanation f discrepancies between citizens and observers. It has been argued that most of the statistically significant coefficients are consistent with an explanation that observers were in a position to see more of many encounters than were citizens. The consistency is weak, however, and this hypothetical explanation requires substantially more multivariate exploration before too much faith in it would be warranted.

Table 4 presents data to explore citizen characteristics and attitudinal correlates of citizen-observer discrepancies. There is no clear pattern of relationships with respect to citizen characteristics other than a slight tendency for respondents reporting higher incomes to also report more police activity than citizens with lower incomes. There is a bit more patterning in the attitudinal correlates, showing, similar to the findings of Schneider (1978:67), that those citizens who had positive attitudes towar the police were likely to report police activity exceeding that recorded by observers to a greater extent than citizens with less favorable attitudes. Thus, citizen rating of the quality of police service provided to their neighborhood is positively correlated with several indicators of citizen-observer discrepancies, while citizen perception of the trend of crime in their neighborhood is negatively correlated. It may be, as Schneider argued, that citizens' favorable (unfavorable) attitudes toward the police influenced their perceptions of whether the police did a good (bad) job in their particular encounter, at least as measured by whether the police engaged in a number of activities aimed at solving their problem. This explanation, too, requires further multivariate exploration to warrant additional confidence.

F. Summary and Conclusions

The analyses presented here have explored the extent of agreement between citizen participants and trained observers when reporting about the same incident, an encounter between police and citizens. Raw comparisons of citizen

Table 4. CITIZEN CHARACTERISTIC AND ATTITUDINAL CORRELATES OF DISCREPANCIES[a] BETWEEN CITIZENS AND OBSERVERS OVER POLICE ACTIONS

Officer Action	Victimization Incidents						Assistance and Disturbance Incidents					
	Age	Race	Sex	Income	Rating	Crime Trend	Age	Race	Sex	Income	Rating	Crime Trend
Question citizens about crime	.02[b]	-.01	-.04	-.04	-.06	.08	--	--	--	--	--	--
Completed official report	.03	-.12+	-.01	.00	.00	.08	.04	.03	.00	.12^{+}	.12^{+}	-.07
Searched or looked around area	-.02	.02	-.09	-.09	.08	-.24^{++}	.11	-.00	-.08	-.03	.14^{+}	.02
Gave crime prevention information	.04	.02	-.07	-.07	-.03	-.03	.11	-.03	.14^{+}	.02	.20^{++}	-.16^{+}
Comforted or reassured citizen(s)	.10	.09	.04	.04	.14^{+}	-.21^{++}	-.03	.07	.06	.23^{++}	.21++	-.12
Arrested someone at the scene	-.03	.01	.18^{+}	.22^{+}	-.03	.11	-.03	.05	-.12	0	.06	0
Called ambulance or doctor	--	--	--	--	--	--	.00	.26^{+}	-.09	.24^{+}	-.10	.26^{+}
Gave other assistance	--	--	--	--	--	--	-.03	.06	.09	.20^{+}	.06	-.25^{+}
Settled argument	--	--	--	--	--	--	.07	.01	-.03	.10	.12	.38^{++}
Talked someone into leaving scene	--	--	--	--	--	--	-.04	.25^{+}	-.01	.19	-.05	.24^{+}

[a]Discrepancies are coded so positive represents citizens reporting more than observers.

[b]Pearson product moment correlation (r) with citizen characteristic or attitude.

$^{+}$ $p < .05$ $^{++}$ $p < .01$

and observer reports showed a relatively high level of agreement, though a level which varied according to the particular aspect of the encounter examined. Citizens were quite consistent with observers in their reports of the nature of the problem at hand, and also consistent with respect to the time required for police response, given an allowance for the conceptual and practical difference between what observers were able to record and what citizens would have perceived. There was also a relatively high level of agreement over what officers did in these encounters, ranging generally upwards of 70 pecent in victimization incidents and only slightly lower in assistance and disturbances.

The levels of agreement found give some measure of comfort to those of us who have relied on citizen reports of their experiences with crime and the police as partial indicat rs of police performance If one took a charitable view that one third of the discrepancies were attributable to the observer and two thirds to citizens, one could conclude that citizen reports were accurate in 80 percent or more of the encounters. This is quite an acceptable degree of accuracy given the relative cost of interviewing citizens as compared with direct observation of police officers.[5]

The analyses also examined some of the situational, attitudinal, and citizen characteristic correlates of discrepancies between what observers record and what citizens reported to our interviewers. There was an indication of higher discrepancies in more complex encounters, those involving more citizens, more officers, or more changes of scene. It is possible that observers were frequently in a better position to follow these encounters than were citizens. This would suggest not using citizen reports in such cases or, perhaps, attempting to get reports from multiple citizen participants in complex incidents.

There was not much patterning of discrepancies with citizen characteristics, but some with citizen attitudes. If one uses the observer report as a basis for comparison, we find, like Schneider, that those who are favorable toward the police and the overall job they are doing see more police activities and faster police response than do those with less favorable attitudes. The tendency, while not overly strong, should temper one's reliance on citizen reports, particularly among populations that are deeply split on their attitudes toward police. What might appear to be a significan: treatment difference could be an artifact or pre-existing difference in attitudes.

As noted, neither the situational nor the attitudinal correlates of citizen-observer discrepancies are very strong. Further multivariate analyses

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[5]Our experience in the Police Services Study suggests about a four to one cost advantage for a completed interview schedule over a completed observation schedule, based upon the relative time required to acquire the data and complete each. This advantage for the interview results principally from the ability of an interviewer to complete a number of interviews sequentially, while an observer must wait for encounters to occur at random. In many research efforts, though no in ours, it might be necessary to recruit observers from a somewhat higher paid pool than interviewers, thus exacerbating the cost differential.

of these data will be required to be sure that there are not particular configurations of factors that contribute to large discrepancies. At this point, however, I am willing to argue that citizen reports of their recent experiences with police are sufficiently accurate to make them a valuable component in a performance measurement program. As with all such components, additional measures that do not share sources of error with citizen reports should be collected also. But this dictum applies to all measures and does not imply that citizen reports are somehow less accurate than reports from other sources.

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CHAPTER 10. CITIZEN SURVEYS FOR POLICE PERFORMANCE ASSESSMENTS: SOME ISSUES IN THEIR USE

Roger B. Parks[1]

The use of survey techniques to study crime and the police has become ubiquitous in the past fifteen years. Surveys have been used extensively to measure the occurrence and distribution of crime. They have been used to measure citizens' fear of crime and their reactions to fear, including investments in self-protection and collective security arrangements. Surveys have been used to obtain independent audits of police behaviors in response to reports of victimization, requests for assistance, or in other contacts between police officers and citizens. Further, surveys have been used to obtain a wide range of measures of citizens' perceptions and evaluations of police activities and performance. Over the past ten years my colleagues and I have participated in this use of surveys, arranging for interviews with individuals in some 20,000 households. We have used the data from these interviews to assess and compare police performance across more than 60 police jurisdictions and in five metropolitan areas.[2]

In our work we used data from citizen surveys to estimate values which were in turn used to construct performance indicators. We employed multiple indicators reflecting citizens' experiences with police when victimized, assisted, or stopped. We also used multiple indicators based on citizens' perceptions of the police and police activities and citizens' overall evaluations of their local police. We felt that it was valid to compare these performance indicators across police jurisdictions and from area to area within individual jurisdictions. Where we found differences in the survey-based performance indicators, and where we had controlled and adjusted for other differences which might affect the performance indicators, we argued that the remaining differences measured by the indicators were valid reflections of performance differences among the agencies or across sub-areas. It seemed most reasonable to use citizen-based performance indicators, usually in conjunction with other indicators, to measure interjurisdictional and intrajurisdictional variations in police performance. But, is this reasonable?

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[2]These have included intensive studies of police service delivery in the metropolitan areas of Indianapolis, Chicago, St. Louis, Rochester, and Tampa-St. Petersburg as well as broader though less detailed studies of police organization and performance in 85 and 200 SMSA samples. Representative reports of this research include Ostrom, et al., 1973; Ostrom and Parks, 1973; Ostrom and Whitaker, 1974; and Ostrom, Parks, and Whitaker, 1978a, 1978b.

Questions have been raised in recent literature that suggest the need for caution when using survey responses to construct performance indicators for comparison purposes. In the most direct attack, Stipak (1979) referred to comparisons of satisfaction from one area to another as a "potential misuse as a performance indicator" (46). Stipak presented data showing that citizens' reported satisfactions with police services and with parks and recreation services in the Los Angeles area were only weakly related to "objective" measures of those services, primarily a set of input measures. Adding to these findings the hypothesis that" . . . citizens pay little attention to services and fail to perceive differences in service quality . . ."(1979: 48), he argued that comparative performance assessments based on reported satisfactions or evaluations of service are generally" . . . invalid and potentially misleading" (1979:46).

Angrist (1976) presented a number of questions that merit investigation before "subjective social indicators," such as citizen perceptions or evaluations of service delivery, are used for public policy purposes. We need to know, for example, whether citizens are sufficiently knowledgeable about services to judge performance. We also need to know whether direct experiences with service delivery affect citizens' perceptions. And, we need to know how best to measure citizens' perceptions (1976:9).

Confronting and overcoming the questions raised about the validity of surveys for performance assessment purposes requires more than wishful thinking. We must be able to put forward evidence that citizens' accounts of experiences are reasonably accurate, that they can and do perceive service activities and service levels and can report their perceptions with reasonable accuracy, and t at they can aggregate their experiences and perceptions so as to give meaningful summary evaluations. The evidence on these points is not as well developed as one would expect, given the ubiquity of surveys. What evidence there is suggests that there are varying levels of validity to be obtained.

Kelling, Wycoff, and Pate (1980) also challenge the use of survey data for comparison purposes. They argue, like Stipak, that citizens are generally unaware of police practices. They also point out, quite rightly, that a sample of residential households cannot include a large number of persons whose attitudes may be equally important as the attitudes of residents. These nonresidents include those who work in an area and those who simply pass through. Further, they note that residents may well be satisfied when police take actions that are viewed very unfavorably by nonresidents, e.g., harassing unwanted visitors or unfairly discriminating against outsiders in traffic enforcement. They point to the difficulty of interpreting satisfaction measures in the latter instances.

