

COMMUNITY VIEWS ON CRIME AND POLICING: SURVEY MODE EFFECTS ON BIAS IN COMMUNITY SURVEYS*

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This study compared two modes of administration, mail and random-digit dialing (RDD), in surveys targeting four diverse community areas within a large metropolitan area. The modes' differential susceptibility to nonresponse bias and response bias is revealed by directly comparing the two modes and procedures. The authors conclude that RDD phone community surveys on attitudes toward the police are likely to overestimate the population's true level of approval, whereas mail surveys are likely to underestimate it. Researchers should consider the mode of data collection when

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examining relationships and building models that explain community reactions to policing. Policy makers are cautioned to be aware that the survey mode may have a strong impact on estimates of prevalence, especially in neighborhoods with higher crime and lower income.

The resurgence of interest in community policing has focused increased attention on residents' views of their neighborhoods, crime, and police activities. Periodic surveying of communities is promoted as a method of providing inclusive and balanced feedback to police departments and other local governmental entities (Beck, Boni, & Packer, 1999; Field, 1990; Hickman & Reaves, 2001; Skogan, 1990). Community members' reports on crime problems, fear of crime, signs of physical and social disorder, police visibility, and the behavior of police officers are valued additions to the police-community dialogue on problem priorities, the allocation of resources, and assessments of police performance. Community surveys have also been used to evaluate policies or programs that are designed to stimulate change or growth (Brown, Benedict, & Brower, 1998; Rohe, Adams, & Arcury, 2001; Torres & Vogel, 2001) and to understand individual and collective participation in change (Skogan, 1990). Researchers who are interested in the impacts of physical and social disorder have used periodic community surveying to study processes of social control, cohesion, and crime (Perkins & Taylor, 1996; Sampson & Raudenbush, 1999; Sampson, Raudenbush, & Earls, 1997; Taylor, 2001). Finally, surveys of residents provide important alternatives to police officials' measurements of crime and policing activities. Surveys yield prevalence measures on victimization, fear of crime, crime-avoidance strategies, and neighborhood disorder that offer a community perspective that may be compared to reported statistics on crime, arrest rates, police deployment, and response time that are available from police agencies.

Thus, the methodological adequacy of community surveys is of keen interest to criminology theory, policy development, and practice. This article explores the ways in which the mode of survey administration affects the validity of community surveys and the inferences that can be drawn from them by comparing response rates, nonresponse bias, and response bias in parallel community surveys, one using a self-administered mailed questionnaire and the other, a personal telephone interview.

The fundamental goal of survey research is to elicit accurate responses from representative samples to permit valid inferences to populations of interest. Well-conducted surveys strive to maximize response rates and assess potential sources of nonresponse bias.

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NONRESPONSE

Several reviews that the response rate (both face-to-face and the past few decades participate (Goyder, Steeh, 1981). Converged by Dillman have increased slightly. These lower response known about nonresponse. Generalizing about the cated because procedures nonresponse in various commonly studied, the response rates is the result. al., 1988; Lavrakas, 1990. phone modes typically tion. Racial-ethnic and relationships have been

Presser and Stinson community interview had once suspected but found that personal in

Typically, evidence of bias derives from the dissimilarity of demographic characteristics between the survey sample and the population of interest. Nonresponse bias may also derive from selection factors, such as personal involvement with issues being surveyed, a desire to be conscientious, and an orientation toward being active in one's community, that are much more difficult to gauge because population parameters are virtually unavailable.

Another major threat to the validity of surveys is the unintended effects that survey materials or survey administration procedures may have on the validity of responses. For example, survey procedures may fail to reassure respondents who are reluctant to disclose sensitive information, stimulate distrust or doubt about how the information will be used, or arouse a need to present themselves in a socially desirable light. Even when survey samples can be shown to be representative of the demographic characteristics of the population, response bias can jeopardize the validity of inferences. Social scientists who study crime and policing are particularly concerned with this issue, since respondents' skepticism may skew the survey results.

NONRESPONSE AND RESPONSE BIAS

Several reviews and meta-analytic studies have made clear that the response rates from interview studies of the general public (both face-to-face and phone interviews) have been decreasing over the past few decades in large part because of increasing refusals to participate (Goyder, 1985; Groves, 1989; Hox & de Leeuw, 1994; Steeh, 1981). Conversely, mail response rates, especially those influenced by Dillman's (1978, 1991) total design method (TDM), have increased slightly or remained fairly constant over this period. These lower response rates give emphasis to the question of what is known about nonresponders and how they vary by survey mode. Generalizing about the characteristics of nonrespondents is complicated because procedures and topics vary across surveys and affect nonresponse in various ways. Of all the nonresponse characteristics commonly studied, the relationship between level of education and response rates is the most consistent (Groves, 1989, 1990; Groves et al., 1988; Lavrakas, 1993, 1998; Mangione, 1998). Both mail and phone modes typically underrepresent residents with lower education. Racial-ethnic and age differences are often reported, but the relationships have been inconsistent.

Presser and Stinson (1998) demonstrated that response bias in community interview studies is more troublesome than researchers had once suspected because it can pass undetected. Their study found that personal interview surveys are more susceptible to this

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kind of bias than are self-administered surveys. Researchers who have compared responses to interviewer-administered surveys (phone or face to face) and self-administered surveys (mailed or dropped off) in probability samples drawn from the same sampling frame and administered in the same time frame have reported significant differences by mode in reports of drug use and illegal activity (Aquilino & LoSciuto, 1990); personal health status and chronic conditions (McHorney, Kosinski, & Ware, 1994; Siemiatycki, Campbell, Richardson, & Aubert, 1984); quality of life, crime, and safety (Krysan, Schuman, Scott, & Beatty, 1994); and punishment of criminals (Farnworth, Bennett, & West, 1996). These studies have concluded that respondents are more forthright in exposing sensitive information or attitudes in self-administered surveys. In each of the studies just cited, differences in response due to mode were apparent, primarily on the subset of questions that were vulnerable to self-presentational or privacy concerns. Such mode differences may be explained either by responses from a slightly different pool of people (i.e., selection bias that is due to differential nonresponse) or from the same pool of people responding differently when asked the same questions (i.e., response bias that is due to self-presentational concerns).

These issues are central to our study. Community survey studies typically make inferences about the representativeness of achieved samples by comparing the demographics of the respondent group with those of the area's population as counted in the most recent census. However, relying on this match is less and less reassuring as the nonresponse rate increases. If the demographics match in a sample with a low response rate, one still wonders what factors led to cooperation and refusal and how they may slant the representativeness of the responses. Relatively little is known about the magnitude or nature of the selection biases that are most frequently encountered in community surveys of crime and policing or about the extent to which the forces that influence self-selection differ by survey mode. *Differential* selection bias is a plausible explanation for differences in mode even if both achieved samples appear representative of the target population as described by key demographics. Finally, it is known that personal interviews are uniquely vulnerable to response bias if privacy or self-presentational concerns arise.

The present study compared two modes of administration of community surveys in four diverse communities within a large metropolitan area. The two most common modes used by researchers to examine community reactions to policing have been mail and phone surveys, and most of the phone surveys have used a random digit

dialing (RDD) approach. These two common mail and RDD procedures were administered at the same time frame, with the same wording and a number of attempts dictated a better response ability to respond to the survey.

Communities

Four Los Angeles communities, within city boundaries, were selected for study. In terms of levels of crime, crime rates in the four communities were significantly higher than in the other areas surveyed. The four communities were black and 40% Latino. 43% reported household size of approximately 2. 32% reported household size of approximately 3. A large number of long-term residents live in the city, with more than 50% of the population having been born in the city. The city has the second highest population density in the country.

Community W, a small, inner-city community, has the second highest property offenses among the four communities.

¹ Our original plan was to randomly assign cases to four communities with lists that were severe and complete list of address and power utility company. The phone numbers, and these lists were not available. Furthermore, a complete list of areas was not available for seeking to survey a community. The residents of the mail survey sampling frame and the sampling frames and the differences inherent in the mail survey and the comparison of the results of the defined differences in modes that vary between the two modes.

² The Los Angeles Police Department were redrawn in the early 1990s to identify "natural" communities into a single division as a consultant to the LA Police Department in the mid-1990s.

dialing (RDD) approach. Therefore, we determined to compare these two common survey modes by conducting a well-designed mail and RDD phone survey,¹ targeting the same population over the same time frame, using the same introductory information and the same wording and order of questions, and requiring the same number of attempts to contact before accepting a refusal. We predicted a better response rate from the RDD survey but more vulnerability to response bias arising from self-presentational concerns.

METHODS

Communities

Four Los Angeles communities, defined by police district boundaries, were selected for the study.² These communities vary in levels of crime, race-ethnicity, and socioeconomic and demographic characteristics. Community SE has one of the highest violent crime rates in the city, more than three times higher than any of the other areas surveyed. In the 1990 census, the area was 55% black and 40% Latino and had approximately 150,000 residents; 43% reported household incomes below \$15,000. Community NE has approximately 200,000 residents, 84% of Hispanic origin, and 32% reported household incomes below \$15,000. This area has a large number of longtime residents and the largest gang population in the city, with more than 7,000 gang members in some 40 gangs. NE has the second highest violent crime rate among the four areas surveyed.

Community W, a heavily touristed area adjacent to the Pacific Ocean, has the second fewest violent crimes but the highest rate of property offenses among the surveyed areas. The area is ethnically

¹ Our original plan was to use a list of addresses and phone numbers and randomly assign cases to survey modes. However, this goal could be achieved only with lists that were severely limited in their representativeness. The most inclusive and complete list of addresses that we examined came from the city's water and power utility company. This list included owners' telephone numbers, not occupants' phone numbers, and these phone numbers were updated only when owners changed. Furthermore, a complete list of residential phone numbers in the target community areas was not available and, in our judgment, would rarely be available to those seeking to survey a community. We believed that the RDD approach would better represent the residents of the communities and ultimately be more comparable to the mail survey sampling frame than any phone list we could obtain. By choosing to let sampling frames and sampling procedures vary, we included any differing weaknesses inherent in the mail and RDD phone sampling approaches in our overall comparison of the results of these two common approaches to community surveying. We defined differences in modes in a broad sense, to include the accompanying procedures that vary between a well-conducted mail and a well-conducted RDD survey.

² The Los Angeles Police Department's (LAPD's) geographic areas boundaries were redrawn in the early 1990s after an extensive departmental study that attempted to identify "natural communities" and then group a number of the communities into a single division. The process was discussed by Greene (1998), who served as a consultant to the LAPD in developing its community policing program in the mid-1990s.

diverse (61% white, 22% Latino, 10% Asian, and 6% black) with roughly 200,000 residents, of whom less than 17% have household incomes below \$15,000. Community NW is a large, less densely populated area with about 285,000 residents, primarily white (73%) with growing Latino (17%) and Asian (8%) populations. Residents of this area have higher household incomes than do those in the other areas and a very low rate of violent crime.