These critiques and questionings need some reply. While one can pose counter arguments to many of them, the weight of empirical evidence does not fall clearly on one side.

A. "What Do Citizens Know, Anyway?"

Whether citizens can perceive police service delivery with any degree of

accuracy is the first question in any discussion of the use of surveys for performance assessments. Are experiences with crime and with police personnel sufficiently salient for citizens to remember them? Do citizens perceive other aspects of police activities where they are not in immediate contact with the police? Critics of the use of surveys would answer these questions in the negative.

1. Experiences and recall. There has been some research with respect to a part of the first question. Validation studies of citizens' ability to recall victimizations accurately have been conducted using two different models.[3] The Law Enforcement Assistance Administration (LEAA) has conducted "reverse record checks," where persons known from police records to have reported a crime to police are given a standard victimization interview to see if they provide the same information to the interviewer as that recorded in police files (U.S. Department of Justice, 1972; Sparks, Genn, and Dodd, 1977:44-52). Similar research has been conducted in England (Sparks, Genn, and Dodd, 1977). The second model is a "forward records check," where victimizations that are reported to a survey interviewer as having been reported to the police are followed up in police records to see if the information there is the same (Schneider et al., 1978).

The reverse records checks indicate that a high proportion of victimization survey respondents can recall crimes that they reported to police. In the LEAA San Jose study, 74 percent of the crimes sampled from police records were recalled in the victimization interviews (U.S. Department of Justice, 1972). In the English study, 92 percent were recalled (Sparks, Genn, and Dodd, 1977). The forward records check achieved a much lower match rate, finding only 53 percent of reported victimizations in police records, even where precise location data were supplied by the victim (Schneider et al., 1978). This lower rate could result from exaggeration by survey respondents, underrecording of crimes by police, less than diligent pursuit of crime records by the police who performed the file searches, or overly severe criteria for finding a match.

One cannot conclude from the reverse records check findings that a relatively high percentage of all crimes are revealed in victimization surveys. What these checks indicate is that a relatively high percent of those crimes about which individuals were sufficiently concerned to contact the police remained sufficiently salient to those individuals that they were able to recall them for an interviewer. It seems likely that there are other crimes which occur to people that they do not report to police or to survey interviewers. If so, survey estimates provide a lower bound for the extent of criminal activity to which people are exposed, albeit a bound that is closer to the true figure than police statistics.

The reverse records check studies were aimed at validating survey data

[3] I disagree with the premise of such studies that citizen reports can be validated by reference to official records. A more even-handed approach would argue that either could be used to validate the other, that official records might be the source of errors to the same or greater extent as citizen reports.

and attempting to estimate nonsampling biases. The results of the early San Jose study were sufficiently encouraging for the LEAA and the Census Bureau to proceed with their very large victimization studies (National Research Council, 1976). That is, the estimates of victimization supplied by these surveys were judged sufficiently accurate to warrant the expenditure of considerable sums in their collection.

Beyond the question of whether citizens can accurately recall and report whether they have been victimized, these validation studies, like similar studies in other fields (e.g., Parry and Crossley, 1950; Anderson et al., 1979), give mixed results. A particular focus of much of the reverse records check work was to examine "telescoping," the extent and direction of misreporting of the date of occurrence of a criminal incident. Between 50 and 70 percent of the respondents seemed able to report occurrence dates accurately. Another focus was on classification of the type of crime which had occurred. The LEAA San Jose research indicated a match of 80 to nearly 100 percent, depending upon crime type (1972:10). Similar match percentages were obtained in Schneider's Portland study (1978:30).

Schneider reported other comparisons between police records and survey reports. She found greatest agreement for crime details, age, sex, and number of suspects, for victim reports of self-protective activities, and for reports of witness presence. She found less agreement for offense seriousness and dollar loss, suspect race, whether suspects were known to victims, and for police response time and activities at the scene (1978:4). Her measure of validity or accuracy was the match of survey reports to police reports taken at the time of victimization. One of her main conclusions is consistent with a conclusion of virtually all validation studies, i.e., "the reliability or validity of survey data depend upon the type of information being considered" (1978:4, emphasis in original).

Schneider's report includes one of the very few direct comparisons of citizen reports of police activities to police reports of those same activities. With respect to police response time, she found that 48 percent of the survey respondents gave response time estimates within fifteen minutes of the police recorded time. Fully 51 percent reported longer times, some much longer (1978:63). It may be, though it cannot be determined from these data, that many of the Portland police reports measured time from dispatch to arrival, rather than from call receipt to arrival, or did not include time required to locate citizens after arrival. If so, a number of the citizen overestimates (in comparison with police records) may be more accurate than granted in Schneider's report. The data on police activities at the scene of a victimization show fewer activities reported by citizens than by police (1978:64). This probably results from the open-ended nature of the question used by Schneider. As she notes, probing for specific actions may have identified more (1978:65).

In some recent work I have compared citizens' reports of their recent experiences with police to the reports of those experiences recorded by trained observers (Parks, 1981). The comparisons indicate a high level of agreement on the nature of the problem, the speed of police response, and the actions taken by police officers at the scene of encounters with citizens. The comparisons, based on some 650 police-citizen encounters, show agreement

on the type of problem for virtually 100 percent of the cases, on the speed of response in approximately three fourths of the cases, and on police actions in 70 to 90 percent of the cases, depending upon the action in question. These results show higher agreement between citizen reports and trained observer reports than that found in other research comparing citizen and police reports. Such findings, were they to be replicated in diverse circumstances, would point more to police reports as the primary locus of measurement error than to the reports of citizens. As police officers may face some incentives to record information that reflects favorably upon them, to the detriment of completely accurate recording (e.g., Seidman and Couzens, 1974), this pattern should not be totally unexpected.

The evidence presently available on citizens' capacity to recall experiences, including the perceived activities of police personnel during those experiences, is mixed. It seems that citizens can recall most of the experiences that are recorded in police files or by trained observers. They are somewhat less able to recall all of the details of those experiences, yet they do fairly well here also. Whether their reports of experiences that are not recorded in police files are accurate is not known. As with the police recorded data, accuracy and validity most likely vary with the type of information being requested.

2. Citizens' perceptions of police services -- negative views. Schneider's research raised questions about citizens' ability to report police activities accurately in those instances where they had had direct experience (1978). Others have raised serious questions about citizens' ability to perceive police activities more generally, including those activities that do not occur within the context of a specific encount r with crime or the police.

Stipak (1979) argues that police services have low salience for citizens unless the services are very good or very poor. He cites his own finding that citizens' satisfaction with police services in Los Angeles County is not well predicted by several "objective service indicators." These objective indicators include rates of crime, clearances, and property recovery as well as police expenditures and personnel standardized for population served. Stipak also cites the Kansas City Preventive Patrol Experiment finding that experimental variations in the level of police patrol in particular areas had little effect on satisfaction with police or fear of crime or on perceptions of time spent patrolling in the areas (1979:47). Kelling, Wycoff, and Pate also cite the Kansas City Experiment as suggesting "that citizens surveyed on a random household basis cannot even distinguish changes in the quantity of police services, let alone their quality" (1980:52).

Stipak's (1979) argument with respect to the relatively low salience of police services has some surface plausibility, particularly for areas where police-citizen contacts are infrequent. His data, however, afford little support to argue whether this is true or not. The objective indicators are all measured jurisdiction-wide for the areas where citizens were interviewed. Further, two of them are measures of service inputs, not outputs; and the remaining three are difficult to interpret as performance indicators. Measuring these variables at the jurisdiction level ignores any variation from place to place within jurisdictions, a variation that may be quite large in the bigger geographic areas. This, in turn, reduces possible statistical

relationships between the indicators and satisfaction. More important is the fact that inputs and measures of crime-related phenomena do not have strong, logical connections to police performance and, therefore, cannot be expected to be strongly related to citizen satisfaction with police performance. One can certainly imagine that a high budgeted, yet inefficient police agency might not contribute to citizen satisfaction. Given these difficulties, it would be remarkable had Stipak found any strong relationships between his "objective" indicators and citizen satisfaction.

The Kansas City Preventive Patrol Experiment data with respect to citizen attitudes and perceptions does not yield clear evidence that citizens cannot perceive police services either. Larson (1975) offers a powerful competing explanation for the "no change" findings. That is, the activities of police officers responding to calls in the reactive areas (where regular patrols were removed) were such as to make them more visible. This, combined with the presence of additional police units, not from the patrol force, in those areas made it quite likely that citizens would see little or no change.

Even the question of whether citizens did perceive a change in Kansas City is not clearly answered in the negative in the report of the Experiment. Interestingly, the authors of that report used data from citizens' ratings of police visibility to provide support for their argument that experimental conditions were maintained (Kelling et al., 1974:37-41). In response to the question, "How often do you see police officers in your neighborhood?," citizens in the reactive beats, where police patrol was intended to be reduced, reported seeing police less frequently during the experiment than before the experiment. Citizens in the proactive beats, where patrol presence was intended to be increased, reported seeing police more frequently during the experiment than before. These findings held for both a household survey and a business survey in the experimental areas. Rather than using these findings as supporting the proposition that citizens can perceive a change in police practice, however, Stipak (1979) and Kelling, Wycoff, and Pate (1980) choose to use responses from a different, more general question to argue that citizens cannot perceive a change. In response to the question, "How much time do you think police in your neighborhood now spend patrolling in cars?," citizens in the proactive as well as the reactive and control beats indicated less time during the experiment than before (Kelling et al., 1974:331-337). The report's authors state that "this is a broader question, and can be influenced by input from family members, neighbors, etc." (1974:331). It is unclear that it is a better measure of citizens' abilities to perceive service changes, however. A person's perceptions or ability to perceive might be better tested by reports of what he or she has seen rather than by reports of what he or she thinks is occurring, but may not have seen.