Procedures

The mail and RDD phone respondents completed the same survey with the option of answering in English or Spanish.³ In each survey mode, the respondents were immediately made aware of the university sponsorship, the usefulness of the survey, and confidentiality protections. The intent to share aggregated results with city policy makers and local police managers was mentioned. No names were taken in either survey. We sought to standardize the introduction and content, as well as the timing and procedures across modes. For both surveys, the household adult over age 18 who most recently had a birthday was designated to complete the survey. The nature of the contact differed, with the mail sample receiving all contact by mail and the phone sample received all contact by phone.⁴

Mail survey. The mail survey procedures used were heavily influenced by Dillman's (1978, 1991) TDM and the results of several reviews and meta-analyses (Asch, Jedrzejewski, & Christakis, 1997; Fox, Crask, & Kim, 1988; Goyder, 1982, 1985; Heberlein & Baumgartner, 1978; Hox & de Leeuw, 1994) that identified procedures that enhance response. Dillman's guidelines for format and maximum length were followed. All correspondence was hand signed. Sampled addresses received up to six contacts over five months, including a prenotification postcard; a cover letter with a survey booklet; a thank-you/reminder postcard; and second, third, and fourth mailings of a cover letter with survey booklets, along with appeals in additional languages offering translations. A dollar incentive was enclosed in the last two mailings.⁵

³ Although the survey was offered in four languages (in addition to English and Spanish), only a few respondents in either mode requested an alternative language.

⁴ While phone surveys sometimes include a preinterview letter or postcard, this is not feasible in RDD phone surveys because the addresses are typically not known. We made no attempt to prenotify the respondents in the RDD group.

⁵ Our procedures involved three important deviations from Dillman's TDM approach. We did not have access to names (and wanted to emphasize confidentiality), so all correspondence was addressed to "Community Member." Because of the lack of names, we were unable to implement the registered mailing called for in TDM. Instead, we included a \$1.00 incentive in the last two mailings. Although TDM calls for only three mailings, we added a fourth in an attempt to recover from a poor

The city's depa was geocoded to id These lists became each list, a random sample. The post off the sampled address and "no such address" addresses is di vice list of addresses and torn-down dwell boxes or because addresses. In so far as survey requests, we underrepresentation even unsafe areas. area by dividing the households to which

Phone survey. experienced survey reform the phone survey used that varied th were made over the cifically trained on t interviewing technique were required before interviewers were us minutes.

After studying t phone exchanges in e the phones in the ta the target areas, so e each area.⁷ Not inc sidents of the target out of the area than 3% of the mail respon homes. Residents wi receive a call.

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The city's department of water and power service address list was geocoded to identify addresses within the four target areas. These lists became the sampling frame for the mail survey. From each list, a random sample of 375 addresses made up the original sample. The post office did not deliver the survey mailings to 14% of the sampled addresses because of "vacancy," "insufficient address," and "no such address."⁶ Assessing the reasons for these undeliverable addresses is difficult. We can speculate that the utility's service list of addresses is unstable because of vacancies, abandoned and torn-down dwellings, or even vandalized and nonexistent mailboxes or because some addresses were no longer residential addresses. In so far as people living at these addresses did not receive survey requests, we speculate that the direction of bias is toward an underrepresentation of persons living in disordered, unstable, or even unsafe areas. The response rate was calculated within each area by dividing the number of completed surveys by the number of households to which surveys were delivered.

Phone survey. California Survey Research Associates, an experienced survey research firm in the area, was contracted to perform the phone survey under our supervision. A CATI system was used that varied the time of day and scheduled callbacks. Calls were made over the course of 14 weeks. The interviewers were specifically trained on the instrument and in positive and assertive interviewing techniques. Six attempts to contact a phone number were required before it was considered a nonresponse. Bilingual interviewers were used. The interviews lasted an average of 20 minutes.

After studying their geographic distribution, we selected telephone exchanges in each community, predicted to cover 55%–80% of the phones in the target areas. These exchanges extended beyond the target areas, so a set of screening questions was customized for each area.⁷ Not included in the phone sampling frame were residents of the target areas with exchanges that were more common out of the area than in it and residents without phones. Less than 3% of the mail respondents stated they did not have phones in their homes. Residents with multiple phone numbers were more likely to receive a call.

response to the second mailing that we believe was caused by its arrival over the December holiday period.

⁶ Four percent were marked "vacant" or "moved;" 10% were marked "attempted unknown," "insufficient address," or "no such number"; and less than 1 percent were marked "unit number missing."

⁷ Answers to a series of three to four questions that placed the residence beyond the boundary streets screened out persons living outside the target areas.

Two hundred interviews were completed in each of the four areas. The response rate for the RDD survey was defined as the percentage of all residential households reached (adjusted for living within the target area) that completed the survey. Phone numbers that were excluded from the calculation of the response rate were those that were never attempted (never dialed); reached but screened out of the target area; disconnected, fax, or other nonvoice lines; and businesses. The number of calls in which households were contacted but neither location screenings nor interviews were completed (including refusals, terminated calls, callbacks that did not lead to completion, and answering machine only) was adjusted within each area for the number that were expected to have been screened out of the target area.

Measures

Demographic characteristics that were measured in the surveys included age (in four categories from 18-to-25 years to age 66-or-older), education (in four categories from no high school diploma or general equivalency diploma to completed a master's or other higher-level degree), ethnicity (black, Latino, non-Hispanic white, other), gender, household income (in four categories from less than \$15,000 to more than \$45,000), and tenure in the neighborhood (in three categories from less than one year to more than five years). The overall means and standard deviations on these measures are listed in Table 1.

Experience with the police and crime was measured with several variables. Police visibility in the neighborhood was measured on a five-point scale (from never to daily). Respondents indicated if they would recognize officers from their local police station or not. Calls for police service to 911 or calls made directly to the local police station in the past year were reported. Victimization in the past year was measured with seven items, including real or threatened serious violent crime in the neighborhood (robbery, assault with a weapon, other assault) and both serious and lesser property crime offenses in the neighborhood (vandalism, burglary, auto theft, other property theft). The total number of victimization experiences was tallied, and two dichotomous variables were formed (victim of a violent crime in the past year or not, victim of a property crime in the past year or not). The means and standard deviations for experience variables are listed in Table 1.

Three key attitudes or perceptions were measured.⁸ Perceptions of neighborhood social cohesion were captured using a five-

⁸ Additional constructs were studied in a long version of the mail survey given at the same time, but were not included in the methodological test reported here.

Table 1. Overall

Variable
Demographics
Age (1 to 4)
Education (1 to 4)
Black (0,1)
Hispanic (0,1)
Non Hispanic white ((
Gender (female = 1) ((
Household income (1 to
Tenure in neighborhood
Experiences with Police
Seeing officers on patrol
Recognize local officer
Call 911 or police station
Victim of crimes in the
Victim of violent crime
Victim of property crime
Attitudes and Perceptions
Social cohesion (1 to 5)
Fear of crime (1 to 4)
Opinion of police (1 to

item scale developed for each response set for each agree; two items were scale was .71. Fear with four-point response night and fear of both property crimes in the alpha for the fear scale six items evaluating adapted from items in Community Policing Consortium all the variables just

Response Rates and

The response rate for wealthier communities was higher than the response rate in the same contrast, the mail response (44% in SE and 56% in the phone survey (44%

The analyses reported here are based on the short version. Potential respondents of the mail survey, which included Hennigan, Sloane, &

Table 1. Overall Sample Means and Standard Deviations

Variable	Overall Mean	Standard Deviation
Demographics		
Age (1 to 4)	2.40	.89
Education (1 to 4)	2.44	.97
Black (0,1)	.15	.36
Hispanic (0,1)	.36	.48
Non Hispanic white (0,1)	.39	.49
Gender (female = 1) (0,1)	.58	.49
Household income (1 to 4)	2.25	.97
Tenure in neighborhood (1 to 3)	2.47	.69
Experiences with Police and Crime		
Seeing officers on patrol (0 to 4)	2.05	1.50
Recognize local officers (0,1)	.24	.43
Call 911 or police station (0,1)	.42	.49
Victim of crimes in the past year (0-4)	1.18	1.35
Victim of violent crime (0,1)	.16	.38
Victim of property crime (0,1)	.54	.50
Attitudes and Perceptions		
Social cohesion (1 to 5)	3.33	.74
Fear of crime (1 to 4)	2.46	.74
Opinion of police (1 to 5)	3.40	.83

item scale developed by Sampson et al., (1997). The five-point response set for each item ranged from strongly disagree to strongly agree; two items were reversed. Cronbach's alpha for the five-item scale was .71. Fear of crime was measured using six items (each with four-point response sets), including feeling unsafe alone at night and fear of becoming a victim of specific serious violent or property crimes in the neighborhood; one item was reversed. The alpha for the fear scale was .83. Finally, a scale (alpha of .93) with six items evaluating the job performance of the local police was adapted from items developed by Skogan and the Chicago Community Policing Consortium (1996). The bivariate correlations among all the variables just described are presented in Table 2.

RESULTS

Response Rates and Coverage

The response rate for the mail survey was higher in the two wealthier communities (65% in W and NW) than the phone cooperation rate in the same communities (38% in W and 41% in NW). In contrast, the mail response rate in the lower-income areas was low (44% in SE and 56% in NE) and similar to the cooperation rate for the phone survey (44% in SE and 61% in NE). Geocoded maps of the

The analyses reported here compared the shorter mail version with a matched phone version. Potential respondents were randomly assigned to the long or short version of the mail survey, which had no impact on the responses or the response rate (Maxson, Hennigan, Sloane, & Ranney, 1999).

each of the four areas defined as the per- (adjusted for livingvey. Phone numbers response rate were ialized); reached but ax, or other nonvoice n which households nor interviews were s, callbacks that did e only) was adjusted pected to have been

measured in the 8-to-25 years to age 1 no high school di- pleted a master's or atino, non-Hispanic our categories from enure in the neigh- e year to more than deviations on these

measured with sev- hood was measured ondenents indicated if olice station or not. ectly to the local po- mization in the past ; real or threatened erty, assault with a sser property crime ry, auto theft, other on experiences was ned (victim of a vio- roperty crime in the viations for experi-

measured.⁸ Percep- tured using a five-

of the mail survey given gical test reported here.

Table 2. Bivariate Correlations Among Demographic Characteristics, Experiences with the Police, Survey Mode, and Attitudes^a

	AGE	EDUC	INCO	TENU	BLAC	WHIT	HISP	FEM	RECO	CALL	SEEO	VICT	VVIO	VPRO	SCOH	FEAR	OPIN
Age	1.00																
Education	.07	1.00															
Income	.06	.51	1.00														
Tenure in neighborhood	.35	-.03	.05	1.00													
African American or black	.02	-.04	-.13	.01	1.00												
Non-Hispanic white	.22	.39	.40	-.01	-.34	1.00											
Hispanic origin	-.23	-.47	-.33	.00	-.32	-.59	1.00										
Female	-.01	-.08	-.14	.00	.08	-.08	.03	1.00									
Recognize local officers	-.04	-.10	-.08	.12	.10	-.07	.03	-.02	1.00								
Called 911 or station	-.07	.02	-.04	.10	.05	-.02	-.03	.07	.16	1.00							
See officers on patrol	-.13	-.19	-.20	-.02	.11	-.18	.13	.00	.27	.02	1.00						
Victim of crime	-.15	-.14	-.17	.11	.09	-.21	.15	.05	.10	.40	.03	1.00					
Victim of violent crime	-.16	-.13	-.20	.03	.03	-.14	.14	.00	.10	.28	.09	.61	1.00				
Victim of property crime	-.11	-.08	-.09	.10	.09	-.14	.09	.02	.07	.26	.01	.75	.28	1.00			
Social cohesion	.14	.08	.17	.06	-.06	.15	-.09	-.07	.03	-.14	.02	-.25	-.17	-.20	1.00		
Fear of crime	-.04	-.19	-.21	.08	.08	-.25	.19	.20	.00	.25	-.05	.46	.30	.35	-.30	1.00	
Opinion of police	.13	-.14	.00	-.03	-.11	.09	.03	.00	.14	-.20	.24	-.29	-.16	-.25	.32	-.32	1.00

a. All questions other than general demographics were specific to "in the neighborhood over the last year."