3. Citizens' perceptions of police services -- positive views. In a recent analysis I examined influences on citizens' perceptions of police actions as reported to our interviewers during a study in the St. Louis area (Parks, 1979). The particular question analyzed was citizens' perceptions of the speed of police response when called in their neighborhoods. These perceptions were hypothesized to be influenced by citizens' own experiences and the experiences of their neighbors, by police deployment strategies in the study neighborhoods and the levels of demand from the neighborhoods, and potentially by individual characteristics of the citizens interviewed.

I found that the perceptions of those citizens who had had a recent experience with the local police (within the previous year) were most strongly influenced by response time in that experience. However, the aggregated experiences of their neighbors were nearly as important influences on those perceptions, indicating that citizens may be able to place their own experiences in a broader context. For those citizens without recent experience, aggregate neighborhood experiences were the strongest influences (Parks, 1979:191). An explanation of citizens' perceptions built on their own and neighbors' experiences, together with lesser influences from police deployment, service demands, and individual characteristics accounted for better than 40 percent of the variance in perceptions among those who had had a recent experien e and about sixteen percent of the variance in perceptions for those without recent experience (Parks, 1979:189). This explanation made explicit the links between agency inputs and activities and citizens' perceptions of a particular service. Where these links can be made explicit, showing a logical and necessary connection, it is more reasonable to expect findings that citizens do perceive the services they receive.

Other attempts to link citizens' reports of actual service delivery to their more general perceptions include Percy (1980), Dean (1980), and my own earlier work (Parks, 1977). Percy's analyses and my own show that citizens reporting satisfaction with the police in encounters can be related to the speed of police response when called, whether police arrived sooner or later than expected, and to a series of actions which police officers did or did not take. Dean's analyses and mine show that citizens' satisfaction or dissatisfaction with police in recent encounters is a relatively strong predictor of their more general attitudes toward police.

4. Citizens' perceptions of other public services -- additional positive evidence. Several of us who have used citizen survey data for performance assessments have been concerned with validating this mode of data collection and analysis for some time. In 1974, we collected extensive data on street lighting and road repair services using several different modes of data collection. These modes included citizen surveys, direct observation, physical measurement, and retrieval from agency records. This methodological research was designed to investigate the relationships among indicators developed from these very different modes of measurement.

Analyses based on data from direct observations, physical measurements, and citizen surveys showed a relatively high level of correlation among them. Citizens' perceptions of specific features of road conditions (e.g., surface types, potholes, cracks, curbs) were very accurate. Their perceptions of street roughness were well matched to roughness scores derived from physical measurements of street surfaces (Carroll, 1975). Their perceptions of lighting brightness were most accurate for areas immediately adjacent to their homes and less accurate, though still positively correlated for summary perceptions of overall block brightness (Greene, 1975). Citizens' overall satisfaction ratings for road conditions and street lighting correlated well with their more specific perceptions and, thus, with objective measures of road and lighting conditions. The fact that measures of public services derived from such very different data collection modes were highly interrelated and, particularly, that citizens were able to perceive specific aspects of service delivery quite accurately, gave us increased confidence in

the use of perception measures in other service areas where such direct physical measurements were less available. (Ostrom, 1976).

B. The Need for Further Research

The available evidence with respect to citizens' capacities to recall their experiences with crime and the police accurately and to perceive the police services they receive is not conclusive. This is troubling because my colleagues and I, as well as many other scholars, have collected data from citizens via surveys that attempted to measure their experiences and perceptions. These data have been used to make substantive comparisons of police performance and to make recommendations based on these comparisons. There is reason to believe that the recommendations may have affected public policy decisions (e.g., Skoler, 1978). While our own efforts and those of others do provide positive evidence for the validity of measurements based on citizens' reported experiences and perceptions, additional research into that validity is clearly warranted.

At the same time, the evidence is not strong against the use of citizen surveys. We reject the views of critics who argue citizens cannot tell us much about service delivery. Our experiences in interview situations have continually led us to believe that respondents were concerned with respect to their local police services and aware of many aspects of those services. Citizens' awareness did seem higher in areas where information on local policing was less costly (e.g., smaller communities where more police were known) or where information on policing was more important (e.g., communities with higher crime- and service-related demands for police services). These impressions, while subjective themselves, are consistent with what has been called an "investment theory" of citizen information (Popkin et al., 1976). People obtain information either where it is relatively costless to obtain or where it is relatively valuable to have.

Clearly, a strong research program is warranted in this area of experiences, perceptions, and recall capacity to provide the methodological grounding for the use of citizen surveys for performance assessment. The National Institute of Justice's Methodology Development Program has taken steps in developing this research (e.g., Bielby and Berk, 1978). Further efforts should be supported by those of us who are advocates of survey use and by our strong critics. The mounting evidence with respect to the inadequacy of any single source of performance measurements in policing (see Whitaker et al., 1982) suggests that citizen-based data, if validated, could be an important component of more complex, multisourced performance measurement and comparison systems.

The types of research required are at a minimum two. First, we need research that compares measures drawn from multiple sources, police records, citizen surveys, participant observation, and perhaps other methods, all focusing on the same set of circumstances. By examining the patterns of agreement or correlation among multiple indicators of the same phenomena, we can learn a great deal about the error components of each measurement mode (Campbell and Fiske, 1959; Webb et al., 1966). Further, by examining the correlates of discrepancies from one measurement mode to another, we may learn

more about the mechanisms whereby error is introduced in our measurements (Parks, 1981).

The second research need is to explore in detail the linkages among measures of service inputs, service conditions, the deployment and activities of service providers, the experiences of citizens and their activities, and the perceptions and evaluations held by citizens. Such research would enable us to build process-oriented models of service delivery that could have substantial utility for policy prescription. It is only when we come to understand the linkages of proximate (and manipulable) variables such as resources and their utilization to impact measures such as citizens' experiences, perceptions, and evaluations that we will be able to adopt rational policies aimed at the latter.

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itures or by numbers of personnel per 10,000 population? I would say no. Expenditures and personnel are necessary to service performance at some level, but are by no means sufficient for high performance. They are measures of input, while citizens' evaluations are measures of outcomes. Inputs can be employed in many different ways, not all of which will lead to satisfactory outcomes. Simply increasing expenditures or adding personnel affords no guarantee of improved performance, whether measured by citizens or by any other measuring scheme that is not tautological. Important intervening links include how inputs are employed and the observable effects of their employment.

Stipak's other objective service indicators are conceptually closer to citizens' evaluations, but are still limited. Clearance rates, recovery rates, and crime rates are indicative of a portion of what citizens hope their police to accomplish, but are generally acknowledged to reflect a relatively small portion of the police task. Estimates of police crime-related activities range from ten to twenty percent of all activities across several studies (Wilson, 1968; Reiss, 1971; Scott, 1981). Even for this subset of police activities, citizens may evaluate police performance using additional data, such as rapidity of response to and demeanor and actions at crime scenes, rightly recognizing that many crimes are unsolvable and most property unrecovered. Citizen evaluations may also be affected by the remaining 80 to 90 percent of police activities uncaptured by Stipak's crime measures. This also seems likely with respect to distance to the nearest park. If the part next door to my own house is dirty, has broken equipment, surly attendants, and is open at inconvenient hours, my evaluation of park and recreation servi es is not likely to be improved by its proximity.

In order to see whether objective and subjective indicators are related, it seems important to explicate a conception of how they could be related. That is, by what processes are inputs converted to outputs and outcomes? What intermediate indicators might be found along the way? How might citizens construct their evaluations and how might that construction be affected by variables indicative of inputs and intermediat products? An example of such conceptual linking in the study of police services will be offered in a subsequent section of this article. The example of its empirical operationalization suggest that objective and subjective may be more closely linked than recent critics have argued.

B. A Statistical Difficulty

Stipak's objective measures were jurisdiction-wide averages in most cases. Each citizen in a given jurisdiction was coded as if crime, clearance, and recovery rates and patterns of personnel deployment and expenditures were uniform across his or her jurisdiction. Substantively, this seems contrary to commonly observed variations in each of these rates and patterns from neighborhood to neighborhood and even block to block within service jurisdictions. Certainly police officer assignments to high crime areas of Los Angeles are likely to differ from those in quiet neighborhoods, yet a jurisdiction-wide indicator s ppresses this variation. Statistically, this suppresses the explanatory power that such a variable might have. Suppose we had two explanatory variables, each equal to the other in its statistical relationship

with a dependent variable of interest, say citizens' evaluation of police service. If we now reduce the variation in one of these variables by averaging it across a large area, this reduced variation will lead us to find reduced explanatory power for the variable. Where the frequency of police patrol on a citizen's block might have a significant effect on his evaluation of police services, the average number of officers per 10,000 citizens of his community might not. Citizens most likely do not experience jurisdiction-wide average services, but rather services as delivered in their own immediate neighborhoods or workplaces. Objective indicators of these neighborhood services, therefore, should be more closely related to citizens' subjective evaluations.

C. Linking Indicators: A Response Time Example

One component of citizens' evaluations of local police service is their perception of how fast police will respond if needed. Bittner characterizes responding to incidents of great immediacy as the essence of police work, incidents involving "Something-that-ought-not-to-be-happening-and-about-which-someone-had-better-do-something-now!" (Bittner, 1974: 30). Citizens' perceptions of the rapidity of police response have been shown to be a strong predictor of their satisfaction with police performance in particular incidents and in their neighborhoods more generally (Percy, 1980: 75-86; Parks, 1976: 89-104; Pate, et.al., 1976). Thus, it is an important subjective indicator of police performance. Exploring how it is linked to objective performance indicators should be useful in explicating the process whereby objective and subjective indicators can be related.

How might citizens develop their perceptions of how fast the police respond when called to their neighborhood? For citizens who had a recent experience with local police response, their perception of the response time in that experience is likely to weigh heavily on their overall perception of the speed of police response. They are likely to generalize from their own experience to that of any citizen who might call the police in the neighborhood.