addresses of the n that both were simi nonresponse was n nearest cross street have a similar distr tion. A narrow stri missed in the phon (This omission is e when applied to pa

Characteristics of t

The mail and graphic characteris samples varied by Table 3 shows the r (SE, NE, W, NW) by (ANOVA). In these older ($F = 22.98$, $df = 1,148$) ($F = 9.31$, $df = 1,148$) hood ($F = 4.78$, $df = 1,148$) Hispanic origin ($F = 4.78$, $df = 1,148$) ANOVA within area consistent across are the four areas (all e: merous and white r (NE and NW) in the in education were e spondents in the m those in the phone s: income, gender, or th two achieved sample

⁹ For the phone sur The survey asked for the gave cross streets that did that could not be located

¹⁰ When we compare found a systematic skew toward older respon Shifting demographic pro the 1990 data as a basis f for the 2000 census are no of this study, however, it mail and phone samples t

¹¹ Not only did areas panic origin, but the area v predominately Hispanic.

¹² Prior research sup less- educated residents. It one area.

a. All questions other than general demographics were specific to "in the neighborhood over the last year."

Characteristics of the Respondents

⁹ For the phone survey, the respondents' locations were more difficult to map. The survey asked for the respondents' nearest cross streets. Several respondents gave cross streets that did not cross, misspelled street names, or named small streets that could not be located in our street database.

¹⁰ When we compared the demographic distributions with the 1990 census, we found a systematic skew toward higher education in both survey groups and a slight skew toward older respondents in the mail-survey group (see Maxson et al., 1999). Shifting demographic profiles in these areas make us wary of the validity of using the 1990 data as a basis for comparison for the 1997–98 achieved samples. Figures for the 2000 census are not yet available at the census-tract level. For the purposes of this study, however, it was the similarities or differences between the achieved mail and phone samples that were of central concern.

¹¹ Not only did areas show greater RDD phone response by respondents of Hispanic origin, but the area with the highest RDD cooperation rate was an area that is predominately Hispanic.

¹² Prior research suggested that both survey modes tend to underrepresent less-educated residents. It appears that this bias was stronger in the mail survey in one area.

Table 3. Means of Key Demographic Variables for the Mail and RDD Achieved Samples in Four Areas

	Area SE			Area NE			Area W			Area NW		
	Mail	RDD	Sig.	Mail	RDD	Sig.	Mail	RDD	Sig.	Mail	RDD	Sig.
Number of Respondents	141	200		173	200		211	200		189	200	
Key Demographic Variables												
Age of respondent (1-4)	2.47	2.18	**	2.37	2.11	**	2.46	2.45		2.72	2.41	***
Respondent's educational level (1-4)	1.96	1.91		2.20	1.86	***	2.91	2.86		2.84	2.71	
Household income (1-4)	1.70	1.71		1.87	1.85		2.75	2.68		2.71	2.64	
Tenure in neighborhood (1-3)	2.56	2.46		2.63	2.51		2.41	2.45		2.50	2.38	
Hispanic origin (0,1)	0.42	0.38		0.76	0.86	**	0.10	0.10		0.09	0.22	***
African American or black (0,1)	0.48	0.56		0.02	0.02		0.06	0.06		0.04	0.06	
Non-Hispanic white (0,1)	0.03	0.01		0.10	0.04	*	0.66	0.74		0.79	0.67	**
Female (0,1)	0.55	0.62		0.61	0.60		0.57	0.52		0.53	0.59	

* $p < .05$, ** $p < .01$, *** $p < .001$.

In Table 4, the means of attitudes toward crime across the four areas and crime across the four areas. There were clear differences in the phone achieved sample ($p < .0001$), familiar with the police ($p < .0001$), calls for service ($p < .0001$), number of times called ($p < .0001$), violent crime— $F = 23.92$, $p < .0001$, crime— $F = 23.92$, $p < .0001$, within communities. In three areas, the phone respondents were more familiar with the police. Differences in calls for service (SE and NE), where the phone respondents are putative individuals who are more familiar with the police than those who responded by mail.

Differences in Attitudes

Three attitudes toward crime in neighborhoods with high crime rates. Table 5 indicates that the phone achieved sample had higher mail and phone achieved sample fear of neighborhood crime, social cohesion (lower fear of neighborhood crime), higher, and evaluated lower ($p < .0001$) was lower among phone respondents.

Follow-up analysis of significant differences between the SE and NW areas. In all four areas, the phone respondents had lower fear and lower opinion toward the police are more respondents lived, but

In Table 4, the respondents' past experiences with the police and crime across survey mode are compared. In the overall test, there were clear unexpected differences between the mail and phone achieved samples on police visibility ($F = 75.74$, $df = 1,1491$, $p < .0001$), familiarity with local police ($F = 23.06$, $df = 1,1481$, $p < .0001$), calls for service in the past year ($F = 11.12$, $df = 1,1500$, $p < .0009$), number of times victimized in the past year ($F = 39.45$, $df = 1,1499$, $p < .0001$), and number of respondents victimized (of any violent crime— $F = 7.34$, $df = 1,1492$, $p < .0068$ —or any property crime— $F = 23.92$, $df = 1,1497$, $p < .0001$). When tested separately within communities, the pattern of higher police visibility among the phone respondents was strong and consistent across the communities. In three areas, the phone respondents were more familiar with the police. Differences by mode were significant on victimization and calls for service only in the two lower-income communities (SE and NE), where the incidence of crime is high. The differences by mode are putative evidence of differential selection bias, in that individuals who chose to cooperate with the phone survey were more familiar with the police and less troubled by crime than were those who responded by mail.

Differences in Attitudes by Mode

Three attitudes related to policing, disorder, and quality of life in neighborhoods were examined for differences by survey mode. Table 5 indicates that there were strong differences between the mail and phone achieved samples on neighborhood social cohesion, fear of neighborhood crime, and evaluation of the local police. Overall, social cohesion ($F = 19.88$, $df = 1,1488$, $p < .0001$) was lower, fear of neighborhood crime ($F = 38.06$, $df = 1,1495$, $p < .0001$) was higher, and evaluation of the police ($F = 82.15$, $df = 1,1450$, $p < .0001$) was lower among the mail respondents than among the phone respondents.

Follow-up analyses within areas confirmed that there were significant differences by mode in two of the four areas on social cohesion; the SE and NE mail responders reported less neighborhood cohesion. In all four areas, the mail respondents expressed more fear and lower opinions of police job performance than did the phone respondents. The levels of social cohesion, fear, and attitude toward the police are dependent not just on the areas in which the respondents lived, but on the mode of survey administration.

Non-Hispanic white (0,1)	0.03	0.01	0.10	0.04	*	0.66	0.74	0.79	0.67	**
Female (0,1)	0.55	0.62	0.61	0.60		0.57	0.52	0.53	0.59	

* $p < .05$, ** $p < .01$, *** $p < .001$.

Table 4. Means for Respondents' Experiences with Crime and the Police for the Mail and RDD Achieved Samples in Four Areas

	Area SE			Area NE			Area W			Area NW		
	Mail	RDD	Sig.	Mail	RDD	Sig.	Mail	RDD	Sig.	Mail	RDD	Sig.
Frequency of seeing officers in the neighborhood (0-4)	2.16	2.86	***	1.74	2.41	***	1.59	2.23	***	1.34	1.90	***
Recognize local police officers (0,1)	0.24	0.36	*	0.17	0.32	***	0.15	0.24	*	0.15	0.20	
Called 911 or the police station in the past year (0,1)	0.56	0.46		0.47	0.34	**	0.47	0.40		0.39	0.35	
Victim of crimes in the past year (0-4)	1.45	0.79	***	1.91	1.11	***	0.97	0.86		0.79	0.63	
Violent crime in the past year (0,1)	0.38	0.25	*	0.25	0.17	*	0.11	0.12		0.09	0.08	
Property crime in the past year (0,1)	0.76	0.60	**	0.73	0.52	***	0.50	0.44		0.43	0.37	

* $p < .05$, ** $p < .01$, *** $p < .001$.

Table 5. Means for Respondents' Perceptions of Neighborhood Social Cohesion, Fear of Crime, and Job Approval of Local Police in the Mail and RDD Surveys

	Area SE			Area NE			Area W			Area NW		
	Mail	RDD	Sig.	Mail	RDD	Sig.	Mail	RDD	Sig.	Mail	RDD	Sig.
Social cohesion in the neighborhood (1-5)	3.00	3.24	**	3.04	3.46	***	3.47	3.52		3.48	3.46	
Fear of crime in the neighborhood (1-4)	2.94	2.63	***	2.75	2.51	**	2.33	2.17	**	2.38	2.19	**
Opinion of how well local police do their job (1-5)	2.93	3.44	***	3.05	3.53	***	3.22	3.57	***	3.43	3.66	**

* $p < .05$, ** $p < .01$, *** $p < .001$.

Controlling for Self

In the last phase for the respondent experiences can reduce response bias-vulnerability eliminates the mode difference, attitude, differentially. Conversely, response the mode difference related to the demographic mind that all possible reason that if select differences, this role demographic and ex-

The dummy variable of the three attitude demographic variables and the experiential samples. These regression social cohesion and attitude toward the police

Table 6 displays from regressing survey then after we controlled, Hispanic origin, neighborhood in SE and significant in each area. Row 1 of demographics has little survey mode and social 2 and 3 show that the toward the police and graphic variables. Do explain the difference

Similar sets of respondent variables that standardized beta coefficients for police visibility, revictimization experiential variables in mode and social cohesion estimate), but not in controls effectively eliminated four areas, leaving c

Controlling for Self-selection Differences

In the last phase of our analyses, we tested whether controlling for the respondents' demographic characteristics and past experiences can reduce or eliminate the differences by mode in the response bias-vulnerable items. If controlling for these variables eliminates the mode differences found for social cohesion, fear, and attitude, differential selection may satisfactorily explain them. Conversely, response bias may be the more plausible explanation if the mode differences for social cohesion, fear, and attitude are unrelated to the demographic and experiential variables. Bearing in mind that all possible selection influences were not measured, we reason that if selection played a significant role in causing the mode differences, this role would be evident in the test of these central demographic and experiential variables.

The dummy variable survey mode (0,1) was regressed on each of the three attitude variables before and after we controlled for the demographic variables that differed between the achieved samples and the experiential variables that differed between the achieved samples. These regression analyses were run within two areas for social cohesion and within each of the four areas for fear and attitude toward the police.

Table 6 displays the standardized beta coefficients that result from regressing survey mode on social cohesion scores before and then after we controlled for the demographic variables age, education, Hispanic origin, non-Hispanic white, and tenure in the neighborhood in SE and NE. As expected, these coefficients were significant in each area before the demographic variables were controlled. Row 1 of Table 6 shows that controlling for the demographics has little or no impact on the relationship between survey mode and social cohesion in these analyses. Similarly, Rows 2 and 3 show that the effects of mode on fear of crime and attitude toward the police are not reduced by controlling for the demographic variables. Demographic differences between modes do not explain the differences in attitudes that we found.