Two additional clusters of variables may influence the accuracy of citizens' perceptions of response time in their experiences or the generalization of those experiences to an overall rating of police response in the neighborhood. These are the characteristics of the citizens who have experiences with the police and the activities of the responding police officers following their arrival at the scene of the experience. Different persons may respond differently to the same phenomenon. To the extent that these differences are patterned along the lines of objective citizen characteristics (e.g., age, education, race), one can adjust for these perception differences by statistically controlling the citizen characteristics. With respect to officer activities after arrival at the scene, favorable activities may act to lower the perceived response time (or its magnitude in the citizen's memory) or lead the citizen to believe that long response time in his experience was atypical of the usual, faster response provided by the helpful officers. Unfavorable activities may, of course, have an opposite effect.

If recent experiences are likely to affect the perceptions of citizens having had them, what of citizens without recent experience? How might they develop perceptions of the speed of police response in their neighborhoods? These citizens must draw upon other sources of information.

One source of information for citizens without recent personal experience might be the experiences of friends and neighbors whom the citizen observed to have such an experience, or who might have told the citizen about it. The average response time in all recent experiences in a respondent's neighborhood provides an indicator for this information. Just as with a citizen's own experience, police actions at the scene of encounters in the neighborhood may act to modify perceptions of police response drawn from these encounters. The distribution of unfavorable experiences in the respondent's neighborhood can be used to account for this.

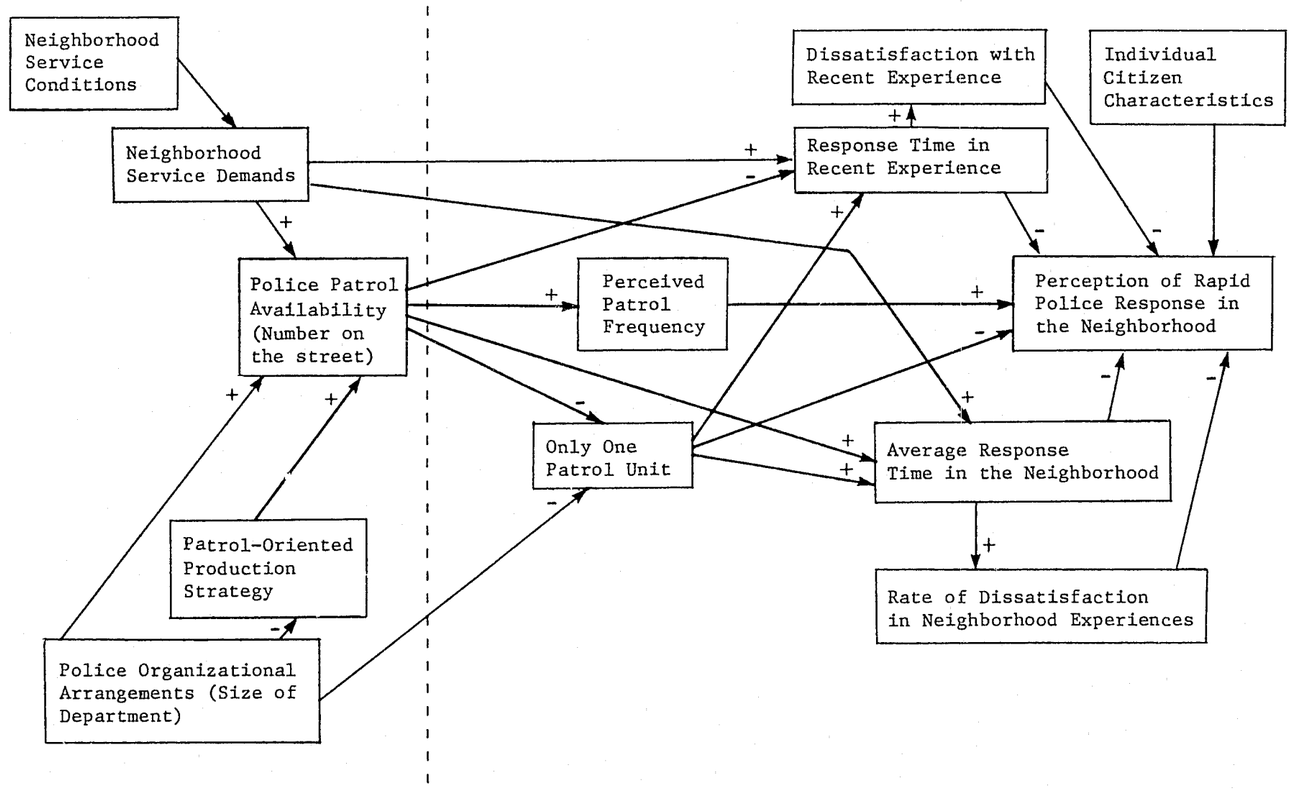
Many citizens may have had no recent experience with local police, may not have had an opportunity to observe response to calls made by friends or neighbors, and may not have been told about any such recent experiences. These citizens are forced to rely on proxy measures to develop their perception of the speed of police response in the neighborhood. One likely proxy is the frequency with which they sight a patrol car in their neighborhood. Those who see patrol units cruising up and down their street frequently are more likely to perceive that the police would respond rapidly when called than are those who see patrol units infrequently. Another proxy measure that might influence the perceptions of citizens in very small jurisdictions is the presence of only one patrol unit on the street to respond to citizen calls. To the extent that citizens are aware of this, they may perceive that their police respond more slowly due to the possibility that the one unit will be busy when a call is received. Of course, these proxy measures and the experiences of others may influence the perceptions of those having had a recent experience as well.

These speculations are spelled out in an arrow diagram in Figure 1. The influences to the right of the dotted line in that figure have been discussed to this point. Those to the left are more remote influences, included to show linkages back to organizational arrangements and service conditions. The speculated direction of effects is shown for these linkages. The postulated model is more complex than a simple objective-to-subjective indictor linkage. Remote objective indicators, such as agency size (or expenditures), operate through more proximate objective indicators related to resource utilization. These, in turn, affect police response performance in neighborhoods and citizens' perceptions o that performance. Several additional variables are expected to mediate or condition the relationship.

1. Testing the linkage. Data to operationalize the variables and test the linkage of objective and subjective indicators shown in Figure 1 are drawn from a study of police services in the St. Louis metropolitan area. This study, conducted in 1972, included interviews with citizens in 44 residential neighborhoods served by 29 separate police agencies. Citizens were questioned about their recent experiences (if any) with local police and with crime in their neighborhoods, their perceptions of police actions and demeanor in the neighborhoods, and their overall assessment of police performance in the

FIGURE 1

INFLUENCES ON CITIZEN PERCEPTIONS OF THE SPEED OF POLICE RESPONSE IN THEIR NEIGHBORHOOD



neighborhood. In total, some 4,000 citizens were surveyed.[2]

In the St. Louis study, citizens were asked, "when the police are called to your neighborhood, in your opinion how fast do they come? Very rapidly, quickly enough, slowly, or very slowly?" Citizens who had had a recent experience with local police were asked how long it took police to respond in that experience. They were also asked whether they were satisfied with police actions in the experience. All citizens were asked whether they knew of anyone who had been mistreated by local police, and how frequently they sighted police patrol units in their neighborhoods. Data were coded from records maintained by the 29 police agencies to determine the number of patrol officers deployed for street duty and the average number of citizens served by each, the percent of sworn officers actually assigned to patrol duty, and service demands in each of the study neighborhoods. This mix of data from survey and agency record sources is used to operationalize the variables in Figure 1.

The direct influence of most of the variables from Figure 1 on citizens' perceptions of the speed of police response in their neighborhoods are shown in Table 1. These direct influences are measured by regression coefficients from an equation predicting the answer citizens gave to the question regarding speed of r sponse in their neighborhoods.[3] The independent variables include measures of the average response time in all encounters that citizens told our interviewers had occurred in their neighborhood, and response times in specific encounters for those respondents having had one.

Police actions at the scene of encounters in the citizen's neighborhood and in specific experiences that he or she might have had are summarized through the use of experience satisfact on measures. For neighborhood experiences these are the percent of neighborhood respondents who told our interviewers about an unsatisfactory victimization experience, an unsatisfactory assistance experience, or an unsatisfactory stop by the local police. Indicators for whether any of these unsatisfactory experiences occurred to the individual respondent are also included, as well as an indicator for whether he or she knew of anyone mistreated by the local police. Other independent variables in the analysis include perceived patrol frequency, the presence of a single patrol unit on the street in the respondent's neighborhood, characteristics of the individual respondent, police agency, production strategy, and service demand in the respondent's neighborhood. The data are basically supportive of the speculations on possible influences. It is possible to develop a much better prediction of the perception of the speed of police response held by someone who has had a recent experience than it is for one who has not. The R-squared coefficient is 0.422 for experienced and 0.160

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[2]An extended description of the St. Louis Study may be found in Ostrom et. al., 1973.

[3]The dependent variable for this analysis is the response given by citizens to the question, "when the police are called to your neighborhood, in your opinion how fast do they come?" The responses were coded: (1) very rapidly, (0) quickly enough, (-1) slowly, (-2) very slowly, and (-3) not at all.