Similar sets of regression analyses were repeated for the experiential variables that differed by mode. Table 7 presents the standardized beta coefficients estimated before and after we controlled for police visibility, recognizing local officers, calls to the police, and victimization experiences in the past year. Controlling for these experiential variables reduced the estimate of the association between mode and social cohesion in one area, SE (leaving a nonsignificant estimate), but not in the other, NE. In Row 2 of the table, the controls effectively eliminated the effect of mode on fear of crime in all four areas, leaving only nonsignificant coefficients. In Row 3, the

	Area SE			Area NE			Area W			Area NW		
	Mail	RDD	Sig.	Mail	RDD	Sig.	Mail	RDD	Sig.	Mail	RDD	Sig.
Social cohesion in the neighborhood (1-5)	3.00	3.24	**	3.04	3.46	***	3.47	3.52		3.48	3.46	
Fear of crime in the neighborhood (1-4)	2.94	2.63	***	2.75	2.51	**	2.33	2.17	**	2.38	2.19	**
Opinion of how well local police do their job (1-5)	2.93	3.44	***	3.05	3.53	***	3.22	3.57	***	3.43	3.66	**

* $p < .05$, ** $p < .01$, *** $p < .001$.

Table 6. Standardized Beta Coefficients for the Effect of Mode of Survey Administration on Attitudes Before and After Demographics Were Controlled

	Area SE (n = 341)		Area NE (n = 373)		Area W (n = 411)		Area NW (n = 389)	
	β Before	β After ^a	β Before	β After ^a	β Before	β After ^a	β Before	β After ^a
Mode regressed on social cohesion	.147**	.180**	.280***	.301***	NA ^b	NA ^b	NA ^b	NA ^b
Mode regressed on fear of crime	-.201***	-.201***	-.156**	-.178***	-.129**	-.126**	-.137**	-.133**
Mode regressed on opinion of local police	.269***	.297***	.304***	.310***	.215***	.208***	.138**	.141**

^a Coefficient for mode after controlling for age, education, household income, tenure in the neighborhood, gender, Hispanic origin, and other white; * p < .05, ** p < .01, *** p < .001.

^b In these cells, there is no significant difference between mail and phone responses to test with the before-after procedure.

Table 7. Standardized Coefficients Showing the Effect of Mode of Survey Administration on Attitudes Before and After Experiences Were Controlled

	Area SE (n = 341)		Area NE (n = 373)		Area W (n = 411)		Area NW (n = 389)	
	β Before	β After ^a	β Before	β After ^a	β Before	β After ^a	β Before	β After ^a
Mode regressed on social cohesion	.147**	.093	.280***	.239***	NA ^b	NA ^b	NA ^b	NA ^b
Mode regressed on fear of crime	-.201***	-.084	-.156**	-.020	-.129**	-.087	-.137**	-.076
Mode regressed on opinion of local police	.269***	.122**	.304***	.166***	.215***	.158**	.138**	.063

^a Coefficient for mode after controlling for police visibility, recognize local officers, calls to 911 and the station, total victimization; * p < .05, ** p < .01, *** p < .001.

^b In these cells, there is no significant difference between mail and phone responses to test with the before-after procedure.

controls reduced by relationships between areas (SE, NE, and experiences with effects of mode on all a differential selection, rather than

Presumptive Evidence

Significant differences remained despite the inevitably imperfect in experience could ability in measurement. So one reason why controlling for measurement effect statistical context bias that is due to social context of phone

In past research, particularly vulnerable to concerns aroused by telephone interviews. In with the police department aroused concerns are police. Despite our emphasis and our assumption performance of local bly the most sensitive of confidentiality than by mail could be familiar with the police survey and why they express negative opinions served that the rate across the four areas less than half the rate 3.43). The restricted consistent with a response the views they expressed

	β Before	β After ^a	β Before	β After ^a	β Before	β After ^a	β Before	β After ^a
Mode regressed on social cohesion	.147**	.093	.280***	.239***	NA ^b	NA ^b	NA ^b	NA ^b
Mode regressed on fear of crime	-.201***	-.084	-.156**	-.020	-.129**	-.137**	-.076	-.076
Mode regressed on opinion of local police	.269***	.122*	.304***	.166***	.215***	.138**	.063	.063

^a Coefficient for mode after controlling for police visibility, recognize local officers, calls to 911 and the station, total victimization; * $p < .05$, ** $p < .01$, *** $p < .001$.

^b In these cells, there is no significant difference between mail and phone responses to test with the before-after procedure.

controls reduced but did not eliminate statistically significant relationships between mode and attitude toward the police in three areas (SE, NE, and W). These results imply that differences in experiences with crime and the police clearly contribute to the effects of mode on all three attitudinal variables, which is support for a differential selection bias explanation rooted in different experiences, rather than in different demographic characteristics.

DISCUSSION

Presumptive Evidence of Response Bias

Significant differences by mode on attitudes toward the police remained despite controls for selection bias. Statistical controls are inevitably imperfect, meaning that additional important differences in experience could remain unmeasured and less-than-perfect reliability in measurement leads to underadjustment (Reichardt, 1979). So one reason why significant differences by mode persist after controlling for measured demographics and past experiences is imperfect statistical controls. Conversely, other forces, such as response bias that is due to self-presentational concerns arising from the social context of phone interviewing, may also be at work.