TABLE 1. INFLUENCES ON CITIZENS' PERCEPTIONS OF THE SPEED OF POLICE RESPONSE IN THEIR NEIGHBORHOODS

Independent Variable	Citizens Having Recent Experiences with Police Response Time			Citizens Not Having Recent Experience with Police Response Time		
	b	s.e.	beta	b	s.e.	beta
Response time in individual experience (min.)	-.017	.002	-.290	--a	---	---
Average response time in neighborhood (min.)	-.002	.007	-.012	-.010	.003	-.079
Respondent experiences:						
Unsatisfactory victimization	-.591	.091	-.232	-.692	.302	-.040
Unsatisfactory assistance	-.386	.131	-.103	-.906	.337	-.047
Unsatisfactory stop	-.103	.207	-.018	-.273	.115	-.043
Know someone mistreated	-.186	.126	-.053	-.368	.069	-.097
Neighborhood experiences:						
Unsatisfactory victimizations (%)	-.019	.015	-.066	-.028	.007	-.093
Unsatisfactory assistances (%)	.011	.032	.019	-.023	.016	-.036
Unsatisfactory stops (%)	-.032	.023	-.069	-.036	.011	-.076
Respondent characteristics:						
Race (black)	-.045	.082	-.020	-.079	.046	-.034
Age (decades)	.084	.018	.157	.048	.008	.106
Education	.041	.028	.052	.006	.013	.009

TABLE 1 - Continued

Independent Variable	Citizens Having Recent Experiences with Police Response Time			Citizens Not Having Recent Experience with Police Response Time		
	b	s.e.	beta	b	s.e.	beta
Patrol Availability:						
Citizen per on-street patrol officer (100)	.044	.024	.078	.017	.011	.035
Perceived patrol frequency (number per 8-hr. shift)	.035	.012	.099	.050	.007	.131
Only one patrol unit on the street	-.400	.138	-.148	-.212	.064	-.105
Agency production strategy:						
Percent of sworn officers assigned to patrol duty	.012	.004	.182	.006	.002	.109
Neighborhood service demand (calls per 100 residents per year):	.007	.004	.076	.011	.002	.137
Constant term:	-.852	.386	---	-.347	. 75	---
R squared		.422			.160	
Number of cases		559			2,789	

[a]Not applicable

for inexperienced respondents. This means the variables in the equation account for 42 percent of the variance in perception among experienced respondents and 16 percent among the inexperienced.

TABLE 2. RELATIVE INFLUENCE OF VARIABLE CLUSTERS ON PERCEIVED SPEED OF RESPONSE IN THE STUDY NEIGHBORHOODS

Variable Cluster	Experienced Respondents beta	Inexperienced Respondents beta
Response time in individual experience	-.290	---
Other individual experience aspects	.272	.130
Aggregate neighborhood experiences	.118	.245
Individual characteristics	.163	.112
Neighborhood patrol availability	.192	.121
Agency production strategy	.182	.109
Neighborhood service demand	.076	.137

The relative effects of clusters of variables, such as those shown in Figure 1, can be compared by computing a composite measure for each cluster and entering those composites in a regression equation. The composite measures are weighted sums of the variables from each cluster, where the weights are the unstandardized regression coefficients (the "b's") shown in Table 1.[4] To the extent that the effect of each cluster is independent of that of each other cluster (i.e., they are uncorrelated), one can compare the standardized regression coefficients for these composite measures to examine their relative influence. This comparison is shown in Table 2.

These data suggest, as one might expect, that indicators of a phenomenon that are closely linked conceptually are more likely to be associated statistically as well. Citizens' experiences with service delivery affect their perceptions of service delivery more strongly than do aggregate indicators of

[4]This method of constructing composite measures for blocks of variables in multivariate analyses was suggested by Coleman, 1976: 1-20. It has the advantage of reducing the number of coefficients to be considered simultaneously and of allowing some comparison of the relative magnitude of effects across blocks of variables.

service delivery drawn from agency records. Where citizens do not have direct experience, they can draw upon the experiences of those who live nearby. The fact that indicators that are more remote conceptually from subjective evaluations also affect those evaluations suggests that a linkage similar to that shown in Figure 1 is at work. While these data do not confirm the model as diagrammed there, they do offer some support for such a model. Certainly a process involving intervening variables as outlined there seems intuitively more reasonable than one postulating direct linkages from "objective" agency record data to "subjective" citizen perceptions.

D. Summary

The argument presented here is that attempts to link objective and subjective measures of service delivery must be informed by a conceptual understanding of how they might be related. One such conception was presented and tested using objective and subjective indicators of an aspect of police services, the rapidity of police response. Rather than finding little or no linkage, as some have recently argued, objective and subjective indicators that were conceptually similar were found to be associated statistically. I would hope that others writing in this developing subject area would also adopt a strategy akin to that presented here, attempting to develop models of processes whereby ifferences in agency inputs and activities might be reflected in differences in citizens' perceptions and evaluations. This would contribute to a greater sense of the utility of subjective indicators, and, of much greater importance, improve our understanding of the service delivery process from inputs through activities to outcomes valued by the public.

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CHAPTER 12. POLICING AND THE FEAR OF VICTIMIZATION: AN EXPLORATORY ANALYSIS

Charles David Phillips and Alissa A. Pollitz

The crime problem faced by American police is almost invariably characterized as a set of events -- the number of reported crimes per year or the per capita rate of victimization. Police officials themselves have done much to nurture this image of the crime problem: for years, they have focused our attention, and their own, on crime statistics. It should be little wonder then that the measurement of police performance has long been similarly "event" oriented (see Whitaker et al., 1982). When one asks how well the police are doing their job, one expects answers that indicate how well they deal with these events: what is the clearance rate? what is response time? is the crime rate going down?

Such an emphasis derives from the rather myopic vision of the police function as little more than crime prevention. Police must, in reality, do much more than simply try to prevent crime. When crimes occur, police must deal with their effects or consequences. We usually think of how the police deal with only the most immediate effects of crime: was the victim comforted? were her or his injuries cared for? was the stolen property recovered? However, criminal acts have other effects that, although less immediate, are no less important. One complex of problematic but more distant consequences is evoked with the phrase --"the fear of crime." As James Q. Wilson indicates, "crime does not merely victimize individuals" (Wilson, 1975: 2). Crime generates, among both victims and non-victims, a set of emotions and actions that have troublesome effects on the larger society. Crime may cause individuals to forego opportunities for interaction and exchange, ultimately destroying "the network of relationships on which urban and suburban life depends" (Silberman, 1978: 6) and damaging the vitality of urban areas by speeding the flight of jobs and resources (Skogan and Maxfield, 1981).

Because of such reactions to crime, police find themselves "under constant pressure to provide protection of a kind that will relieve anxiety" (Goldstein, 1977:47). But what kind of protection will relieve this anxiety and reduce the fear of victimization? If one's reactions to crime are simply based on a relatively accurate perception of the likelihood of becoming a crime victim, then the police role in fear reduction is clear. The police must reduce crime to combat the "fear" that it generates. As Frank Furstenberg (1971:609) concluded in his early analysis of the fear of crime in Baltimore, "It is not easy to see what, short of reducing crime, might be done to dissipate the climate of fear in these high crime area."

However, what about those reactions to crime that are not directly derived from one's vulnerability to victimization? What can police do to reduce this component of the fear of crime? Does police presence in a neighborhood reassure the anxious? Does patrol aggressiveness create an aura of safety that makes an area seem less threatening? Or, as some analysts suggest, might such strategies have unintended consequences? As Henig and Maxfield (1978:306) argue, when one tries to reduce anxiety with "confidence-building" strategies, "there remains the danger that attempts to convince people their

fears are groundless will be instrumental in convincing them that their fears are justified." This inquiry explores the possible link between citizens' reactions to crime and police services. Specifically, we attempt to ascertain how variations in police presence and aggressiveness influence individuals' perceptions of the likelihood that they will become victims of three types of crime: robbery, burglary, and vandalism. In order to develop a clear picture of the unique effects of police action on citizens' attitudes, one must also consider the effects of other potential determinants of their responses to crime. Our model includes respondents' social attributes, their attitudes, the characteristics of their neighborhoods, and measures of their "objective" victimization risk.

A. Measuring Reactions to Crime

Individual's reactions to crime (see Lewis, 1981; Skogan and Maxfield, 1981; Skogan, 1981) are a fabric of interwoven emotions, perceptions, and behavior. One may feel anxiety at the approach of strangers on the street, believe that she or he will eventually be the victim of a violent crime, forego an evening out because of an unwillingness to drive home alone, or vote for a "Law and Order" candidate. All of these are reactions to crime. In fact, each type of response has, in some research, been characterized as an indicator of the "fear of crime." But no one presently expects such diverse forms of response to be governed by identical causal factors. We have now progressed to the point where analysts recognize the need to move away from the catchall of "fear' toward a more precise and meaningful terminology for discussing the various ways in which citizens respond to crime. The two most basic distinctions among reactions to crime seem to be: (1) between behavioral (see Lewis, 1981; Hindelang, et al., 1978) and attitudinal or emotional responses (see Skogan, 1981) and (2) between responses to crime as a sociopolitical problem (see Sears, et al., 1980; Tyler and Weber, 1982) and crime as an event (see Warr, 1983, 1982, 1980; and Skogan, 1981).

The focus of this analysis will be on attitudinal responses to crime as an event -- the fear of victimization. As Mark Warr's (1983) research indicates, the fear of a victimization is a function of two factors, the perceived seriousness of a victimization and the perceived likelihood that such a victimization will occur. Each of these factors seems to receive roughly equivalent weight as a determinant of the fear of a victimization. In this effort, we will analyze the determinants of only one aspect of the fear of victimization -- a respondent's perceived likelihood of victimization.

B. The Determinants of Citizens' Responses to Crime

Just as one expects crime to generate a wide variety of responses, so one expects these responses to be the result of a variety of factors. Obviously, differences in individuals' perceptions of relative danger may emerge from the fact that environments, quite simply, differ in the degree to which they are dangerous: people may believe themselves more likely victims of crime because they are more likely to be victimized. Thus, research in a variety of urban areas (Furstenberg, 1971; Doob and Macdonald, 1979; Lewis and Maxfield, 1980; Skogan and Maxfield, 1981) indicates that some differences in response are related to living in areas with differing crime rates.

Also, a variety of studies have shown that a prior victimization generates a reaction (Skogan, 1977; Garofalo, 1977; Hindelang et al., 1978; Stinchcombe et al., 1980). Some of this work indicates that a prior victimization may not be a major determinant of one's reactions (Hindelang et al., 1978; Garofalo, 1977) and that its impact may vary by the type of prior victimization (Skogan, 1977; Stinchcombe et al., 1980). Many of the explanations of this relationship focus on the emotional impact of victimization. As Charles Silberman (1978:14) indicates,

> being attacked by a stranger transcends the event itself; it reaches a primordial layer of fear unlike anything evoked by an equally damaging encounter with an automobile or other inanimate object, or even by a crime that does not involve a direct encounter with another person.