In past research, phone-survey respondents have been particularly vulnerable to response bias rooted in self-presentational concerns aroused by sensitive questions asked in the social context of phone interviews. In hindsight, our openness about a partnership with the police department in undertaking this survey may have aroused concerns among the respondents about feedback to the police. Despite our emphasis on the neutrality of university sponsorship and our assurances of confidentiality, evaluating the job performance of local police and reporting it back to them was arguably the most sensitive issue in the survey. Findings that assurances of confidentiality are less readily accepted over the phone than by mail could explain why the respondents who were more familiar with the police were more likely to cooperate with the phone survey and why the phone respondents may have felt less free to express negative opinions about the police over the phone. We observed that the range of means on the opinions-of-police scale across the four areas in the phone survey sample (3.44 to 3.66) is less than half the range between means in the mail survey (2.93 to 3.43). The restricted range of opinions in the phone sample is consistent with a response bias interpretation, since people moderate the views they express on the phone. Hence, response bias is also a

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administered versus personal interview. We argue that the differential biases found here are inherent in mail and RDD phone community surveys that focus on crime and policing as commonly conducted. Whether they arise from the survey mode per se (i.e., self-administered versus personal phone interview) or from the other procedures that vary between a mail and RDD phone survey (e.g., multiple contacts by mail with incentives to complete as many as possible from a randomly sampled list versus multiple attempts by phone to reach as many randomly chosen phone numbers as it takes to reach a target number of completions) cannot be differentiated. We contend, however, that these two approaches are commonly applied in the context of community surveys about policing issues, and their use provokes biases that differentially affect the validity of the results. Our purpose is to describe the nature and origin of the biases that can be expected. We think this is crucial information for practitioners and researchers alike.

Implications for Community Surveys

What general conclusions can be drawn from our findings to inform future community surveys on the police, crime, and safety issues? The inclusion of four communities in this survey population permits some speculation about the replicability of findings, but the location of this research in just one urban area, within just one police department, is an obvious limitation. We note that the differences by mode surfaced most distinctly in the lower-income, high-minority, high-violence communities. Survey researchers face formidable challenges in adequately capturing the perspectives of residents in such communities, yet these areas are often the most in need of better police services and more well-informed police/community partnerships. In our study, mail response rates and phone cooperation rates were about the same in these areas, but low. Evidence of both selection bias and possible response bias was the highest here.

We conclude that mail surveys represent a clear alternative to phone surveys and have the advantage of minimizing response bias on sensitive items among socially disadvantaged populations. In these areas, the challenge of achieving response rates that are high enough to minimize nonresponse bias is significant and deserves special attention. These areas may benefit from parallel surveys or hybrid models that use both survey modes. The results of a mail survey may be better at representing residents who have experienced crime and used police services, while the results of a phone survey may be better at representing residents with more frequent informal experiences with the police. Each is an important subset of

the population. The results of the two survey modes could be used to bracket the true prevalence of fear and opinions in the population.

Efforts to reduce the potential for response bias are equally important. Procedures that emphasize a neutral purpose of the surveys and successfully convey that the source of the information will be protected are critical for both modes but are especially difficult to achieve in phone surveys. In the past few years, the National Household Survey of Drug Abuse (Substance Abuse and Mental Health Services Administration, 2001) has used a hybrid survey model, taking advantage of personal contact to gain cooperation and give assurances of privacy and then relying on a self-administered format (the interviewer hands the respondent a laptop) for sensitive questions to discourage response bias.

The choice of survey mode in socially more advantaged areas raises different concerns. Response rates were higher (65%) using mail surveys in both higher-income areas. These levels are comparable to the levels typically found in mail surveys using Dillman's (1978, 1991) TDM approach. As a result, these surveys show less evidence that selection bias influenced the responses. Conversely, cooperation rates for the phone surveys in these areas were very low, hovering around 40%. The achieved phone samples apparently were affected by self-selection bias (the respondents reported high levels of seeing police officers on patrol), as well as by the possibility that response bias positively influenced opinions toward the police. These results suggest that carefully conducted mail surveys are likely to yield more accurate estimates of the level of attitudes, fears, and opinions in socially advantaged areas than are phone surveys.

Implications for Research and Policy

Community surveys have become increasingly popular as police departments attempt to institute community policing and problem policing strategies. We contend that researchers and departments that conduct surveys should carefully consider the mode when surveying. Depending on the levels and quality of contact experiences in a community, we argue that RDD phone community surveys on attitudes toward the police are likely to overestimate a population's true level of approval, whereas mail surveys are likely to underestimate it. This work underscores the importance of adopting rigorous procedures to minimize response and nonresponse bias, paying special attention to procedures and choices of wording, standardizing procedures, and instituting longitudinal surveys whenever possible.

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Although estimating the prevalence of certain experiences with, fears about, and attitudes toward crime and policing are of importance to agency managers, policy makers, and researchers alike, understanding the relationship among the important constructs and testing theories about these relationships is of particular import to researchers. The data presented here describe how biases can hinder valid inferences about prevalence—first-order functions. How do these biases influence the validity of inferences about relationships between constructs using higher-order functions? De Leeuw, Mellenbergh, and Hox (1996) examined this issue and cautioned that the mode of survey administration can affect the fit of structural equation models in mail and phone achieved samples from equivalent sampling frames. Minor differences in the strength of relationships can be expected with any replication of a model, even within the same population. However, bias added owing to the mode of survey administration may complicate the conclusions that are drawn by affecting the strength of observed relationships because of the restricted range of experiences as a result of self-selection or attitudes expressed as a result of self-presentational concerns. Researchers who model relationships in community survey data need to be aware of mode-related bias and the direction of likely impact on population estimates.

This article has presented evidence that mail surveys represent the community differently than do telephone surveys. However, more research is needed to examine the impact of various issues on the effects of mode. Different community contexts, including various histories of conflict between the police and community, sociodemographic characteristics, and other contextual elements, need to be examined to see their effect on outcomes. Mode effects may swing in different community contexts or if, as we propose, researchers use a hybrid model. Additional research needs to be conducted to determine the best ways to combine results from self-administered and personal interview approaches that allow a survey to represent more accurately the true range of opinions and perceptions about crime and police in America's communities.

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