While primordial fear may be evoked, the heightened response of victims may have more rational bases as well. As Hindelang and his associates (1978) discovered, multiple victimizations of the same individual are not simply unrelated events. James Nelson's (1980) work on fitting multiple victimizations with stochastic models seems to indicate that while one's probability of victimization remains relatively constant over time, that probability varies significantly across subgroups of the population. Using these findings to predict future risks, one discovers that those who have previously been victimized have a much higher probability of future victimizations than do those who have not been victims of crime. Victimization is an important factor, but its utility as a predictor is limited. As Skogan and Maxfield (1981:44) indicate, "victims of crime are more fearful than those who have not been victimized. However, the bulk of those who are fearful have not been victims."

A variety of social attributes also seem to be related to differences in the degree to which individuals react to crime. Women are more fearful than are men (Hindelang et al., 1978; Bielby and Berk, 1979; Stinchcombe et al., 1980; Skogan and Maxfield, 1981), and the poor feel more unsafe than do others (Skogan and Maxfield, 1981). These differences do not, however, seem to directly mirror differences in victimization rates or differences in the likelihood of injury during a victimization (Garofalo, 1977; Hindelang et al., 1978).

A number of other explanations for these differences, none of which are presently falsifiable, exist. Some argue that these differences grow out of differential "role socialization": women are traditionally socialized into a more submissive role, hence they are more fearful; the elderly are dependent, thus they are more afraid (Garofalo, 1977). Less convoluted explanations, however, are available. Some research indicates that those who feel that victimization attempts against them are likely to succeed are more concerned than are those who feel that they can thwart a criminal's efforts (Mangione and Fowler, 1974). Those less able to repulse an attacker --females and the old --may quite reasonably be more apprehensive. But an explanation based on physical prowess does not explain why blacks and the poor are more afraid than are other citizens.

Skogan and Maxfield (1981:78) offer a two-dimensional concept of "vulnerability" as an explanation for all of these differences. Gender and age differences in fear result from physical vulnerability -- "openness to attack, powerlessness to resist, and exposure to significant physical and emotional consequences." Race and income are indicators of social vulnerability -- "daily exposure to the threat of victimization and limited means of coping with the medical and economic consequences of victimization." Only one other explanation, one based on victimization risk, might account for those differences based on age, income, gender, and race. Individuals with these characteristics may be conscious of a high potential victimization risk that remains unrealized due to their self-protective measures. They accurately perceive their danger and more frequently take measures to protect themselves (Skogan and Maxfield, 1981; Balkin, 1979). Thus they reduce their victimization rates and appear more fearful than seems warranted (Hindelang et al., 1978). Whatever the explanation for these differences, individuals' social attributes explain some of the variation in individual's responses to crime.

In addition to victimization risk and social attributes, certain environmental characteristics may intensify citizens' reactions. Individuals ensconced in a network of supportive community relationships may not feel the fear of those living among strangers (Henig and Maxfield, 1978). As the President's Commission on Law Enforcement and the Administration of Justice indicated, "The fear of crimes of violence is not a simple fear of injury or death or even of all crimes of violence, but, at bottom, a fear of strangers" (1978:87). Also, what other researchers (Lewis and Maxfield, 1980; Wilson and Kelling, 1982) call "incivility" or "disorderly conduct" and Mangione and Fowler (1974) identify as loitering, public drunkenness, street prostitution, or open dealing in drugs seem to heighten people's belief that they live in a threatening environment.

An individual's general attitudes toward government and the police may also play a role in generating fear. Those respondents who believe local government is unresponsive or who have negative feelings toward the police may be more fearful than are others. One might also argue that fear itself may generate these negative perceptions of local government and police. In fact, the relationship may be reciprocal --fear generates alienation that generates further fear. All this research can address is whether a relationship exists between alienation and citizens' responses to crime. The exact nature of this relationship and direction of causality must be established with other data and analysis strategies.

All of these factors (risk, social attributes, and environmental characteristics) must be included in a model attempting to estimate the impact of police service on citizens' reactions to crime. But what aspects of policing might re-duce anxiety and create the feeling that one is less likely to be victimized? The presence of police in a neighborhood may be an important factor: as Wilson (1975:82) indicates, "When he sees a policeman on a street corner, the citizen often feels more secure and assumes that the burglar or mugger seeing the same officer will feel less secure." Wilson's conjecture recently received empirical support in the Police Foundation's analysis of the effects of foot patrol in Newark, New Jersey. Researchers found that enhanced foot patrol increases citizens' feelings of security (Police Foundation, 1981; Wilson and Kelling, 1982). The impact of car patrol on citizens' perceptions is not as clear. While police administrators seem convinced of its impact (see Kelling et al., 1974), some research indicates that changes in the level

of car patrol may have little impact on citizen attitudes (Kelling et al., 1974). This is one of the issues that this research will directly address.

Although patrol aggressiveness is usually considered important only in crime control (see Wilson and Boland, 1978; Jacob and Rich, 1981; Whitaker, et al., 1983), it may also have an effect on citizens' sense of security (Wilson and Kelling, 1982). Seeing officers initiate action may generate an aura of effective protection and security. The impact of these two dimensions, patrol presence and aggressiveness, on the fear of crime will be investigated while controlling for victimization risk, individual attributes, and neighborhood characteristics.

C. The Data

This chapter utilizes patrol observation and neighborhood resident survey data from the Police Services Study (see Appendix A). For our measure of citizens' attitudinal reactions to crime, individuals were asked to predict their likelihood (i.e., very likely, somewhat likely, not at all likely) of becoming a burglary, robbery, or vandalism victim while in their neighborhood. As Table 1 indicates, only a small minority felt it very likely that they would be victims of robbery, burglary, or an act of vandalism. A sizable proportion, however, felt it at least somewhat likely that they would be victimized.

From the survey data on individuals' attitudes toward government and their feelings about the police, two indices were constructed. The first index elicits general distrust of local government and feelings of political inefficacy, while the second index captures beliefs about the honesty, courtesy, and evenhandedness of the local police.[1] Most neighborhood level

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[1]Each index score reflects the sum of response scores on component questions. Component questions for the attitude toward government index are as follows:

The local government is concerned about your neighborhood. Do you AGREE or DISAGREE? Agree 0, Neutral 1, Disagree 2.

A person can't get any satisfaction out of talking to the public officials in your community. Do you AGREE or DISAGREE? Disagree 0, Neutral 1, Agree 2.

Component questions for attitude toward police were as follows:

Policemen in your neighborhood are basically honest. Do you AGREE or DISAGREE? Agree 0, Neutral 1, Disagree 2.

The police in your neighborhood are generally courteous. Do you AGREE or DISAGREE? Agree 0, Neutral 1, Disagree 2.

The police in your neighborhood treat all citizens equally according to the law. Do you AGREE or DISAGREE? Agree 0, Neutral 1, Disagree 2.

Table 1: THE DATA

VARIABLE GROUPS	CODING	DISTRIBUTION
Dependent variables		
Probability of robbery	not likely	64.2%
	somewhat likely	27.6
	very likely	8.1
Probability of burglary	not likely	46.7%
	somewhat likely	40.1
	very likely	13.2
Probability of vandalism	not likely	50.7%
	somewhat likely	36.1
	very likely	13.2
Personal attributes		
Age (younger)	under 35 (1)	30.3%
	other (0)	69.7
(older)	over 60 (1)	29.7%
	other (0)	70.3
Gender	male (0)	41.1%
	female (1)	58.9
Race	white (0)	70.5%
	non-white (1)	29.5
Crime in neighborhood		
Serious personal crimes per 100 residents	(interval)	mean = 1.805 s.d. = 2.105
Serious property crimes per 100 residents	(interval)	mean = 9.258 s.d. = 5.731
Less serious property crimes per 100 residents	(interval)	mean = 15.288 s.d. = 5.803
Household victimization in past year	none (0)	71.6%
	one or more (1)	28.4
Individual attitudes		
Attitude toward government	(interval)	mean = 1.204 s.d. = 1.263
Attitude toward police	(interval)	mean = 0.636 s.d. = 1.263

(Table 1 continued)

VARIABLE GROUPS	CODING	DISTRIBUTION
Neighborhood characteristics		
Percent of neighborhood below poverty level	(interval)	mean = 23.232 s.d. = 16.022
Transiency-percent of residents living in neighborhood less than one year	(interval)	mean = 6.646 s.d. = 5.609
Population density (residents per square mile)	(interval)	mean = 6582.8 s.d. = 5016.9
Metro 1--Rochester	Rochester (1) other (0)	18.8% 81.2%
Metro 2--St. Louis	St. Louis (1) other (0)	43.5% 56.5%
Police services		
Patrol time--density of police non-administrative time	(interval)	mean = 1.09 s.d. = 0.98
Density of officer initiated encounters	(interval)	mean = 7.791 s.d. = 8.445

variables were aggregated from individual survey responses.[2] "Poverty" reflects the percentage of households in the neighborhood below the poverty level. "Transiency" measures residential instability, an indicator of the degree to which one must live among strangers. Population density is simply the number of residents per square mile in the neighborhood.

Neighborhood crime rates were estimated by aggregating citizen responses to questions concerning personal victimizations within the year prior to the survey. Respondents were asked to include both reported and non-reported offenses. These incidents were grouped into four categories -- serious

[2]Because the response categories for family income level were corded at $5000 intervals, only an approximation of poverty could be made. In rough conformity with 1977 federal poverty guidelines, the following households were classified as at or below poverty level:

Household size of 1, 2, 3	Income below $5000
Household size of 4, 5, 6	Income below $10,000
Household size of 7, 8, 9, 10	Income below $15,000

Transiency is measured as the percentage of residents in a neighborhood who have lived in that neighborhood less than one year at the time of the survey.

property, less serious property, serious personal, and less serious personal crimes.[3] The first three of these categories were used, respectively, with the three dependent variables, fear of burglary, vandalism, and robbery.

The police action variables are based on field observations and departmental data on field assignment patterns.[4] Aggressiveness is operationalized as the density of officer-initiated non-traffic encounters in each neighborhood. In our sixty neighborhoods, there was an average of eight officer-initiated non-traffic encounters per square mile during each forty-hour work shift. Police presence is operationalized as the average number of assigned units per square mile in each neighborhood. In the average neighborhood 1.09 units were assigned per square mile at any given time.

[3]Serious personal crimes include kidnapping, aggravated assault, robbery, attempted robbery, rape, attempted rape, attempted homocide.

Serious crimes include motor vehicle theft, burglary, arson, and attempted arson.

Less serious property crimes include attempted motor vehicle theft; theft from a motor vehicle; attempted theft from a motor vehicle; break-in of a motor vehicle; attempted break-in of a motor vehicle; attempted burglary/break-in in general; attempted break-in in general; unspecified theft; problems with money, credit, documents; other crimes against property.

[4]Data for patrol presence were gathered from departmental assignment sheets. Police patrol presence was measured as the number of units assigned per square mile in each neighborhood; for each neighborhood.

Patrol presence =

$$\frac{\text{avg. no. units am + avg. no. units afternoon + avg no. units pm}}{3}$$

$$\frac{}{\text{neighborhood area in square miles}}$$

Density of Officer initiated encounters was calculated from patrol observation data using the following formula:

For each neighborhood,

Density of encounters =

$$\frac{\text{total observed non-traffic proactive encounter x avg no. units on patrol}}{\text{neighborhood area in square miles}}$$

D. The Results

Each of our roughly 11,000 respondents exhibits a belief that the probability of a victimization is low, moderate, or high -- for each of the three types of victimization. While these responses create ordinal scales, they will be treated as interval and analyzed using ordinary least squares. Rather than code these dependent variables according to some strictly arbitrary scheme, the results of a discriminant analysis provided values for each response category.[5]

The results of the OLS analyses appear in Table 2. For each dependent variable, the model displays comparable power. The R^2s range from .11 to .14. Such a level of determination is not impressive, but a large amount of measurement error is to be expected in ordinal dependent variables based on a single question. Also, our model, unlike others (see Skogan and Maxfield, 1981), focuses on a variety of "objective" conditions rather than respondents' varying perceptions of those conditions: one must expect our model to be less powerful than one based on such perceptions. When each of our ordinal scales is treated as a nominal scale with three categories (i.e. in a discriminant analysis) rather than a three value interval scale, the independent variables correctly classify between 52 and 65 percent of the individuals in the sample. The Tau_bs for these analyses indicated reductions in error ranging from twenty to thirty percent.

As Table 2 indicates, a prior victimization of someone in the household and the neighborhood crime rate are important determinants of one's belief that she or he will be victimized. The neighborhood rate for serious personal crimes is the most important determinant of one's perception of the likelihood of a robbery victimization, and the serious property crime rate is the second most important factor in one's attitudes about burglary. Only in the analysis involving the least serious threat (vandalism) does the crime rate play a less important role. A prior household victimization is the most important variable for explaining the likelihood of a burglary and vandalism and is the second most important determinant for robbery. Again, one must remember that the majority of our households indicated that there had been no victimization during the preceding year.

Individual attributes seem to play a much less decisive role than does risk. Women see themselves as more likely than men to be victims of robbery and burglary, but are only slightly more concerned about vandalism. These

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[5]The discriminant analyses performed on the three dependent variables provided two functions for each dependent variable. In each case, only the first function proved useful in the analysis. The positions of the groups centroids on these first functions were used in coding the categories of fear for the OLS analysis. For example, in the discriminant analysis of the fear of robbery, the groups centroids were: Not at all likely = -.26, Somewhat likely = .29, Very likely = 1.08. A simple linear transformation of these values gives one the followng values for the OLS analysis concerning robbery: Not at all likely = 0, Somewhat likely = .55, Very likely = 1.34. In the OLS analysis of the fear of burglary: Not at all likely = 0, Somewhat likely = .38, Very likely = 1.12. In the OLS analysis of the fear of vandalism: Not at all likely = 0, Somewhat likely = .38, Very likely = 1.07.

differences are those which one would expect if they reflect varying degrees of physical vulnerability --the difference is greatest in robbery, in which the potential consequences of vulnerability are most acute. The results for the various age groups differ from what one would expect. Those in the middle age groups (35 to 60) see themselves as the most likely victims. Young adults show the least concern about robbery, while the elderly show the least concern about burglary. While physical vulnerability may provide an adequate explanation for differences in the attitudes of males and females, differences among age groups seem to have some more subtle pattern or complex source.

Minority status, when one controls for neighborhood characteristics and risk, has little impact on a respondent's perceived likelihood of victimization. Only in the analysis for vandalism, the least serious crime, does minority status display a significant effect. Also, its effect works in a direction opposite that which one would expect --minorities are less concerned. This finding provides some support for Skogan and Maxfield's (1981) concept of "social vulnerability." Race may frequently serve as a surrogate for such unmeasured variables as risk and neighborhood characteristics. In models that include these other variables, minority status may have little independent effect.

Neighborhood characteristics seem to play a role that is roughly equivalent in importance to that played by individual characteristics. Higher levels of poverty in a neighborhood and greater population density seem to make respondents believe themselves vulnerable to robbery. Greater transiency and higher density lead respondents to expect a burglary. However, the perceived likelihood of being a victim of vandalism seems largely unaffected by the type of neighborhood in which a respondent resides.

Interestingly, individuals' attitudes about the responsiveness of government and their attitudes toward police are quite important determinants of citizens' reactions. For all three types of victimization, these variables rank second only to risk and a prior victimization as determinants of the perceived likelihood of a victimization. In fact, one's attitudes concerning governments' responsiveness are more important than the rate of less serious property crimes in determining one's expectation of vandalism. The interpretation of this result seems quite straightforward. The government and its agents, the police, stand between criminals and their potential victims. The belief that these institutions are unresponsive or less than admirable makes one feel at greater risk.

Differences among the three metropolitan areas included in this study do not play a consistent role in determining respondents' responses. Though our respondents in Rochester consistently believe themselves less likely to be victims than respondents do in Tampa and St. Louis, only in the case of robbery is this difference of relative importance. It is the more "proximate" variables -- risk, victimization, attitudes, personal attributes, and neighborhood characteristics -- that seem to play the greatest roles in generating differences among respondents.

Beyond those factors already discussed, what unique effects do the level and type of police action in a neighborhood have on respondents' reactions to crime? Our answer appears at the bottom of Table 2: it seems that these

Table 2: THE DETERMINANTS OF THE FEAR OF CRIME - DIRECT EFFECTS

	R^2 = .14 Tau_b = .29 Robbery		R^2 = .12 Tau_b = .20 Burglary		R^2 = .11 Tau_b = .21 Vandalism	
	b	B	b	B	b	B
Old	-.02	-.02	-.06	-.07	-.04	-.04
Young	-.04	-.05	-.02	-.03	-.02	-.03
Race	n.s.		n.s.		-.02	-.03
Gender	.05	.07	.03	.05	.02	.03
Victim	.08	.09	.15	.18	.18	.23
Victimization Rate	.03	.17	.007	.11	.004	.07
Poverty	.002	.06	n.s.		.002	.01
Transiency	.002	.03	.003	.04	n.s.	
Density	.000005	.06	.000005	.08	n.s.	
Attitudes Toward Government	.03	.09	.03	.10	.03	.10
Attitudes Toward Police	.03	.09	.03	.09	.02	.08
Rochester	-.05	-.05	-.02	-.03	n.s.	
St. Louis	.02	.03	n.s.		n.s.	
Police Presence	.02	.05	n.s.		.02	.07
Police Aggressiveness	n.s.		n.s.		-.003	-.06

*For all parameters displayed -- $p < .05$

variables have neither a strong nor a consistent effect. The level of patrol presence in a neighborhood, controlling for our other variables, seems to be directly, although not strongly, related to respondents' beliefs about the probability of a victimization. Rather than creating a sense of security, however, higher levels of presence seem to generate a higher expectation of a vandalism or robbery victimization. The sight of a patrolling vehicle may contribute to the image of a threatening environment (see Henig and Maxfield, 1978). On the other hand, the number of non-traffic proactive encounters is associated with a lower expectation of vandalism. The sight of officers engaged in investigative encounters seems to provide some comfort to citizens. Surprisingly, police action has its clearest direct effects -- negative and positive -- on attitudes about the least serious crime, vandalism.

Table 3: POLICE PRESENCE AND AGGRESSIVENESS - INTERACTION EFFECTS*

Change in R^2	.0059 Robbery	.0013 Burglary	.0024 Vandalism
Presence and	B	B	B
Attitudes Toward Government	.07	N.S.	N.S.
Attitudes Toward Police	.09	N.S.	N.S.
Crime Rate	-.16	-.24	N.S.
Victimization	.05	.04	N.S.
Aggressiveness and			
Attitudes Toward Government	N.S.	N.S.	N.S.
Attitudes Toward Police	N.S.	-.04	N.S.
Crime Rate	N.S.	.08	N.S.
Victimization	N.S.	N.S.	-.04

*For all parameters displayed -- $p < .05$

One might reasonably argue, however, that there could be important indirect or interactive effects for our police variables. Evidence of a police presence may be interpreted differently by individuals in different neighborhoods with different levels of victimization. Aggressiveness may mean one thing to crime victims and quite another to non-victims. To test these possibilities we added eight interaction terms to each of our three equations. These variables tested whether the impact of both police presence and patrol aggressiveness varied, depending on whether one's household had been victimized, the level of crime in the neighborhood, one's attitudes toward government, and one's attitudes toward the police. The results of this analysis appear in Table 3.

Unfortunately, these results are plagued by multicollinearity. The correlations between the interaction terms and their "source" variables were frequently quite high.[6] Thus, the increases in determination occasioned by adding these variables were small, and many of the individual coefficients were insignificant. However, a few of the coefficients did achieve significance. Though analyses using other samples are needed before any firm statements can be made, these findings may provide some hypotheses for these further inquiries. As our results indicate, an increased police presence may

[6]The Presence/Crime Rate interaction terms were very highly correlated with both crime rate variables and the presence variable (i.e., .50 -.92). The problem was not quite so severe with the aggressiveness interaction terms.

CONTINUED

2 OF 3

serve as an "accelerator" for certain of the most fearful segments of the citizenry --those with some victimization experience and those with negative attitudes toward the local government or the police. Also, the impact of police presence seems to vary according to the neighborhood crime rate. For both the expectation of a robbery or a burglary, the level of crime seems to determine whether various levels of police presence constitute indicia of danger or symbols of security. Again, these are intriguing findings, but their final fate must be determined with other samples.

E. Conclusions

These findings do not, on the whole, bode well for those who wish to use police to minimize problematic public reactions to crime. The most important determinants of citizens' response in our model seem to be directly crime-related -- offense rates themselves and a household history of victimization. Also, our results indicate that confidence-building strategies such as simply increasing patrol presence may backfire: increased visibility may simply make citizens more apprehensive. Increased aggressiveness may soothe some of the citizenry (see Wilson and Kelling, 1982), but it seems, in our neighborhhods, to have its only significant impact on the populace's reactions to less serious and less "costly" crimes. Finally, many determinants of citizens' reactions are beyond the reach of police. The police cannot change the degree to which a citizen is physically vulnerable due to her or his gender or age; they cannot change one's social vulnerability; nor can they reduce the level of poverty or the population density of one's neighborhood. One also doubts that police can make citizens feel that the crime problem is in the hands of politicians who are both caring and responsive.

Our analysis of the interactive effects of police action may be methodologically troublesome, but it serves to sensitize us to an important issue. The "public" is really the "publics." Whatever the police do will be filtered through peoples' prior dispositions about their society, their government, and their police. A strategy that makes some citizens feel safe may make others more fearful. Actions that in one neighborhood or context may be very fruitful may prove counter-productive in other contexts.

However, our results indicate that police may be able to affect citizens' reactions in two ways. First, police can probably have their greatest impact by reducing the level of crime. Since the two major determinants of reactions in our models were crime-related, successful efforts to reduce crime should be met with reductions in the level of anxiety. However, police must recognize that the tactics with which they attempt to reduce crime may have the unintended consequence of intensifying anxiety among certain segments of the population or in certain neighborhoods. Second, police may also be able to reduce citizens' perceptions of the likelihood that they will be victims by assuring them that their protectors are worthy -- honest, courteous, and committed to equality before the law. Since those with negative attitudes toward the police were more apprehensive, the generation of more positive attitudes might prove useful. This conclusion must be considered more tentative than the first, however, because of the possibility that the relationship between attitudes toward the police and reactions to crime may be reciprocal -- crime may play some role in generating these negative attitudes. Neither of these

conclusions, unfortunately, is as simple as the common-sense formula for the reduction of the "fear of crime" -- the demand for more police, in more places, more of the time.

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APPENDIX A: POLICE SERVICES STUDY DATA BASE

Many of the data sets utilized in this report were provided by the Police Services Study, a research project conducted jointly by the Workshop in Political Theory and Policy Analysis at Indiana University and the Center for Urban and Regional Studies at The University of North Carolina at Chapel Hill between 1974 and 1980. Part of the project consisted of intensive data collection in 60 neighborhoods served by 24 local police departments. On site data collection was conducted in the summer of 1977 by research teams assigned to three metropolitan areas in which the departments and neighborhoods were located: Rochester, New York; St. Louis, Missouri; and Tampa-St. Petersburg, Florida. Funding for data collection was provided by the National Science Foundation, Grant NSF GI 43949.

Departments were selected in each SMSA to produce a rough cross section of organizational arrangments and service conditions for urban policing in the United States. The sample is not representative of the entire poulation of police departments across the nation, but is broadly representative of urban and suburban police service delivery. Table 1 lists the police departments included in the Police Service Study (PSS).

The sixty PSS neighborhoods were selected to reflect a cross section of the residential service conditions with which each department had to deal. Ethnicity and family income of residents served as the primary selection criteria. As much as possible, study neighborhoods were selected to conform to police department beat boundaries. Other constraints were the number of residents and census block-group boundaries. Table 2 lists the racial and income characteristics of the study neighborhoods by their police department size.

The number of neighborhoods per department varied from one to eight. All neighborhoods were predominately residential. Neighborhood boundaries correspond exactly to patrol beat boundaries for about one half of the sample. Boundaries for the other neighborhoods diverged somewhat from those of beats to maintain greater neighborhood ethnic and income homogeneity or because beat boundaries changed with each shift. Police administrators were consulted to ensure that boundaries selected did not seriously violate local conceptions of neighborhood integrity. Neighborhoods varied in population from 2,900 to 22,000, two-thirds falling in the 5,000 -15,000 range.

Several major data sets concerning these departments and neighborhoods were used in the construction of variables in the studies that comprise this report: observation of patrol officers and officer-citizen encounters, police officer interviews, citizen interviews, and debriefing of citizens whose encounters with police were observed by PSS researchers. The following section briefly desribes the construction of theses data sets. Table 3 lists the data sets used in each chapter.

Observation of Police Officers. Approximately 7200 hours of in-person observation by trained researchers were conducted for the 60 neighborhoods. In each neighborhood 15 shifts of patrol were observed. The shifts were matched for time of day and day of week in all neighborhoods. More than 500

officers were observed. During this time 5688 police-citizen encounters involving more than 10,000 citizens were observed. Detailed coding of each encounter covered 650 variables, including how the encounter was initiated. After completing each tour of duty, observers completed a detailed observation schedule for each encounter, recording the type of problem(s) involved, how the incident came to police attention, and the numbers, characteristics, and actions of both police and citizen participants. Observers also coded additional information about each shift to record officer activities besides those in encounters with citizens.

Police Officer Interviews. Structured questionnaires were administered to a sample of officers assigned to the beats corresponding to the study neighborhoods. In many cases, the samples constituted all or nearly all of the population of relevant officers for the neighborhood. Patrol supervisors and department administrators responsible for patrol operations were also interviewed. Interviews were conducted in person by trained research staff. They covered questions about the officers' personal characteristics, professional history, work assignment, attitudes toward police work, and perceptions of the study neighborhoods.

Neighborhood Resident Survey. Approximately 200 residents per neighborhood were interviewed by telephone. There were 172 items per interview, including respondent characteristics, household victimization data, respondent experiences with the police, evaluation of police service in the neighborhood, and attitudes toward police role and performance in specific encounters.

Citizen Encounter Debriefing. A sample of the encounters observed on police patrols (see above) were selected from each of the neighborhoods and one or more citizen participants were contacted by telephone or in-person for an interview about their perceptions of the encounter. These "debriefing" interviews were conducted within two to three weeks of the encounters. A total of 821 such interviews were completed.

APPENDIX TABLE 1. THE POLICE SERVICES STUDY DEPARTMENTS

Police Jurisdiction	Jurisdiction Population	No. of Study Neighborhoods	No. of Sworn Officers	No. Officers Interviewed
Kinloch, MO	5,600	1	15	12
Pinelawn, MO	5,700	1	13	9
Wellston, MO	5,800	1	24	14
Northwoods, MO	8,700	1	18	12
Brentwood, MO	10,000	2	23	9
Tarpon Springs, FL	11,400	2	23	13
Crestwood, MO	15,300	1	28	18
Berkeley, MO	18,300	2	38	19
Bridgeton, MO	24,000	1	51	10
Ferguson, MO	26,900	2	54	28
Pinellas Park, FL	29,400	1	33	17
Gates, NY	29,900	1	22	9
Kirkwood, MO	33,600	2	53	17
University City, MO	47,000	3	80	27
Largo, FL	54,900	2	53	30
Clearwater, FL	77,000	3	158	59
Greece, NY	84,100	1	68	16
Monroe Co., NY	185,300	2	203	45
Pinellas Co., FL	209,700	4	232	77
St. Petersburg, FL	236,400	4	453	80
Rochester, NY	259,000	7	646	73
Tampa, FL	296,700	5	595	124
Hillsborough Co., FL	330,200	3	283	50
St. Louis, MO	498,700	8	2,050	126

APPENDIX TABLE 2. THE DISTRIBUTION OF POLICE SERVICES STUDY NEIGHBORHOODS

Type of Neighborhood	Type of Department Providing Service			
	Agencies with 10 to 50 Officers	Agencies with 51 to 160 Officers	Large County Agencies	Large City Agencies
Poverty, black	3	1	0	5
Lower income, black	0	0	1	5
Lower income, mixed	3	1	0	4
Lower income, white	3	3	3	8
Middle income[a]	3	5	3	2
Upper middle income, white	1	4	2	0

[a]Two of these neighborhoods were racially mixed; the remainder were white. Racially mixed neighborhoods are those with 26-80% black residents.

Adapted from Roger B. Parks, Using Sample Surveys to Compare Police Performance. (Bloomington, Indiana: Workshop in Political Theory and Policy Analysis. Indiana Uiversity), 1980, 4-40.

APPENDIX TABLE 3. GUIDE TO DATA BASES USED BY CHAPTER

CHAPTER	Patrol Observation	Officer Survey	Citizen Survey	Citizen Debriefing
3	X		X	
4	X	X	X	
5	X	X	X	
6	X	X		
7	X	X		
8	X			
9	X			
12	X		X	X

APPENDIX B
The Authors

Stephen Mastrofski is Assistant Professor of the Administration of Justice at Pennsylvania State University in State College.

Elinor Ostrom is Professor of Political Science and Co-director of the Workshop in Political Theory and Policy Analysis at Indiana University in Bloomington.

Roger B. Parks is Associate Social Scientist and Associate Director of the Workshop in Political Theory and Policy Analysis at Indiana University in Bloomington.

Charles David Phillips is Assistant Professor of Political Science and Faculty Research Associate in the Institute for Research in Social Science at the University of North Carolina at Chapel Hill.

Alissa A. Pollitz is Research Assistant in the Institute for Research in Social Science at the University of North Carolina at Chapel Hill.

Gordon P. Whitaker is Associate Professor of Political Science and Faculty Research Associate in the Institute for Research in Social Science at the University of North Carolina at Chapel Hill.

Robert E. Worden is Research Assistant in the Institute for Research in Social Science at the University of North Carolina at Chapel Hill.

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